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### What is "[Embedded - Microcontrollers](#)"?

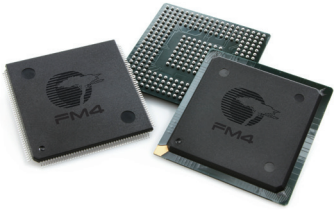
"[Embedded - Microcontrollers](#)" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

### Applications of "[Embedded - Microcontrollers](#)"

#### Details

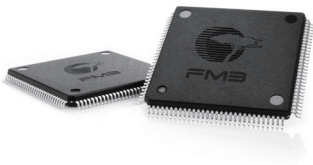
|                            |                                                                                                                                                                               |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Status             | Obsolete                                                                                                                                                                      |
| Core Processor             | F <sup>2</sup> MC-8FX                                                                                                                                                         |
| Core Size                  | 8-Bit                                                                                                                                                                         |
| Speed                      | 16MHz                                                                                                                                                                         |
| Connectivity               | I <sup>2</sup> C, LINbus, SIO, UART/USART                                                                                                                                     |
| Peripherals                | POR, PWM, WDT                                                                                                                                                                 |
| Number of I/O              | 20                                                                                                                                                                            |
| Program Memory Size        | 8KB (8K x 8)                                                                                                                                                                  |
| Program Memory Type        | FLASH                                                                                                                                                                         |
| EEPROM Size                | -                                                                                                                                                                             |
| RAM Size                   | 256 x 8                                                                                                                                                                       |
| Voltage - Supply (Vcc/Vdd) | 1.8V ~ 5.5V                                                                                                                                                                   |
| Data Converters            | A/D 6x8/12b                                                                                                                                                                   |
| Oscillator Type            | External                                                                                                                                                                      |
| Operating Temperature      | -40°C ~ 85°C (TA)                                                                                                                                                             |
| Mounting Type              | Surface Mount                                                                                                                                                                 |
| Package / Case             | 24-TSSOP (0.173", 4.40mm Width)                                                                                                                                               |
| Supplier Device Package    | 24-TSSOP                                                                                                                                                                      |
| Purchase URL               | <a href="https://www.e-xfl.com/product-detail/infineon-technologies/mb95f652lnpft-g-sne2">https://www.e-xfl.com/product-detail/infineon-technologies/mb95f652lnpft-g-sne2</a> |

## Consumer and Industrial MCU Family



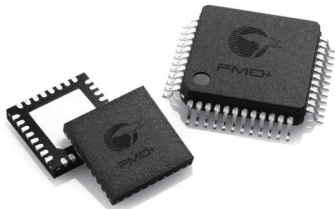
### FM4 FAMILY

Cypress ARM® Cortex®-M4F microcontroller family is a high range line providing maximum CPU frequency of 200MHz, a high speed flash memory with DSP and FPU hardware instructions. Customers can select the best fitting device from a range of products, coming in packages from 48 pin to 216 pin and flash memory densities between 256KB and 2MB. The wide operation supply voltage range up to 5.5V which improves the signal to noise ratio, results in a robust design and is unique among Cortex-M4F microcontroller families. The MCUs are designed for applications that require advanced, high-speed computing performance such as general-purpose inverters, servomotors, PLCs and other industrial equipment, as well as inverter-based home appliances such as washing machines and air conditioners.



### FM3 FAMILY

Cypress ARM Cortex-M3 microcontroller family is a scalable platform for many industrial applications. Customers can select the best fitting device from a range of products, coming in packages from 32 pin to 176 pin and flash memory densities between 32KB and 1MB. With a maximum CPU frequency of 144MHz and high speed flash memory, FM3 supports the fastest ARM Cortex-M3 devices on the market. The wide operation supply voltage range up to 5.5V, which improves the signal to noise ratio, results in a robust design and is quite unique among Cortex-M3 microcontroller families. The FM3 MCU family is split into four groups: high performance, basic, low power and ultra low leakage groups. The main differences between the groups are CPU operation frequency and supply voltage. All products are based on the same architecture (software compatible), use the same peripherals and are pin compatible in most cases. The ultra low leakage line products are based on an optimized low leakage process technology. Development tools and evaluation boards are offered from different vendors and Cypress.



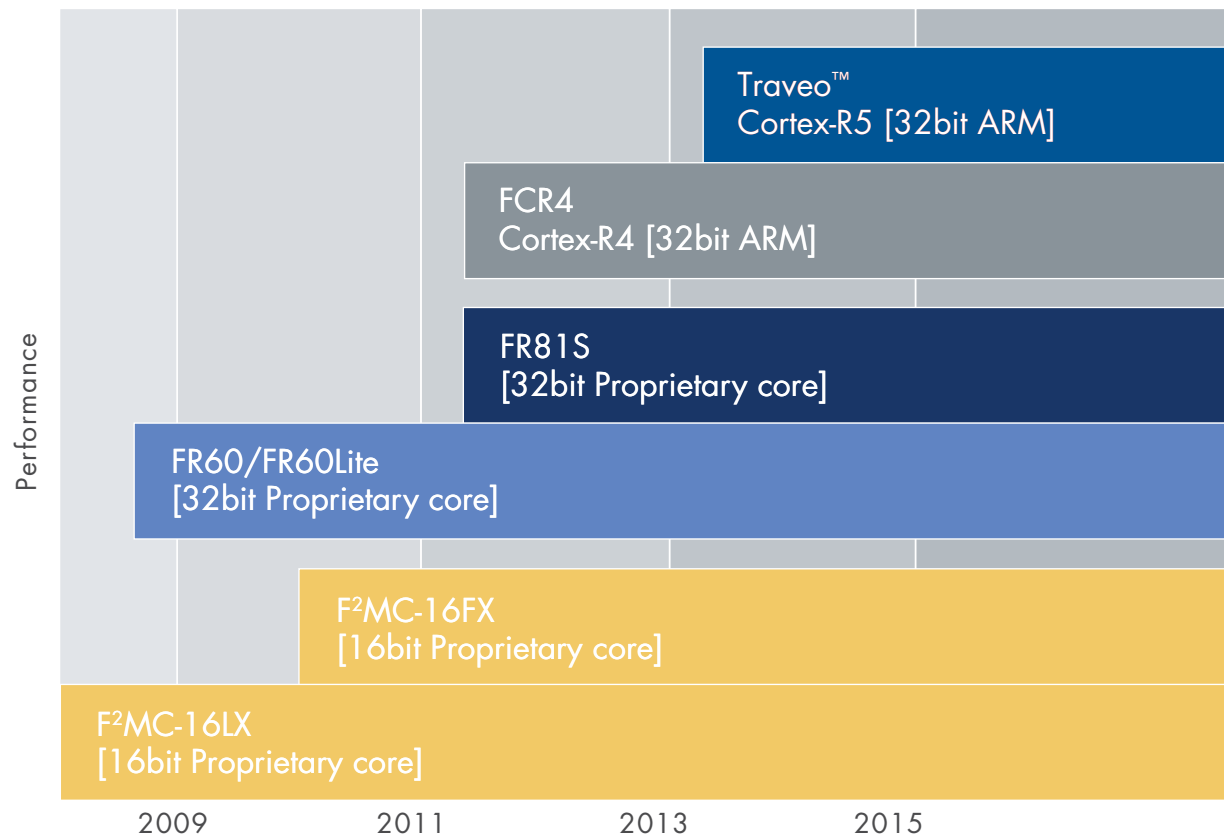
### FM0+ FAMILY

The Cypress FM0+ family, which is based on the ARM Cortex-M0+ core, is designed for low power and cost-sensitive applications such as white goods, sensors, meters, HMI systems, power tools and Internet of Things (IoT) battery powered or energy harvesting wearable devices. These microcontrollers can be easily embedded into systems adopting 8-, 16- or 32-bit MCUs, accelerating product development and reducing development costs. The FM0+ family includes two groups for ultra-low-power and cost-effective applications. The devices in the ultra-low-power group have an operating voltage range of 1.65V to 3.6V, and a maximum CPU clock frequency of 40MHz, a RUN mode current of 70  $\mu$ A/MHz, an RTC mode current of 0.7  $\mu$ A and wake-up time of approximately 40  $\mu$ s.

### 8FX FAMILY

Cypress 8FX MCU family is a high-performance 8-bit microcontroller utilizing a different embedded flash memory size. This series uses the F2MC-8FX CISC CPU, which offers industry leading class performance of an 8-bit microcontroller unit enabling more instructions to be executed per cycle. On top of delivering industry class performance MCUs, the 8FX family also delivers low power efficient MCU products for the customer's usage. This series also features a variety of on-chip timers, A/D converters, analog and digital peripheral and communication interfaces such as LIN-UART (Local Interconnect Network Universal Asynchronous Receiver-Transmitter), CAN (controller area network) and I2C (Inter-Integrated Circuit) interface for various application usages. For easy development, the 8FX family also employs a 1-line on-chip debug that uses only one pin on the microcontroller, thereby minimizing the number of pins used for debugging in product development. Cypress also provides easy to use and cost competitive development starter kits and development environments for this MCU series.

Automotive MCU Core Roadmap



## FM4 Family – 32bit Microcontrollers

| Series Name       | Product Name     | Maximum Internal Clock Frequency [MHz] | Package [pin]    | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch](unit) | 12bit AD Converter [ch](unit) | DA Converter [bit x ch] | Timer                                                                                                                                                    |                                                    |                    |                   |                                                             |                |                                         |                      | Serial            |                                                                                                  |                             | Communication |                   | Note | Evaluation Device |
|-------------------|------------------|----------------------------------------|------------------|----------------------------|-----------|------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|-------------------------------|-------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------|-------------------|-------------------------------------------------------------|----------------|-----------------------------------------|----------------------|-------------------|--------------------------------------------------------------------------------------------------|-----------------------------|---------------|-------------------|------|-------------------|
|                   |                  |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         | Output Compare [ch]                                                                                                                                      | Free-Run Timer [ch]                                | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch]                                              | PWC Timer [ch] | PPG Timer [ch]                          | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch]                                                                            | UART/SI [ch]                | SIO [ch]      | LIN/UART/SIO [ch] |      |                   |
| S6E2HG            | S6E2HG6E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K + 32K | 64K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | 2              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC                                       | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2HG6F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
|                   | S6E2HG6G0A       |                                        | LQFP-120 BGA-121 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 100           |                   |      |                   |
|                   | S6E2HG4E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 256K + 32K | 32K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC                                       | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2HG4F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
| S6E2HG4G0A        | LQFP-120 BGA-121 |                                        | 100              |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2HE            | S6E2HE6E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K + 32K | 64K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC                                       | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2HE6F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
|                   | S6E2HE6G0A       |                                        | LQFP-120 BGA-121 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 100           |                   |      |                   |
|                   | S6E2HE4E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 256K + 32K | 32K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC                                       | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2HE4F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
| S6E2HE4G0A        | LQFP-120 BGA-121 |                                        | 100              |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2H4            | S6E2H46E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K + 32K | 64K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | 2              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch                                            | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2H46F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
|                   | S6E2H46G0A       |                                        | LQFP-120 BGA-121 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 100           |                   |      |                   |
|                   | S6E2H44E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 256K + 32K | 32K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | 2              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch                                            | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2H44F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
| S6E2H44G0A        | LQFP-120 BGA-121 |                                        | 100              |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2H1            | S6E2H16E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K + 32K | 64K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch                                            | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2H16F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
|                   | S6E2H16G0A       |                                        | LQFP-120 BGA-121 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 100           |                   |      |                   |
|                   | S6E2H14E0A       | 160                                    | LQFP-80          | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 256K + 32K | 32K        | -             | 8         | 16                  | ✓            | 63                    | -                             | 16 (3)                        | -                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 3           | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch                                            | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2H14F0A       |                                        | LQFP-100         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 80            | 24 (3)            |      |                   |
| S6E2H14G0A        | LQFP-120 BGA-121 |                                        | 100              |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2GM w/security | S6E2GM8HHA       | 180                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash             | 1024K      | 192K       | -             | 8         | 32                  | ✓            | 121                   | -                             | 24 (3)                        | -                       | Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | -                 | Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable) | 1              | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH, SDC, Chipher | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2GM8JHA       |                                        | LQFP-176         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 153           | 32 (3)            |      |                   |
|                   | S6E2GM6HHA       |                                        | LQFP-144         |                            |           |                        | 121        | 24 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
|                   | S6E2GM6JHA       |                                        | LQFP-176         |                            |           |                        | 153        | 32 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2GM            | S6E2GM8H0A       | 180                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash             | 1024K      | 192K       | -             | 8         | 32                  | ✓            | 121                   | -                             | 24 (3)                        | -                       | Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | -                 | Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable) | 1              | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH, SDC          | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2GM8J0A       |                                        | LQFP-176         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 153           | 32 (3)            |      |                   |
|                   | S6E2GM6H0A       |                                        | LQFP-144         |                            |           |                        | 121        | 24 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
|                   | S6E2GM6J0A       |                                        | LQFP-176         |                            |           |                        | 153        | 32 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2GK w/security | S6E2GK8HHA       | 180                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash             | 1024K      | 192K       | -             | 8         | 32                  | ✓            | 121                   | -                             | 24 (3)                        | -                       | Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | -                 | Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable) | -              | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH, SDC, Chipher | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2GK8JHA       |                                        | LQFP-176         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 153           | 32 (3)            |      |                   |
|                   | S6E2GK6HHA       |                                        | LQFP-144         |                            |           |                        | 121        | 24 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
|                   | S6E2GK6JHA       |                                        | LQFP-176         |                            |           |                        | 153        | 32 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
| S6E2GK            | S6E2GK8H0A       | 180                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash             | 1024K      | 192K       | -             | 8         | 32                  | ✓            | 121                   | -                             | 24 (3)                        | -                       | Multi-Function Timer x2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 6ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | -                 | Multi Function Serial x 10ch (UART/CSIO/I2C/LIN Selectable) | -              | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC×256ch, Tiny I2S, Smart Card I/F, ETH, SDC          | On-Chip Debug (SWJ-DP/ ETM) |               |                   |      |                   |
|                   | S6E2GK8J0A       |                                        | LQFP-176         |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             | 153           | 32 (3)            |      |                   |
|                   | S6E2GK6H0A       |                                        | LQFP-144         |                            |           |                        | 121        | 24 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |
|                   | S6E2GK6J0A       |                                        | LQFP-176         |                            |           |                        | 153        | 32 (3)     |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                          |                                                    |                    |                   |                                                             |                |                                         |                      |                   |                                                                                                  |                             |               |                   |      |                   |

## FM4 Family – 32bit Microcontrollers

| Series Name        | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]    | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte]                                                                                                                                                   | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch] | Timer                                                                                                                                                              |                                                    |                    |                   |                                                             |                      |                                         |                      |                   | Serial                                                                                                                                                                              |                                 |          | Communication     |          |                                                                                                                                                                    | LCD Controller [seg x com]                         | Three-phase Inverter | Note | Evaluation Device                                           |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|--------------------|--------------|----------------------------------------|------------------|----------------------------|-----------|------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------|-------------------|-------------------------------------------------------------|----------------------|-----------------------------------------|----------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------|-------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------|------|-------------------------------------------------------------|----------------------|-----------------------------------------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|                    |              |                                        |                  |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         | Output Compare [ch]                                                                                                                                                | Free-Run Timer [ch]                                | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch]                                              | PWC Timer [ch]       | PPG Timer [ch]                          | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch]                                                                                                                                                               | UART/SI [ch]                    | SIO [ch] | LIN/UART/SIO [ch] | CAN [ch] | USB-Host [ch]                                                                                                                                                      |                                                    |                      |      |                                                             | USB-Function [ch]    |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2CC-V           | S6E2CCAJGA   | 200                                    | LQFP-176 BGA-192 | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K                                                                                                                                                         | -             | 8         | 32                  | ✓            | 152                   | -                            | 32 (3)                       | 12 x 2                  | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | 1                 | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 3 (2 x CAN + CAN FD) | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher, Voice | On-Chip Debug (SWJ-DP/ETM/ HTM) |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8JGA   |                                        | 1M               |                            |           |                        | 128K       | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Voice |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CCAJFA   |                                        | BGA-192          |                            |           |                        | 2M         |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   | 256K                                                                                                                                                                                |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8JFA   |                                        | 1M               |                            |           |                        | 128K       |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2CC w/ Security | S6E2CCAHHA   | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K                                                                                                                                                         | -             | 8         | 32                  | ✓            | 120                   | -                            | 24 (3)                       | 12 x 2                  | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | 1                 | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 3 (2 x CAN + CAN FD) | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher        | On-Chip Debug (SWJ-DP/ETM/ HTM) |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CAJHA    |                                        | LQFP-176 BGA-192 |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CCALHA   |                                        | LQFP-216         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 190                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9HHA   |                                        | LQFP-144         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 120                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9JHA   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1.5M       | 192K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9LHA   |                                        | LQFP-216         |                            |           |                        | 190        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8HHA   |                                        | LQFP-144         |                            |           |                        | 120        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8JHA   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2CC8LHA         | LQFP-216     | 190                                    |                  |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2CC             | S6E2CCAH0A   | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K                                                                                                                                                         | -             | 8         | 32                  | ✓            | 120                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 | -        | 24 (3)            | 12 x 2   | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4             | 1    | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 3 (2 x CAN + CAN FD) | 2ch (USB-Host/ USB-Function Selectable) | - | ✓ | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch | On-Chip Debug (SWJ-DP/ETM/ HTM) |
|                    | S6E2CAJ0A    |                                        | LQFP-176 BGA-192 |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CCAL0A   |                                        | LQFP-216         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 190                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9H0A   |                                        | LQFP-144         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 120                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9J0A   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1.5M       | 196K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC9L0A   |                                        | LQFP-216         |                            |           |                        | 190        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8H0A   |                                        | LQFP-144         |                            |           |                        | 120        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2CC8J0A   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2CC8L0A         | LQFP-216     | 190                                    |                  |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
| S6E2C5             | S6E2C5AH0A   | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K                                                                                                                                                         | -             | 8         | 32                  | ✓            | 120                   | -                            | 24 (3)                       | 12 x 2                  | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | 1                 | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 3 (2 x CAN + CAN FD) | 2ch (USB-Host/ USB-Function Selectable) | -                    | ✓                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC                         | On-Chip Debug (SWJ-DP/ETM/ HTM) |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C5AJ0A   |                                        | LQFP-176 BGA-192 |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C5AL0A   |                                        | LQFP-216         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 190                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C59H0A   |                                        | LQFP-144         |                            |           |                        |            |                                                                                                                                                              |               |           |                     |              | 120                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C59J0A   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1.5M       | 192K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C59L0A   |                                        | LQFP-216         |                            |           |                        | 190        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C58H0A   |                                        | LQFP-144         |                            |           |                        | 120        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C58J0A   |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K                                                                                                                                                         |               |           |                     |              | 152                   |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |
|                    | S6E2C58L0A   |                                        | LQFP-216         |                            |           |                        | 190        |                                                                                                                                                              |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                    |                                                    |                    |                   |                                                             |                      |                                         |                      |                   |                                                                                                                                                                                     |                                 |          |                   |          |                                                                                                                                                                    |                                                    |                      |      |                                                             |                      |                                         |   |   |                                                                                                                                                                     |                                 |

## FM4 Family – 32bit Microcontrollers

| Series Name        | Product Name     | Maximum Internal Clock Frequency [MHz] | Package [pin]    | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAc [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch]                                                                                                                                            | Timer                                              |                     |                    |                                                             |                      |                                          |                | Serial               |                                                                                                                                                                              |                                 |              | Communication |                   |          | Note | Evaluation Device |
|--------------------|------------------|----------------------------------------|------------------|----------------------------|-----------|------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|--------------------|-------------------------------------------------------------|----------------------|------------------------------------------|----------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------|---------------|-------------------|----------|------|-------------------|
|                    |                  |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    | Output Compare [ch]                                | Free-Run Timer [ch] | Input Capture [ch] | Reload Timer [ch]                                           | PWM Timer [ch]       | PWC Timer [ch]                           | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch]                                                                                                                                                            | I <sup>2</sup> C [ch]           | UART/SI [ch] | SIO [ch]      | LIN/UART/SIO [ch] | CAN [ch] |      |                   |
| S6E2C4             | S6E2C4AH0A       | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | 24 (3)                       | 12 x 2                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4            | 1                  | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 3 (2 x CAN + CAN FD) | -                                        | -              | ✓                    | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC                  | On-Chip Debug (SWJ-DP/ETM/ HTM) |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | S6E2C4A9J0A      |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K       |               |           |                     |              | LQFP-176 BGA-192      |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C48H0A         | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C48J0A         | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C48L0A         | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C3             | S6E2C3AH0A       | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | 24 (3)                       | 12 x 2                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4            | 1                  | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -                    | 2ch (USB-/Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC                  | On-Chip Debug (SWJ-DP/ETM/ HTM) |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | S6E2C39J0A       |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K       |               |           |                     |              | LQFP-176 BGA-192      |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C38H0A         | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C38J0A         | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C38L0A         | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C2 w/ Security | S6E2C2AHHA       | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | 24 (3)                       | 12 x 2                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4            | 1                  | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -                    | 2ch (USB-/Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch, Chipher | On-Chip Debug (SWJ-DP/ETM/ HTM) |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | S6E2C29JHA       |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K       |               |           |                     |              | LQFP-176 BGA-192      |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28HHA         | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28JHA         | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28LHA         | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C2             | S6E2C2AH0A       | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | 24 (3)                       | 12 x 2                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4            | 1                  | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -                    | 2ch (USB-/Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Eth1ch          | On-Chip Debug (SWJ-DP/ETM/ HTM) |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | S6E2C29J0A       |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K       |               |           |                     |              | LQFP-176 BGA-192      |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28H0A         | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28J0A         | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C28L0A         | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C1             | S6E2C1AH0A       | 200                                    | LQFP-144         | 2.7 to 5.5                 | ✓         | Main Flash +Main Flash | 2M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | 24 (3)                       | 12 x 2                       | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4            | 1                  | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -                    | -                                        | -              | ✓                    | Dual Timer, Real Timer Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC                  | On-Chip Debug (SWJ-DP/ETM/ HTM) |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | S6E2C19J0A       |                                        | LQFP-176 BGA-192 |                            |           |                        | 1M         | 128K       |               |           |                     |              | LQFP-176 BGA-192      |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
|                    | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C18H0A         | LQFP-144         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C18J0A         | LQFP-176 BGA-192 |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |
| S6E2C18L0A         | LQFP-216         |                                        |                  |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                                    |                                                    |                     |                    |                                                             |                      |                                          |                |                      |                                                                                                                                                                              |                                 |              |               |                   |          |      |                   |

## FM4 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]            | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DAC Converter [bit x ch]                                                                                                                                   | Timer                                                                                                                                                              |                                                    |                    |                                                                         |                                                             |                                         |                |                      | Serial                                                                               |                                                                                                                                                                     |                                 |          | Communication     |          |               |                   | Three-phase Inverter | Note | Evaluation Device |
|-------------|--------------|----------------------------------------|--------------------------|----------------------------|-----------|------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------|----------------|----------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------|-------------------|----------|---------------|-------------------|----------------------|------|-------------------|
|             |              |                                        |                          |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            | Output Compare [ch]                                                                                                                                                | Free-Run Timer [ch]                                | Input Capture [ch] | Reload Timer [ch]                                                       | PWM Timer [ch]                                              | PWC Timer [ch]                          | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch]                                                                    | I <sup>2</sup> C [ch]                                                                                                                                               | UART/SI [ch]                    | SIO [ch] | LIN/UART/SIO [ch] | CAN [ch] | USB-Host [ch] | USB-Function [ch] |                      |      |                   |
| S6E2C1-E    | S6E2C10H2A   | 200                                    | LQFP-144                 | 2.7 to 5.5                 | ✓         | -                      | 0M         | 256K       | -             | 8         | 32                  | ✓            | 120                   | -                            | 152                          | 12 x 2                                                                                                                                                     | Multi-Function Timer x3units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable), PPG 9ch | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 4           | 1                                                                       | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -                                       | -              | -                    | ✓                                                                                    | Dual Timer, Real Time Clock, Unique ID, DSTC x 256ch, SDC, I2S 1ch(without 144pin), HDMI-CEC 2ch, High Speed Quad SPI x1(without 144pin), Programmable CRC, Chipper | On-Chip Debug (SWJ-DP/ETM/ HTM) |          |                   |          |               |                   |                      |      |                   |
|             | S6E2C10J2A   |                                        | LQFP-176 BGA-192         |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | S6E2C10L2A   |                                        | LQFP-216                 |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
| MB9B560R    | MB9BF566M    | 160                                    | LQFP-80                  | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K +32K  | 64K        | -             | 8         | 16                  | ✓            | 63                    | 16(3)                        | 12 x 2                       | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)                                                                                                                  | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF566N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     | 80                              | 24(3)    |                   |          |               |                   |                      |      |                   |
|             | MB9BF566R    |                                        | LQFP-120 BGA-144         |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     | 100                             | 16(3)    |                   |          |               |                   |                      |      |                   |
|             | MB9BF567M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF567N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF567R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF568M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF568N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF568R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
| MB9B460R    | MB9BF466M    | 160                                    | LQFP-80                  | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K +32K  | 64K        | -             | 8         | 16                  | ✓            | 63                    | 16(3)                        | 12 x 2                       | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)                                                                                                                  | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | -                                       | -              | -                    | ✓                                                                                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F                                                                                | On-chip Debug (SWJ-DP/ETM)      |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF466N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 | 80       | 24(3)             |          |               |                   |                      |      |                   |
|             | MB9BF466R    |                                        | LQFP-120 BGA-144         |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 | 100      | 16(3)             |          |               |                   |                      |      |                   |
|             | MB9BF467M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | -                                       | -              | -                    | ✓                                                                                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F                                                                                | On-chip Debug (SWJ-DP/ETM)      |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF467N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF467R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF468M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)              | 2                                                           | -                                       | -              | -                    | ✓                                                                                    | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, DSTC x 128ch, Unique ID, SD Card I/F                                                                                | On-chip Debug (SWJ-DP/ETM)      |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF468N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF468R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
| MB9B360R    | MB9BF366M    | 160                                    | LQFP-80                  | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 512K +32K  | 64K        | -             | 8         | 16                  | ✓            | 63                    | 16(3)                        | 12 x 2                       | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)                                                                                                                  | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I <sup>2</sup> C/LIN Selectable) | -                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Time Clock, Unique ID, SD Card I/F                                  | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF366N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     | 80                              | 24(3)    |                   |          |               |                   |                      |      |                   |
|             | MB9BF366R    |                                        | LQFP-120 BGA-144         |                            |           |                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     | 100                             | 16(3)    |                   |          |               |                   |                      |      |                   |
|             | MB9BF367M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I <sup>2</sup> C/LIN Selectable) | -                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Time Clock, Unique ID, SD Card I/F                                  | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF367N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF367R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF368M    |                                        | LQFP-80                  |                            |           |                        | 63         | 16(3)      |               |           |                     |              | 80                    | 24(3)                        |                              |                                                                                                                                                            | 100                                                                                                                                                                | QPRC x 2                                           | 1                  | Multi Function Serial x 8ch (UART/CSIO/I <sup>2</sup> C/LIN Selectable) | -                                                           | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Real Time Clock, Unique ID, SD Card I/F                                  | On-chip Debug (SWJ-DP/ETM)                                                                                                                                          |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF368N    |                                        | LQFP-100 QFP-100 BGA-112 |                            |           |                        | 63         | 16(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |
|             | MB9BF368R    |                                        | LQFP-120 BGA-144         |                            |           |                        | 100        | 24(3)      |               |           |                     |              |                       |                              |                              |                                                                                                                                                            |                                                                                                                                                                    |                                                    |                    |                                                                         |                                                             |                                         |                |                      |                                                                                      |                                                                                                                                                                     |                                 |          |                   |          |               |                   |                      |      |                   |

## FM4 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]  | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch(unit)] | 12bit AD Converter [ch(unit)] | DA Converter [bit x ch] | Timer                                                                                                                                                     |                                                   |                    |                   |                                                            |                |                |                      | Serial            |                       |                                                                         |                        | Communication     |          |               | LCD Controller [seg x com] | Three-phase Inverter | Note | Evaluation Device |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
|-------------|--------------|----------------------------------------|----------------|----------------------------|-----------|------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|-------------------------------|-------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------|-------------------|------------------------------------------------------------|----------------|----------------|----------------------|-------------------|-----------------------|-------------------------------------------------------------------------|------------------------|-------------------|----------|---------------|----------------------------|----------------------|------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------|---|------------------------------------------------------------|---|---|---|---|---|-------------------------------------------------------------------------|------------------------|
|             |              |                                        |                |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         | Output Compare [ch]                                                                                                                                       | Free-Run Timer [ch]                               | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch]                                             | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch] | UART/SI [ch]                                                            | SIO [ch]               | LIN/UART/SIO [ch] | CAN [ch] | USB-Host [ch] |                            |                      |      |                   | USB-Function [ch]                                                                                                                                         |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
| MB9B460L    | MB9BF464K    | 160                                    | LQFP-48 QFN-48 | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 256K +32K  | 32K        | -             | 8         | -                   | -            | -                     | -                             | 12 x 2                        |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1           | 1                 | Multi Function Serial x 6ch (UART/CSIO/I2C/LIN Selectable) | 1              | -              | -                    | -                 | ✓                     | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch | On-chip Debug (SWJ-DP) |                   |          |               |                            |                      |      |                   |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
|             | MB9BF464L    |                                        | LQFP-64 QFN-64 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                                         |                        |                   |          |               |                            |                      |      |                   |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
|             | MB9BF465K    |                                        | LQFP-48 QFN-48 |                            |           |                        | 384K +32K  | 48K        |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                                         |                        | -                 | 8        | -             | -                          | -                    | -    | 12 x 2            | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1 | 1 | Multi Function Serial x 6ch (UART/CSIO/I2C/LIN Selectable) | 1 | - | - | - | ✓ | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch | On-chip Debug (SWJ-DP) |
|             | MB9BF465L    |                                        | LQFP-64 QFN-64 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                                         |                        |                   |          |               |                            |                      |      |                   |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
|             | MB9BF466K    |                                        | LQFP-48 QFN-48 |                            |           |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                                         |                        |                   |          |               |                            |                      |      |                   |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |
|             | MB9BF466L    |                                        | LQFP-64 QFN-64 |                            |           |                        | 512K +32K  | 64K        |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                                         |                        |                   |          |               |                            |                      |      |                   |                                                                                                                                                           |                                                   |          |   |                                                            |   |   |   |   |   |                                                                         |                        |

## FM4 Family – 32bit Microcontrollers

| Series Name | Product Name   | Maximum Internal Clock Frequency [MHz] | Package [pin]  | Operating Voltage: VCC [V] | Sub Clock                                                                                                                                                  | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch(unit)] | 12bit AD Converter [ch(unit)] | DA Converter [bit x ch] | Timer                                                                                                                                                     |                                                   |                    |                   |                                                            |                |                |                      | Serial            |                       |                                                      | Communication          |                   |                                                                                                                                                            | LCD Controller [seg x com]                                                                                                                                | Three-phase Inverter                                                                                                                                       | Note | Evaluation Device |
|-------------|----------------|----------------------------------------|----------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|-------------------------------|-------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------|-------------------|------------------------------------------------------------|----------------|----------------|----------------------|-------------------|-----------------------|------------------------------------------------------|------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------|
|             |                |                                        |                |                            |                                                                                                                                                            |                        |            |            |               |           |                     |              |                       |                               |                               |                         | Output Compare [ch]                                                                                                                                       | Free-Run Timer [ch]                               | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch]                                             | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch] | UART/SI [ch]                                         | SIO [ch]               | LIN/UART/SIO [ch] | CAN [ch]                                                                                                                                                   |                                                                                                                                                           |                                                                                                                                                            |      |                   |
| MB9B160L    | MB9BF164K      | 160                                    | LQFP-48 QFN-48 | 2.7 to 5.5                 | ✓                                                                                                                                                          | Main Flash +Work Flash | 256K +32K  | 32K        | -             | 8         | -                   | -            | -                     | -                             | 12 x 2                        | 12                      | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1           | 1                 | Multi Function Serial x 6ch (UART/CSIO/I2C/LIN Selectable) | -              | -              | -                    | -                 | ✓                     | Dual Timer, Real Time Clock, Unique ID, DSTC x 128ch | On-chip Debug (SWJ-DP) |                   |                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                                            |      |                   |
|             |                |                                        |                |                            |                                                                                                                                                            |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        |                   |                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                                            |      |                   |
|             | MB9BF164L      |                                        | LQFP-64 QFN-64 |                            |                                                                                                                                                            |                        | 16         | 48         |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        | 15(2)             | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) |                                                                                                                                                           |                                                                                                                                                            |      |                   |
|             | MB9BF165K      |                                        | LQFP-48 QFN-48 |                            |                                                                                                                                                            |                        | 15         | 33         |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        | 8(2)              |                                                                                                                                                            | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) |                                                                                                                                                            |      |                   |
|             | MB9BF165L      |                                        | LQFP-64 QFN-64 |                            |                                                                                                                                                            |                        | 16         | 48         |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        | 15(2)             |                                                                                                                                                            |                                                                                                                                                           | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) |      |                   |
|             | MB9BF166K      |                                        | LQFP-48 QFN-48 |                            |                                                                                                                                                            |                        | 15         | 33         |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        | 8(2)              |                                                                                                                                                            | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) |                                                                                                                                                            |      |                   |
| MB9BF166L   | LQFP-64 QFN-64 | 16                                     | 48             | 15(2)                      | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 6ch Selectable) |                        |            |            |               |           |                     |              |                       |                               |                               |                         |                                                                                                                                                           |                                                   |                    |                   |                                                            |                |                |                      |                   |                       |                                                      |                        |                   |                                                                                                                                                            |                                                                                                                                                           |                                                                                                                                                            |      |                   |

# FM3 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]    | Operating Voltage: VCC [V] | Sub Clock | Memory Type                            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch]                                                                                                                                   | Timer                                                                                                                                                    |                                                    |                    |                                                             |                                                            |                                         |                |                      | Serial                                                                                           |                                        |                                                                                                  |                                                            | Communication                                              |                                                            |                                                            | Note  | Evaluation Device |                                                            |                                                            |                      |                                                            |
|-------------|--------------|----------------------------------------|------------------|----------------------------|-----------|----------------------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------|-------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------|----------------|----------------------|--------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-------|-------------------|------------------------------------------------------------|------------------------------------------------------------|----------------------|------------------------------------------------------------|
|             |              |                                        |                  |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           | Output Compare [ch]                                                                                                                                      | Free-Run Timer [ch]                                | Input Capture [ch] | Reload Timer [ch]                                           | PWM Timer [ch]                                             | PWC Timer [ch]                          | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch]                                                                                | I <sup>2</sup> C [ch]                  | UART/SI [ch]                                                                                     | SIO [ch]                                                   | LIU/ART/SIO [ch]                                           | CAN [ch]                                                   | USB-Host [ch]                                              |       |                   | USB-Function [ch]                                          | LCD Controller [seg x com]                                 | Three-phase Inverter |                                                            |
| BASIC GROUP |              |                                        |                  |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
| MB9B320M    | MB9BF321K    | 72                                     | LQFP-48 QFN-48   | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 64K +32K   | 16K        | -             | 8         | -                   | 14           | 35                    | 14(2)                        | 10bit x 2                    | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)                                                                                                        | 1                                                  | QPRC x 1           | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)  | -                                                          | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | Dual Timer, Unique ID, Real Time Clock                                                           | On-chip Debug (SWJ-DP)                 |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF321L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | QPRC x 2           |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable)                                       |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF321M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | QPRC x 1           |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)                                       |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF322K    |                                        | LQFP-48 QFN-48   |                            |           |                                        | 128K +32K  | 32K        |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | 14                 | 35                                                          |                                                            |                                         |                |                      |                                                                                                  |                                        | 14(2)                                                                                            | QPRC x 1                                                   | QPRC x 2                                                   | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF322L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            | QPRC x 2                                                   | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF322M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            | QPRC x 1                                                   | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF324K    |                                        | LQFP-48 QFN-48   |                            |           |                                        | 256K +32K  | 19         |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | 50                 | 23(2)                                                       |                                                            |                                         |                |                      |                                                                                                  |                                        | QPRC x 1                                                                                         | QPRC x 2                                                   | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF324L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            | 23                                                         | 65                                                         | 26(2) | QPRC x 2          | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |                                                            |                      |                                                            |
|             | MB9BF324M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
| MB9B120M    | MB9BF121K    | 72                                     | LQFP-48 QFN-48   | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 64K +32K   | 16K        | -             | 8         | -                   | 14           | 35                    | 14(2)                        | 10bit x 2                    | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)                                                                                                        | 1                                                  | QPRC x 1           | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)  | -                                                          | -                                       | -              | -                    | ✓                                                                                                | Dual Timer, Unique ID, Real Time Clock | On-chip Debug (SWJ-DP)                                                                           |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF121L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | QPRC x 2           |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF121M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | QPRC x 1           |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF122K    |                                        | LQFP-48 QFN-48   |                            |           |                                        | 128K +32K  | 32K        |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | 14                 | 35                                                          |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  | 14(2)                                                      | QPRC x 1                                                   | QPRC x 2                                                   | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF122L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            | 23    | 65                | 26(2)                                                      | QPRC x 1                                                   | QPRC x 2             | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) |
|             | MB9BF122M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF124K    |                                        | LQFP-48 QFN-48   |                            |           |                                        | 23         | 65         |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    | 26(2)              | QPRC x 1                                                    |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  | QPRC x 2                                                   | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF124L    |                                        | LQFP-64 QFN-64   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            | 23                                                         | 65                                                         | 26(2) | QPRC x 1          | QPRC x 2                                                   | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |                      |                                                            |
|             | MB9BF124M    |                                        | LQFP-80 BGA-96   |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
| MB9B120J    | MB9BF121J    | 72                                     | LQFP-32 QFN-32   | 2.7 to 5.5                 | ✓         | FLASH                                  | 64K        | 8K         | -             | 4         | 7                   | -            | 23                    | -                            | 8(1)                         | -                                                                                                                                                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | QPRC x 1           | 1                                                           | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) | -                                       | -              | -                    | -                                                                                                | ✓                                      | Dual Timer, Real Time Clock, Unique ID                                                           | On-chip Debug (SW-DP)                                      |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
| MB9B520T    | MB9BF528S*   | 60                                     | LQFP-144         | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 1M +64K    | 160K       | -             | 8         | 32                  | ✓            | 122                   | -                            | 24(2)                        | 10bit x 2                                                                                                                                                 | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1           | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 1                                                          | 1ch (USB-Host/ USB-Function Selectable) | -              | ✓                    | CAN: 32Msg-buffer, Dual Timer, HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID | On-chip Debug (SWJ-DP/ETM)             |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF528T*   |                                        | LQFP-176 BGA-192 |                            |           |                                        | QPRC x 2   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF529S*   |                                        | LQFP-144         |                            |           |                                        | QPRC x 1   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF529T*   |                                        | LQFP-176 BGA-192 |                            |           |                                        | QPRC x 2   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
| MB9B420T    | MB9BF428S*   | 60                                     | LQFP-144         | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 1M +64K    | 160K       | -             | 8         | 32                  | ✓            | 122                   | -                            | 24(2)                        | 10bit x 2                                                                                                                                                 | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1           | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | 1                                                          | 1                                       | -              | -                    | -                                                                                                | ✓                                      | CAN: 32Msg-buffer, Dual Timer, HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID | On-chip Debug (SWJ-DP/ETM)                                 |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF428T*   |                                        | LQFP-176 BGA-192 |                            |           |                                        | QPRC x 2   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF429S*   |                                        | LQFP-144         |                            |           |                                        | QPRC x 1   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |
|             | MB9BF429T*   |                                        | LQFP-176 BGA-192 |                            |           |                                        | QPRC x 2   |            |               |           |                     |              |                       |                              |                              |                                                                                                                                                           |                                                                                                                                                          |                                                    |                    |                                                             |                                                            |                                         |                |                      |                                                                                                  |                                        |                                                                                                  |                                                            |                                                            |                                                            |                                                            |       |                   |                                                            |                                                            |                      |                                                            |

## FM3 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]                | Operating Voltage: VCC [V] | Sub Clock | Memory Type                            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch] | Timer                                                                                                                                                    |                                                    |                                              |                   |                                                             |                |                                         |                      | Serial            |                       |                                                                               |                                                                               | Communication              |          |               | LCD Controller [seg x com] | Three-phase Inverter | Note | Evaluation Device |
|-------------|--------------|----------------------------------------|------------------------------|----------------------------|-----------|----------------------------------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------|-------------------|-------------------------------------------------------------|----------------|-----------------------------------------|----------------------|-------------------|-----------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------|----------|---------------|----------------------------|----------------------|------|-------------------|
|             |              |                                        |                              |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                         | Output Compare [ch]                                                                                                                                      | Free-Run Timer [ch]                                | Input Capture [ch]                           | Reload Timer [ch] | PWM Timer [ch]                                              | PWC Timer [ch] | PPG Timer [ch]                          | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch] | UART/SI [ch]                                                                  | SIO [ch]                                                                      | LIN/UART/SIO [ch]          | CAN [ch] | USB-Host [ch] |                            |                      |      |                   |
| BASIC GROUP |              |                                        |                              |                            |           |                                        |            |            |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
| MB9B320T    | MB9BF328S*   | 60                                     | LQFP-144                     | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 1M +64K    | 160K       | -             | 8         | 32                  | ✓            | -                     | 24(2)                        | 10bit x 2                    |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1<br>QPRC x 2<br>QPRC x 1<br>QPRC x 2 | 1                 | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -              | 1ch (USB-Host/ USB-Function Selectable) |                      | -                 | ✓                     | Dual Timer, HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID | On-chip Debug (SWJ-DP/ETM)                                                    |                            |          |               |                            |                      |      |                   |
|             | MB9BF328T*   |                                        | LQFP-176 BGA-192             |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
|             | MB9BF329S*   |                                        | LQFP-144                     |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
|             | MB9BF329T*   |                                        | LQFP-176 BGA-192             |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
| MB9B120T    | MB9BF128S*   | 60                                     | LQFP-144                     | 2.7 to 5.5                 | ✓         | Dual Op. Flash (Main area + Work area) | 1M +64K    | 160K       | -             | 8         | 32                  | ✓            | -                     | 24(2)                        | 10bit x 2                    |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 16ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1<br>QPRC x 2<br>QPRC x 1<br>QPRC x 2 | 1                 | Multi Function Serial x 16ch (UART/CSIO/I2C/LIN Selectable) | -              | -                                       | -                    | -                 | -                     | ✓                                                                             | Dual Timer, HDMI-CEC/Remote Control Reception x 2, Real Time Clock, Unique ID | On-chip Debug (SWJ-DP/ETM) |          |               |                            |                      |      |                   |
|             | MB9BF128T*   |                                        | LQFP-176 BGA-192             |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
|             | MB9BF129S*   |                                        | LQFP-144                     |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
|             | MB9BF129T*   |                                        | LQFP-176 BGA-192             |                            |           |                                        | 1.5M +64K  | 192K       |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
| MB9A420L    | MB9AF421K    | 40                                     | LQFP-48<br>LQFP-52<br>QFN-48 | 2.7 to 5.5                 | ✓         | FLASH                                  | 64K        | 4K         | -             | -         | 14                  | -            | -                     | 8(1)                         | 10bit x 1                    |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 3ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | -                                            | 1                 | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)  | 1              | -                                       | -                    | -                 | -                     | ✓                                                                             | CAN: 32Msg-buffer, Dual Timer, Real Time Clock, Unique ID                     | On-chip Debug (SWJ-DP)     |          |               |                            |                      |      |                   |
|             | MB9AF421L    |                                        | LQFP-64 QFN-64               |                            |           |                                        | 19         | 51         |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |
| MB9A120L    | MB9AF121K    | 40                                     | LQFP-48<br>LQFP-52<br>QFN-48 | 2.7 to 5.5                 | ✓         | FLASH                                  | 64K        | 4K         | -             | -         | 14                  | -            | -                     | 8(1)                         | 10bit x 1                    |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 3ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable)  | -                                            | 1                 | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable)  | -              | -                                       | -                    | -                 | -                     | ✓                                                                             | Dual Timer, Real Time Clock, Unique ID                                        | On-chip Debug (SWJ-DP)     |          |               |                            |                      |      |                   |
|             | MB9AF121L    |                                        | LQFP-64 QFN-64               |                            |           |                                        | 19         | 51         |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                          |                                                    |                                              |                   |                                                             |                |                                         |                      |                   |                       |                                                                               |                                                                               |                            |          |               |                            |                      |      |                   |

## FM3 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]              | Operating Voltage: VCC [V] | Sub Clock | Memory Type | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch(unit)] | 12bit AD Converter [ch(unit)] | DA Converter [bit x ch]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Timer               |                     |                    |                   |                |                |                |                                                   | Serial            |                       |                                                            | Communication |                   |          | LCD Controller [seg x com]              | Three-phase Inverter | Note | Evaluation Device |               |                            |
|-------------|--------------|----------------------------------------|----------------------------|----------------------------|-----------|-------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|-------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|--------------------|-------------------|----------------|----------------|----------------|---------------------------------------------------|-------------------|-----------------------|------------------------------------------------------------|---------------|-------------------|----------|-----------------------------------------|----------------------|------|-------------------|---------------|----------------------------|
|             |              |                                        |                            |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Output Compare [ch] | Free-Run Timer [ch] | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch] | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch]                              | Other timers [ch] | I <sup>2</sup> C [ch] | UART/SI [ch]                                               | SIO [ch]      | LIN/UART/SIO [ch] | CAN [ch] |                                         |                      |      |                   | USB-Host [ch] | USB-Function [ch]          |
| BASIC GROUP |              |                                        |                            |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               |                            |
| MB9A310A    | MB9AF311LA   | 40                                     | LQFP-64 QFN-64             | 2.7 to 5.5                 | ✓         | FLASH       |            | -          | 8             | -         | 51                  |              |                       | 9(2)                          | -                             | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)<br><br>Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                     |                     |                    |                   |                |                |                | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 2          | 1                     | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) |               |                   | -        | 1ch (USB-Host/ USB-Function Selectable) |                      | -    | ✓                 | Dual Timer    | On-chip Debug (SWJ-DP)     |
|             | MB9AF311MA   |                                        | LQFP-80                    |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |
|             | MB9AF311NA   |                                        | LQFP-100 QFP-100 BGA-112   |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |
|             | MB9AF312LA   |                                        | LQFP-64 QFN-64             |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP)     |
|             | MB9AF312MA   |                                        | LQFP-80                    |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               |                            |
|             | MB9AF312NA   |                                        | LQFP-100 QFP-100 BGA-112   |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |
|             | MB9AF314LA   |                                        | LQFP-64 QFN-64             |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP)     |
|             | MB9AF314MA   |                                        | LQFP-80                    |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               |                            |
|             | MB9AF314NA   |                                        | LQFP-100 QFP-100 BGA-112   |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |
|             | MB9AF315MA   |                                        | LQFP-80                    |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP)     |
|             | MB9AF315NA   |                                        | LQFP-100 QFP-100 BGA-112** |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |
|             | MB9AF316MA   |                                        | LQFP-80                    |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP)     |
|             | MB9AF316NA   |                                        | LQFP-100 QFP-100 BGA-112** |                            |           |             |            |            |               |           |                     |              |                       |                               |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |                    |                   |                |                |                |                                                   |                   |                       |                                                            |               |                   |          |                                         |                      |      |                   |               | On-chip Debug (SWJ-DP/ETM) |

## FM3 Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]              | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch]                                                                                                                                                | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch(unit)]                                                                                                                            | 12bit AD Converter [ch(unit)]                                                                                                                            | DA Converter [bit x ch] | Timer                                                                                                                                                     |                            |                        |                        |                |                                                   |                |                      | Serial                                                     |                       |                                         | Communication |                   |                             | LCD Controller [seg x com] | Three-phase Inverter       | Note | Evaluation Device |
|-------------|--------------|----------------------------------------|----------------------------|----------------------------|-----------|------------------------|------------|------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|------------------------|----------------|---------------------------------------------------|----------------|----------------------|------------------------------------------------------------|-----------------------|-----------------------------------------|---------------|-------------------|-----------------------------|----------------------------|----------------------------|------|-------------------|
|             |              |                                        |                            |                            |           |                        |            |            |               |                                                                                                                                                          |                     |              |                       |                                                                                                                                                          |                                                                                                                                                          |                         | Output Compare [ch]                                                                                                                                       | Free-Run Timer [ch]        | Input Capture [ch]     | Reload Timer [ch]      | PWM Timer [ch] | PWC Timer [ch]                                    | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch]                                          | I <sup>2</sup> C [ch] | UART/SI [ch]                            | SIO [ch]      | LIN/UART/SIO [ch] | CAN [ch]                    |                            |                            |      |                   |
| BASIC GROUP |              |                                        |                            |                            |           |                        |            |            |               |                                                                                                                                                          |                     |              |                       |                                                                                                                                                          |                                                                                                                                                          |                         |                                                                                                                                                           |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
| MB9A110A    | MB9AF111LA   | 40                                     | LQFP-64 QFN-64             | 2.7 to 5.5                 | ✓         | FLASH                  | 64K        | 16K        | -             | 8                                                                                                                                                        | 8                   | -            | 51                    | -                                                                                                                                                        | 9(2)                                                                                                                                                     | -                       | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)  |                            |                        |                        |                | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 2       | 1                    | Multi Function Serial x 8ch (UART/CSIO/I2C/LIN Selectable) | -                     | -                                       | -             | -                 | ✓                           | Dual Timer                 | On-chip Debug (SWJ-DP)     |      |                   |
|             | MB9AF111MA   |                                        | LQFP-80                    |                            |           |                        |            |            |               |                                                                                                                                                          | 11                  |              | 66                    |                                                                                                                                                          | 12(3)                                                                                                                                                    |                         | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            | On-chip Debug (SWJ-DP/ETM) |      |                   |
|             | MB9AF111NA   |                                        | LQFP-100 QFP-100 BGA-112   |                            |           |                        |            |            |               |                                                                                                                                                          | 16                  | ✓            | 83                    |                                                                                                                                                          | 16(3)                                                                                                                                                    |                         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)  |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            | On-chip Debug (SWJ-DP)     |      |                   |
|             | MB9AF112LA   | LQFP-64 QFN-64                         | 128K                       |                            |           |                        | 16K        | -          | 8             | 8                                                                                                                                                        | -                   | 51           | 9(2)                  | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                                                                                                                                                          |                         |                                                                                                                                                           |                            | On-chip Debug (SWJ-DP) |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF112MA   |                                        |                            |                            |           |                        |            |            |               | LQFP-80                                                                                                                                                  | 11                  |              |                       | 66                                                                                                                                                       | 12(3)                                                                                                                                                    |                         | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            | On-chip Debug (SWJ-DP)     |      |                   |
|             | MB9AF112NA   | LQFP-100 QFP-100 BGA-112               | 16                         |                            |           |                        | ✓          | 83         | 16(3)         | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                     |              |                       |                                                                                                                                                          | On-chip Debug (SWJ-DP/ETM)                                                                                                                               |                         |                                                                                                                                                           |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF114LA   | 40                                     | LQFP-64 QFN-64             |                            |           |                        | 256K       | 32K        | -             | 8                                                                                                                                                        | 8                   | -            | 51                    | 9(2)                                                                                                                                                     | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) |                         |                                                                                                                                                           |                            |                        | On-chip Debug (SWJ-DP) |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF114MA   |                                        | LQFP-80                    |                            |           |                        |            |            |               |                                                                                                                                                          | 11                  |              | 66                    |                                                                                                                                                          | 12(3)                                                                                                                                                    |                         | Multi-Function Timer x 2units (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable) | On-chip Debug (SWJ-DP/ETM) |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF114NA   |                                        | LQFP-100 QFP-100 BGA-112   |                            |           |                        |            |            |               |                                                                                                                                                          | 16                  |              | 83                    |                                                                                                                                                          | 16(3)                                                                                                                                                    |                         |                                                                                                                                                           | On-chip Debug (SWJ-DP)     |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF115MA   |                                        | LQFP-80                    |                            |           |                        |            |            |               |                                                                                                                                                          | 11                  |              | 66                    |                                                                                                                                                          | 12(3)                                                                                                                                                    |                         |                                                                                                                                                           | On-chip Debug (SWJ-DP)     |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF115NA   |                                        | LQFP-100 QFP-100 BGA-112** |                            |           |                        |            |            |               |                                                                                                                                                          | 16                  | ✓            | 83                    |                                                                                                                                                          | 16(3)                                                                                                                                                    |                         |                                                                                                                                                           | On-chip Debug (SWJ-DP/ETM) |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF116MA   |                                        | LQFP-80                    |                            |           |                        |            |            |               |                                                                                                                                                          | 11                  |              | 66                    |                                                                                                                                                          | 12(3)                                                                                                                                                    |                         |                                                                                                                                                           | On-chip Debug (SWJ-DP)     |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
|             | MB9AF116NA   |                                        | LQFP-100 QFP-100 BGA-112** |                            |           |                        |            |            |               |                                                                                                                                                          | 16                  |              | 83                    |                                                                                                                                                          | 16(3)                                                                                                                                                    |                         |                                                                                                                                                           | On-chip Debug (SWJ-DP/ETM) |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
| MB9A310K    | MB9AF311K    | 40                                     | LQFP-48 LQFP-52 QFN-48     | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 64K +32K   | 16K        | -             | 4                                                                                                                                                        | 6                   | -            | 36                    | -                                                                                                                                                        | 8(2)                                                                                                                                                     | -                       | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)  |                            |                        |                        |                | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1       | 1                    | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) | -                     | 1ch (USB-Host/ USB-Function Selectable) | -             | ✓                 | Dual Timer, Real Time Clock | On-chip Debug (SWJ-DP)     |                            |      |                   |
|             | MB9AF312K    |                                        | 128K +32K                  |                            |           |                        |            |            |               |                                                                                                                                                          |                     |              |                       |                                                                                                                                                          |                                                                                                                                                          |                         |                                                                                                                                                           |                            |                        |                        |                |                                                   |                |                      |                                                            |                       |                                         |               |                   |                             |                            |                            |      |                   |
| MB9A110K    | MB9AF111K    | 40                                     | LQFP-48 LQFP-52 QFN-48     | 2.7 to 5.5                 | ✓         | Main Flash +Work Flash | 64K+ 32K   | 16K        | -             | 4                                                                                                                                                        | 6                   | -            | 36                    | -                                                                                                                                                        | 8(2)                                                                                                                                                     | -                       | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)  |                            |                        |                        |                | Base Timer x 8ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1       | 1                    | Multi Function Serial x 4ch (UART/CSIO/I2C/LIN Selectable) | -                     | -                                       | -             | ✓                 | Dual Timer, Real Time Clock | On-chip Debug (SWJ-DP)     |                            |      |                   |

# FM0 + Family – 32bit Microcontrollers

| Series Name       | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]         | Operating Voltage: VCC [V] | Sub Clock | Memory Type            | ROM [byte] | RAM [byte]                      | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch] | Timer                                                                                                                                                          |                                                   |                    |                   |                                                                         |                |                                         |                                 | Serial            |                                                                                                            |                                       | Communication |                   |          | LCD Controller [seg x com] | Three-phase Inverter | Note | Evaluation Device |
|-------------------|--------------|----------------------------------------|-----------------------|----------------------------|-----------|------------------------|------------|---------------------------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------|-------------------|-------------------------------------------------------------------------|----------------|-----------------------------------------|---------------------------------|-------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------|-------------------|----------|----------------------------|----------------------|------|-------------------|
|                   |              |                                        |                       |                            |           |                        |            |                                 |               |           |                     |              |                       |                              |                              |                         | Output Compare [ch]                                                                                                                                            | Free-Run Timer [ch]                               | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch]                                                          | PWC Timer [ch] | PPG Timer [ch]                          | Up/Down Counter [ch]            | Other timers [ch] | I <sup>2</sup> C [ch]                                                                                      | UART/SI [ch]                          | SIO [ch]      | LIN/UART/SIO [ch] | CAN [ch] |                            |                      |      |                   |
| S6E1A             | S6E1A11B0A   | 40                                     | LQFP-32 QFN-32        | 2.7 to 5.5                 | ✓         | Flash                  | 56K        | 6K                              | -             | 2         | 8                   | -            | 23                    | -                            | 5(1)                         | -                       | Multi-Function Timer x 1unit (Free-Run 3ch/ Output Compare 6ch/ Input Capture 4ch/ PPG 3ch/ Waveform Generator 3ch/ AD Activation Compare 3ch Selectable)      | Base Timer x 4ch (Reload/PPG/PWM/ PWC Selectable) | QPRC x 1           | 1                 | Multi Function Serial x 3ch (UART/CSIO/I <sup>2</sup> C/LIN Selectable) | -              | -                                       | -                               | ✓                 | Dual Timer, Real Time Clock, Unique ID, Fast I/O                                                           | On-chip Debug (SW-DP/MTB)             |               |                   |          |                            |                      |      |                   |
|                   | S6E1A11C0A   |                                        | LQFP-48 QFN-48        |                            |           |                        | 37         |                                 |               |           |                     |              | 8(1)                  |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1A12B0A   |                                        | LQFP-32 QFN-32        |                            |           |                        | 23         |                                 |               |           |                     |              | 5(1)                  |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1A12C0A   |                                        | LQFP-48 QFN-52 QFN-48 |                            |           |                        | 37         |                                 |               |           |                     |              | 8(1)                  |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
| S6E1B8 w/security | S6E1B86GHA   | 40                                     | LQFP-120              | 1.65 to 3.6                | ✓         | Main Flash +Work Flash | 512K + 40K | 64K                             | -             | -         | 24                  | -            | 102                   | -                            | 24                           | -                       | Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)  | -                  | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)                  | -              | 1ch (USB-Host/ USB-Function Selectable) | 40 SEG x 8 COM / 44 SEG x 4 COM | -                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F, Chipper | On-Chip Debug (SWJ-DP/ Boundary SCAN) |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84GHA   |                                        | 256K + 40K            |                            |           |                        | 32K        | 32 SEG x 8 COM / 36 SEG x 4 COM |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B86FHA   |                                        | 512K + 40K            |                            |           |                        | 64K        | 20 SEG x 8 COM / 24 SEG x 4 COM |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84FHA   |                                        | 256K + 40K            |                            |           |                        | 32K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B86EHA   |                                        | 512K + 40K            |                            |           |                        | 64K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84EHA   |                                        | 256K + 40K            |                            |           |                        | 32K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
| S6E1B8            | S6E1B86G0A   | 40                                     | LQFP-120              | 1.65 to 3.6                | ✓         | Main Flash +Work Flash | 512K + 40K | 64K                             | -             | -         | 24                  | -            | 102                   | -                            | 24                           | -                       | Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)  | -                  | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)                  | -              | 1ch (USB-Host/ USB-Function Selectable) | 40 SEG x 8 COM / 44 SEG x 4 COM | -                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F          | On-Chip Debug (SWJ-DP/ Boundary SCAN) |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84G0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | 32 SEG x 8 COM / 36 SEG x 4 COM |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B86F0A   |                                        | 512K + 40K            |                            |           |                        | 64K        | 20 SEG x 8 COM / 24 SEG x 4 COM |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84F0A   |                                        | 256K + 40K            |                            |           |                        | 32K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B86E0A   |                                        | 512K + 40K            |                            |           |                        | 64K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B84E0A   |                                        | 256K + 40K            |                            |           |                        | 32K        |                                 |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
| S6E1B3            | S6E1B36G0A   | 40                                     | LQFP-120              | 1.65 to 3.6                | ✓         | Main Flash +Work Flash | 512K + 40K | 64K                             | -             | -         | 24                  | -            | 102                   | -                            | 24                           | -                       | Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)  | -                  | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)                  | -              | 1ch (USB-Host/ USB-Function Selectable) | -                               | -                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F          | On-Chip Debug (SWJ-DP/ Boundary SCAN) |               |                   |          |                            |                      |      |                   |
|                   | S6E1B34G0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B36F0A   |                                        | 512K + 40K            |                            |           |                        | 64K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B34F0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B36E0A   |                                        | 512K + 40K            |                            |           |                        | 64K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B34E0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
| S6E1B1            | S6E1B16G0A   | 40                                     | LQFP-120              | 1.65 to 3.6                | ✓         | Main Flash +Work Flash | 512K + 40K | 64K                             | -             | -         | 24                  | -            | 102                   | -                            | 24                           | -                       | Multi-Function Timer x 1units (Free-Run 3ch/Output Compare 6ch/Input Capture 4ch /PPG3ch/Waveform Generator 3ch /AD Activation Compare 6ch Selectable), PPG3ch | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)  | -                  | 1                 | Multi Function Serial x 8ch (UART/CSIO/I2C Selectable)                  | -              | -                                       | -                               | -                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F          | On-Chip Debug (SWJ-DP/ Boundary SCAN) |               |                   |          |                            |                      |      |                   |
|                   | S6E1B14G0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B16F0A   |                                        | 512K + 40K            |                            |           |                        | 64K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B14F0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B16E0A   |                                        | 512K + 40K            |                            |           |                        | 64K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |
|                   | S6E1B14E0A   |                                        | 256K + 40K            |                            |           |                        | 32K        | -                               |               |           |                     |              |                       |                              |                              |                         |                                                                                                                                                                |                                                   |                    |                   |                                                                         |                |                                         |                                 |                   |                                                                                                            |                                       |               |                   |          |                            |                      |      |                   |

## FM0 + Family – 32bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin] | Operating Voltage: VCC [V] | Sub Clock | Memory Type                                      | ROM [byte]                                             | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch] | Timer               |                     |                                                  |                                                  |                                                        |                                                        |                | Serial                                 |                   |                                                                                                   | Communication                                                                                                 |                        |                   | Note                                             | Evaluation Device                                      |                                                        |                                                        |                                                        |
|-------------|--------------|----------------------------------------|---------------|----------------------------|-----------|--------------------------------------------------|--------------------------------------------------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-------------------------|---------------------|---------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|----------------|----------------------------------------|-------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------|-------------------|--------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
|             |              |                                        |               |                            |           |                                                  |                                                        |            |               |           |                     |              |                       |                              |                              |                         | Output Compare [ch] | Free-Run Timer [ch] | Input Capture [ch]                               | Reload Timer [ch]                                | PWM Timer [ch]                                         | PWC Timer [ch]                                         | PPG Timer [ch] | Up/Down Counter [ch]                   | Other timers [ch] | I <sup>2</sup> C [ch]                                                                             | UART/SIO [ch]                                                                                                 | SIO [ch]               | LIN/UART/SIO [ch] |                                                  |                                                        | CAN [ch]                                               | USB-Host [ch]                                          | USB-Function [ch]                                      |
| S6E1C3      | S6E1C32D0A   | 40                                     | LQFP-64       | 1.65 to 3.6                | ✓         | Main Flash                                       | 128K                                                   | 16K        | -             | -         | 12                  | -            | 54                    | -                            | 8                            | -                       | -                   | -                   | 1                                                | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable) | -                                                      | Multi Function Serial x 6ch (UART/CSIO/I2C Selectable) | -              | 1ch (USB-Host/USB-Function Selectable) | -                 | -                                                                                                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, Wakeup I2C, HDMI-CEC 2ch, CRC, Smart Card I/F | On-Chip Debug (SWJ-DP) |                   |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | 64K          |                                        |               |                            |           |                                                  | 12K                                                    |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        |                   |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C32C0A   |                                        | LQFP-48       |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 9                 | 38                                               | 4                                                      | 6                                                      | Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |
|             | S6E1C31C0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 5                 | 20                                               |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C32B0A   |                                        | WLCSP-26      |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 7                 | 24                                               | 8                                                      | Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 2ch (UART/CSIO/I2C Selectable) |                                                        |
|             | S6E1C31B0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 12                | 54                                               |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C32D0A   |                                        | QFN-64        |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 9                 | 38                                               | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 6ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |
|             | S6E1C31D0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 7                 | 24                                               |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C32C0A   |                                        | QFN-48        |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 9                 | 38                                               | Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |
|             | S6E1C31C0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        | 12                | 54                                               |                                                        |                                                        |                                                        |                                                        |
| S6E1C32B0A  | QFN-32       | 128K                                   | 16K           | 7                          | 24        | Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable) | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        |                   |                                                  |                                                        |                                                        |                                                        |                                                        |
| S6E1C31B0A  |              | 64K                                    | 12K           | 9                          | 38        |                                                  |                                                        |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               |                        |                   |                                                  |                                                        |                                                        |                                                        |                                                        |
| S6E1C1      | S6E1C12D0A   | 40                                     | LQFP-64       | 1.65 to 3.6                | ✓         | Main Flash                                       | 128K                                                   | 16K        | -             | -         | 12                  | -            | 54                    | -                            | 8                            | -                       | -                   | 1                   | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable) | -                                                | Multi Function Serial x 6ch (UART/CSIO/I2C Selectable) | -                                                      | -              | -                                      | -                 | Dual Timer, Real Timer Clock, Unique ID, DSTC x 64ch, Tiny I2S, HDMI-CEC 2ch, CRC, Smart Card I/F | On-Chip Debug (SWJ-DP)                                                                                        |                        |                   |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C11D0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 9                      | 38                |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C12C0A   |                                        | LQFP-48       |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 7                      | 24                | 6                                                | 8                                                      | Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |                                                        |
|             | S6E1C11C0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 12                     | 54                |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C12B0A   |                                        | LQFP-32       |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 9                      | 38                | Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable) | Multi Function Serial x 6ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |                                                        |
|             | S6E1C11B0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 7                      | 24                |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C12D0A   |                                        | QFN-64        |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 9                      | 38                | Base Timer x 8ch (Reload/PPG/PWM/PWC Selectable) | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |                                                        |
|             | S6E1C11D0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 12                     | 54                |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C12C0A   |                                        | QFN-48        |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 7                      | 24                | 8                                                | Base Timer x 5ch (Reload/PPG/PWM/PWC Selectable)       | Multi Function Serial x 6ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |
|             | S6E1C11C0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 9                      | 38                |                                                  |                                                        |                                                        |                                                        |                                                        |
|             | S6E1C12B0A   |                                        | QFN-32        |                            |           |                                                  | 128K                                                   | 16K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 7                      | 24                | Base Timer x 3ch (Reload/PPG/PWM/PWC Selectable) | Multi Function Serial x 4ch (UART/CSIO/I2C Selectable) |                                                        |                                                        |                                                        |
|             | S6E1C11B0A   |                                        |               |                            |           |                                                  | 64K                                                    | 12K        |               |           |                     |              |                       |                              |                              |                         |                     |                     |                                                  |                                                  |                                                        |                                                        |                |                                        |                   |                                                                                                   |                                                                                                               | 9                      | 38                |                                                  |                                                        |                                                        |                                                        |                                                        |

## 8FX – 8bit Microcontrollers

| Series Name     | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin]                  | Operating Voltage: VCC [V] | Sub Clock | Memory Type    | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch]                         | 10bit AD Converter [ch (unit)] | 12bit AD Converter [ch (unit)] | DA Converter [bit x ch] | Timer               |                     |                    |                   |                |                |                |                      |                   |                       | Serial       |          | Communication     |          | LCD Controller [seg x com] | Three-phase Inverter | Note             | Evaluation Device                             |                                                                                                      |                                                                                                      |                  |               |               |
|-----------------|--------------|----------------------------------------|--------------------------------|----------------------------|-----------|----------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------------------------------|--------------------------------|--------------------------------|-------------------------|---------------------|---------------------|--------------------|-------------------|----------------|----------------|----------------|----------------------|-------------------|-----------------------|--------------|----------|-------------------|----------|----------------------------|----------------------|------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------|---------------|---------------|
|                 |              |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         | Output Compare [ch] | Free-Run Timer [ch] | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch] | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch] | UART/SI [ch] | SIO [ch] | LIN/UART/SIO [ch] | CAN [ch] |                            |                      |                  |                                               | USB-Host [ch]                                                                                        | USB-Function [ch]                                                                                    |                  |               |               |
| LCD CONTROLLERS |              |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95610H        | MB95F613H    | 16                                     | LQFP-80                        | 2.4 to 5.5                 | ✓         | Dual Op. Flash | 12K        | 512        | -             | -         | 8                   | -            | 40                                            | 4(1)                           | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | -                    | 1                 | 2                     | -            | -        | -                 | -        | -                          | 52 x 4 or 48 x 8     | -                | Clock Supervisor                              |                                                                                                      | On-chip Debug                                                                                        |                  |               |               |
|                 | MB95F613K    |                                        |                                |                            |           |                | 20K        | 1024       |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F614H    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F614K    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F616H    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95710M        | MB95F714J    | 16                                     | LQFP-80                        | 1.8 to 5.5                 | ✓         | Dual Op. Flash | 20K        | 512        | -             | -         | 8                   | -            | 75                                            | -                              | 8(1)                           | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | 2                    | -                 | -                     | 1            | 3        | -                 | -        | -                          | -                    | 40 x 4 or 36 x 8 | -                                             | Low-voltage Detection Reset, Clock Supervisor                                                        |                                                                                                      | On-chip Debug    |               |               |
|                 | MB95F714M    |                                        |                                |                            |           |                | 36K        | 1K         |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F716J    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F716M    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F718J    |                                        |                                |                            |           |                | 60K        | 2K         |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95770M        | MB95F774J    | 16                                     | LQFP-64                        | 1.8 to 5.5                 | ✓         | Dual Op. Flash | 20K        | 512        | -             | -         | 8                   | -            | 59                                            | -                              | 8(1)                           | -                       | -                   | -                   | -                  | -                 | -              | -              | 2              | -                    | -                 | 1                     | 3            | -        | -                 | -        | -                          | 32 x 4 or 28 x 8     | -                | Low-voltage Detection Reset, Clock Supervisor |                                                                                                      | On-chip Debug                                                                                        |                  |               |               |
|                 | MB95F774M    |                                        |                                |                            |           |                | 36K        | 1K         |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F776M    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F776J    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F778M    |                                        |                                |                            |           |                | 60K        | 2K         |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| INVERTER        |              |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95630H        | MB95F632H    | 16                                     | LQFP-32 SH-DIP-32 QFN-32       | 2.4 to 5.5                 | ✓         | Dual Op. Flash | 8K         | 256        | -             | -         | 10                  | -            | 28                                            | 8(1)                           | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | 3                    | -                 | 1                     | 1            | 1        | -                 | 1        | -                          | -                    | -                | -                                             | ✓                                                                                                    | Low-voltage Detection Reset, Multi-pulse Generator (Reload/PPG/Waveform Sequencer), Clock Supervisor |                  | On-chip Debug |               |
|                 | MB95F632K    |                                        |                                |                            |           |                | 12K        | 512        |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F633H    |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F633K    |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F634H    |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F634K    |                                        |                                |                            |           |                | 1024       |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95690K        | MB95F694K    | 16                                     | LQFP-44 LQFP-48 LQFP-52 QFN-48 | 2.88 to 5.5                | ✓         | Dual Op. Flash | 20K        | 512        | -             | -         | 8                   | -            | 45                                            | 12(1) LQFP44 only: 8(1)        | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | 3              | -                    | 1                 | 1                     | 1            | -        | 1                 | -        | -                          | -                    | -                | ✓                                             | Low-voltage Detection Reset, Multi-pulse Generator (Reload/PPG/Waveform Sequencer), Clock Supervisor |                                                                                                      | On-chip Debug    |               |               |
|                 | MB95F696K    |                                        |                                |                            |           |                | 36K        | 1K         |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F698K    |                                        |                                |                            |           |                | 60K        | 2K         |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 |              |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| STANDARD        |              |                                        |                                |                            |           |                |            |            |               |           |                     |              |                                               |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95560H        | MB95F562H    | 16                                     | SOP-20 TSSOP-20 QFN-32         | 2.4 to 5.5                 | ✓         | Dual Op. Flash | 8K         | 240        | -             | -         | 6                   | -            | 16                                            | 6(1)                           | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | -                    | -                 | -                     | -            | 1        | -                 | -        | -                          | -                    | -                | -                                             | Clock Supervisor                                                                                     |                                                                                                      | On-chip Debug    |               |               |
|                 | MB95F562K    |                                        |                                |                            |           |                | 12K        | 496        |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F563H    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F563K    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F564H    |                                        |                                |                            |           |                | 20K        |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95570H        | MB95F572H    | 16                                     | SOP-8                          | 2.4 to 5.5                 | ✓         | Dual Op. Flash | 8K         | 240        | -             | -         | 2                   | -            | 4                                             | 2(1)                           | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | -                    | -                 | -                     | -            | -        | -                 | -        | -                          | -                    | -                | -                                             | -                                                                                                    | Clock Supervisor                                                                                     |                  | On-chip Debug |               |
|                 | MB95F572K    |                                        |                                |                            |           |                | 12K        | 496        |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F573H    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F573K    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F574H    |                                        |                                |                            |           |                | 20K        |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
| MB95580H        | MB95F582H    | 16                                     | SOP-16 TSSOP-16 QFN-32         | 2.4 to 5.5                 | ✓         | Dual Op. Flash | 8K         | 240        | -             | -         | 6                   | -            | 12                                            | 5(1)                           | -                              | -                       | -                   | -                   | -                  | -                 | -              | -              | -              | -                    | -                 | -                     | -            | -        | 1                 | -        | -                          | -                    | -                | -                                             | -                                                                                                    | -                                                                                                    | Clock Supervisor |               | On-chip Debug |
|                 | MB95F582K    |                                        |                                |                            |           |                | 12K        | 496        |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F583H    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F583K    |                                        |                                |                            |           |                |            |            |               |           |                     |              | Low-voltage Detection Reset, Clock Supervisor |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |
|                 | MB95F584H    |                                        |                                |                            |           |                | 20K        |            |               |           |                     |              | Clock Supervisor                              |                                |                                |                         |                     |                     |                    |                   |                |                |                |                      |                   |                       |              |          |                   |          |                            |                      |                  |                                               |                                                                                                      |                                                                                                      |                  |               |               |

# Traveo Family – 32bit Microcontrollers

| Series Name    | Product Name             | Maximum Internal Clock Frequency [MHz] | Package [pin]            | Operating Voltage: VCC [V]             | Sub Clock | Memory Type            | ROM [byte]   | RAM [byte]                                                                 | Cache [Kbyte]               | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 12bit AD Converter [ch](unit) | 12bit AD Converter with 4ch sample & hold | DA Converter [bit x ch] | Timer               |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          | Serial       |          | Communication                                                                                                                                                 |               |              | Three-phase Inverter | Note | Evaluation Device |                   |
|----------------|--------------------------|----------------------------------------|--------------------------|----------------------------------------|-----------|------------------------|--------------|----------------------------------------------------------------------------|-----------------------------|-----------|---------------------|--------------|-----------------------|-------------------------------|-------------------------------------------|-------------------------|---------------------|---------------------|--------------------|-----------------------------------------------------------------------------------|----------------|----------------|---------------------------------------------------------------|----------------------|-------------------|----------|--------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|----------------------|------|-------------------|-------------------|
|                |                          |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         | Output Compare [ch] | Free-Run Timer [ch] | Input Capture [ch] | Reload Timer [ch]                                                                 | PWM Timer [ch] | PWC Timer [ch] | PPG Timer [ch]                                                | Up/Down Counter [ch] | Other timers [ch] | I2C [ch] | UART/SI [ch] | SIO [ch] | LIN/UART/SIO [ch]                                                                                                                                             | CAN [ch]      | USB-Hos [ch] |                      |      |                   | USB-Function [ch] |
| CAN/AUTOMOTIVE |                          |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J3200        | S6J323CKS                | 240                                    | TEQFP -208               | 1.1 to 1.3<br>3.0 to 3.6<br>4.5 to 5.5 | ✓         | Main Flash +Work Flash | 2112K + 112K | TC-RAM: 128KB<br>System - RAM: 128KB<br>Backup - RAM: 16KB<br>VRAM: 2048KB | Instruction: 16<br>Data: 16 | 16        | 16                  | -            | 120                   | 46(1)                         | -                                         | -                       | 24                  | 12                  | 24                 | Reload Timer x 14ch<br>16bit Base Timer x 24ch<br>(PWM/PPG/Reload/PWC Selectable) | 2              | RTC x 1ch      | Multi Function Serial x 12ch<br>(LIN/UART/SIO/I2C Selectable) | CAN-FD x 4ch         | -                 | -        | 30 x 4       | -        | ARM Cortex-R5,<br>Ethernet AVB, Media-LB,<br>SHE(Secure Hardware Extension),<br>SMC x 6ch, Sound generator x 4ch,<br>2D Graphic Engine, Display Output x 2ch, | On-Chip Debug |              |                      |      |                   |                   |
|                | S6J323CKU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J323CLS                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J323CLU                |                                        | TEQFP -216 (0.4mm pitch) |                                        |           |                        |              |                                                                            |                             |           |                     |              | 128                   | 50(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J324CKS                |                                        | TEQFP -208               |                                        |           |                        |              |                                                                            |                             |           |                     |              | 120                   | 46(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J324CKU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J324CLS                |                                        | TEQFP -216 (0.4mm pitch) |                                        |           |                        |              |                                                                            |                             |           |                     |              | 128                   | 50(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J324CLU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J325CKS                |                                        | TEQFP -208               |                                        |           |                        |              |                                                                            |                             |           |                     |              | 120                   | 46(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J325CKU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J325CLS                |                                        | TEQFP -216 (0.4mm pitch) |                                        |           |                        |              |                                                                            |                             |           |                     |              | 128                   | 50(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J325CLU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J326CKS                |                                        | TEQFP -208               |                                        |           |                        |              |                                                                            |                             |           |                     |              | 120                   | 46(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J326CKU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J326CLS                |                                        | TEQFP -216 (0.4mm pitch) |                                        |           |                        |              |                                                                            |                             |           |                     |              | 128                   | 50(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J326CLU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J327CKS                |                                        | TEQFP -208               |                                        |           |                        |              |                                                                            |                             |           |                     |              | 120                   | 46(1)                         |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
|                | S6J327CKU                |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J327CLS      | TEQFP -216 (0.4mm pitch) | 128                                    | 50(1)                    |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J327CLU      |                          |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J328CKS      | TEQFP -208               | 120                                    | 46(1)                    |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J328CKU      |                          |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J328CLS      |                          |                                        |                          |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |
| S6J328CLU      | TEQFP -216 (0.4mm pitch) | 128                                    | 50(1)                    |                                        |           |                        |              |                                                                            |                             |           |                     |              |                       |                               |                                           |                         |                     |                     |                    |                                                                                   |                |                |                                                               |                      |                   |          |              |          |                                                                                                                                                               |               |              |                      |      |                   |                   |

## FCR4 Family – 32bit Microcontrollers

| Series Name                           | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin] | Operating Voltage: VCC [V] | Sub Clock | Memory Type | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch] | Timer               |                     |                    |                   |                |                |                |                      |                   |          | Serial        |          | Communication     |          |               | LCD Controller [seg x com] | Three-phase Inverter                                                                                                                                                                                                                                                                                                                       | Note                                                                                                                                                                                                                                                                                                                                                                               | Evaluation Device                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |
|---------------------------------------|--------------|----------------------------------------|---------------|----------------------------|-----------|-------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|-------------------------|---------------------|---------------------|--------------------|-------------------|----------------|----------------|----------------|----------------------|-------------------|----------|---------------|----------|-------------------|----------|---------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                       |              |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                         | Output Compare [ch] | Free-Run Timer [ch] | Input Capture [ch] | Reload Timer [ch] | PWM Timer [ch] | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch] | I2C [ch] | UART/SPI [ch] | SIO [ch] | LIN/UART/SIO [ch] | CAN [ch] | USB-Host [ch] |                            |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | USB-Function [ch] |
| HYBRID AUTOMOTIVE INSTRUMENTS CLUSTER |              |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                    |                   |                |                |                |                      |                   |          |               |          |                   |          |               |                            |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |
| MB9DF125                              | MB9DF125PMC  | 128                                    | LQFP-176      | 1.1 to 1.3<br>3.0 to 5.5   | ✓         | FLASH       | 1088       | 128        | 8             | 8         | 32                  | -            | 123                   | 50(1)                        | -                            | -                       | 8                   | 8                   | 8                  | 10                | -              | -              | 24             | 2                    | -                 | 1        | 2             | 3        | 2                 | 2        | -             | -                          | -                                                                                                                                                                                                                                                                                                                                          | ARM Cortex R4, SHE (Secure Hardware Extension), Real Time Clock, Stepper Motor Controller (SMC): 4 ch, Data Flash: 48KB, Windows Watchdog, Clock supervisor, Sound Generator, I2S: 2 ch, Quad SPI Flash Interface: 1 ch, NMI (intern/extern): 32/1 ch, CRC Hardware Module: 1 ch, Protection Unit: MPU, PPU, TPU, various Power Down modes                                         | On-chip Debug                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |
|                                       | MB9DF125EPMC |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                    |                   |                |                |                |                      |                   |          |               |          |                   |          |               |                            | ARM Cortex R4, SHE (Secure Hardware Extension), Real Time Clock, Stepper Motor Controller (SMC): 6 ch, Data Flash: 48KB, Windows Watchdog, Clock supervisor, Sound Generator, I2S: 2 ch, Quad SPI Flash Interface: 1 ch, NMI (intern/extern): 32/1 ch, CRC Hardware Module: 1 ch, Protection Unit: MPU, PPU, TPU, various Power Down modes | On-chip Debug                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |
| MB9DF126                              | MB9DF126BPMC | 128                                    | LQFP-176      | 1.1 to 1.3<br>3.0 to 5.5   | ✓         | FLASH       | 2176       | 208        | 16            | 8         | 32                  | -            | 110                   | 50(1)                        | -                            | -                       | 8                   | 8                   | 8                  | 10                | -              | -              | 24             | 2                    | -                 | 1        | 2             | 3        | 2                 | 3        | -             | -                          | -                                                                                                                                                                                                                                                                                                                                          | ARM Cortex R4, APIX Remote handler with 2 ch AIC (APIX Inter Connect), APIX1 Phy: 1 ch, Real Time Clock, Stepper Motor Controller (SMC): 6 ch, Data Flash: 64KB, Windows Watchdog, Clock supervisor, Sound Generator, I2S: 2 ch, Quad SPI Flash Interface: 1 ch, NMI (intern/extern): 32/1 ch, CRC Hardware Module: 1 ch, Protection Unit: MPU, PPU, TPU, various Power Down modes | On-chip Debug                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |
| MB9EF226                              | MB9EF226PMC  | 128                                    | LQFP-176      | 1.1 to 1.3<br>3.0 to 5.5   | ✓         | FLASH       | 2176       | 128        | 16            | 8         | 32                  | -            | 117                   | 50(1)                        | -                            | -                       | 8                   | 8                   | 8                  | 10                | -              | -              | 24             | 2                    | -                 | 1        | 2             | 3        | 2                 | 2        | -             | -                          | -                                                                                                                                                                                                                                                                                                                                          | -                                                                                                                                                                                                                                                                                                                                                                                  | ARM Cortex R4, 2D Graphics Engine: scaler, color palette, gamma correction, blending, raster operation, various alpha blending modes, run-length decoding, hor/ver flip and rotation, affine transformations, Embedded Video-RAM: 1MB, TFT Output Interface: RGB888/RSDS Output, SHE (Secure Hardware Extension), Real Time Clock, Stepper Motor Controller (SMC): 4 ch, Data Flash: 48KB, Windows Watchdog, Clock supervisor, Sound Generator, I2S: 2 ch, Quad SPI Flash Interface: 2 ch(1 ch for MCU and 1 ch for Graphic), NMI (intern/extern): 32/1 ch, MediaLB (3 wire): 1 ch, CRC Hardware Module: 1 ch, Protection Unit: MPU, PPU, TPU, various Power Down modes | On-chip Debug     |
|                                       | MB9EF226EPMC |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                         |                     |                     |                    |                   |                |                |                |                      |                   |          |               |          |                   |          |               |                            |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |

## F<sup>2</sup>MC-16FX – 16bit Microcontrollers

| Series Name | Product Name | Maximum Internal Clock Frequency [MHz] | Package [pin] | Operating Voltage: VCC [V] | Sub Clock | Memory Type | ROM [byte] | RAM [byte] | Cache [Kbyte] | DMAC [ch] | Ext. Interrupt [ch] | External Bus | Maximum I/O port [ch] | 10bit AD Converter [ch/unit] | 12bit AD Converter [ch/unit] | DA Converter [bit x ch]        | Timer                          |                     |                                |                                |                |                |                |                      |                   |                       | Serial       |          | Communication     |          |               | LCD Controller [seg x com] | Three-phase Inverter | Note               | Evaluation Device  |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------|--------------|----------------------------------------|---------------|----------------------------|-----------|-------------|------------|------------|---------------|-----------|---------------------|--------------|-----------------------|------------------------------|------------------------------|--------------------------------|--------------------------------|---------------------|--------------------------------|--------------------------------|----------------|----------------|----------------|----------------------|-------------------|-----------------------|--------------|----------|-------------------|----------|---------------|----------------------------|----------------------|--------------------|--------------------|--------------------|-----------|-------|---|-------|-------|---|--------------------------------|--------------------------------|---|--------------------------------|--------------------------------|----|----|---|---|---|---|---|---|---|----|----|---|--------|--------------------|---------------------------------|-----------|-------|-------|-------|----|----|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----|----|----|----|----|----|----|----|--------------------|-----------|----|-----------|----|----|--------------------|-----------|--------------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|             |              |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                | Output Compare [ch]            | Free-Run Timer [ch] | Input Capture [ch]             | Reload Timer [ch]              | PWM Timer [ch] | PWC Timer [ch] | PPG Timer [ch] | Up/Down Counter [ch] | Other timers [ch] | I <sup>2</sup> C [ch] | UART/Sl [ch] | SIO [ch] | LIN/UART/SIO [ch] | CAN [ch] | USB-Host [ch] |                            |                      |                    |                    | USB-Function [ch]  |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| AUTOMOTIVE  |              |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96340     | MB96345RS    | 56                                     | LQFP-100      | 3.0 to 5.5                 | -         | MASK        | 160K       | 8K         | -             | 6         | 16                  | ✓            | 24(1)                 | -                            | -                            | 8                              | 2                              | 8                   | 4<br>+1<br>(Dedicated for PPG) | -                              | 16             | -              | -              | -                    | 2                 | -                     | -            | 7        | 2                 | -        | -             | -                          | -                    | Option without CAN | MB96V300C          |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96345RW    |                                        |               |                            | ✓         |             | 288K       | 16K        |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 1                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96346RS    |                                        |               |                            | -         |             | 160K +64K  | 8K         |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | -                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96346RW    |                                        |               |                            | ✓         |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 2                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F345DS   | -                                      |               |                            | FLASH     | 288K        |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 16K               |          |               |                            |                      |                    |                    | -                  | 6         | 16    | ✓ | 24(1) | -     | - | 8                              | 2                              | 8 | 4<br>+1<br>(Dedicated for PPG) | -                              | 16 | -  | - | - | 2 | - | - | 7 | - | -  | -  | - | -      | Option without CAN | MB96V300C                       |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F345DW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | 2 |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F346AS   | -                                      |               |                            |           |             | 416K       | 24K        |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - |    |    |   |        |                    |                                 | 6         | 16    | ✓     | 24(1) | -  | -  | 8                              | 2                              | 8                              | 4<br>+1<br>(Dedicated for PPG) | -  | 16 | -  | -  | -  | 2  | -  | -  | 7                  | -         | -  | -         | -  | -  | Option without CAN | MB96V300C |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F346AW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    | 2         |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F346RS   | -                                      |               |                            |           | 544K        |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 24K               |          |               |                            |                      |                    |                    | -                  | 6         | 16    | ✓ | 24(1) | -     | - | 8                              | 2                              | 8 | 4<br>+1<br>(Dedicated for PPG) | -                              | 16 | -  | - | - | 2 | - | - | 7 |   | -  | -  | - | -      | -                  | Option without CAN              |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    | MB96V300C |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F346RW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   | 2  |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F347AS   | -                                      |               |                            |           |             | 544K       | 24K        |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - | 6  |    |   |        |                    |                                 | 16        | ✓     | 24(1) | -     | -  | 8  | 2                              | 8                              | 4<br>+1<br>(Dedicated for PPG) | -                              | 16 | -  | -  | -  | 2  | -  | -  | 7  | -                  |           | -  | -         | -  | -  | Option without CAN | MB96V300C |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F347AW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    | 2                  |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F347RS   | -                                      |               |                            |           | 544K        |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 24K               |          |               |                            |                      |                    |                    | -                  | 6         | 16    | ✓ | 24(1) | -     | - | 8                              | 2                              | 8 | 4<br>+1<br>(Dedicated for PPG) | -                              | 16 | -  | - | - | 2 | - | - | 7 |   |    | -  | - | -      | -                  | -                               |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    | Option without CAN | MB96V300C |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F347RW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    | 2  |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348AS   | -                                      |               |                            |           |             | 544K       | 24K        |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - | 6  | 16 |   |        |                    |                                 | ✓         | 24(1) | -     | -     | 8  | 2  | 8                              | 4<br>+1<br>(Dedicated for PPG) | -                              | 16                             | -  | -  | -  | 2  | -  | -  | 7  | -  |                    |           | -  | -         | -  | -  | Option without CAN | MB96V300C |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348AW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    | 2  |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348RS   | -                                      |               |                            |           | 544K +32K   |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 24K               |          |               |                            |                      |                    |                    | -                  | 6         | 16    | ✓ | 24(1) | -     | - | 8                              | 2                              | 8 | 4<br>+1<br>(Dedicated for PPG) | -                              | 16 | -  | - | - | 2 | - | - | 7 |   |    |    | - | -      | -                  | -                               |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    | -  | Option without CAN | MB96V300C |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348RW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    | 2 |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348HS   | -                                      |               |                            |           |             | 544K +32K  | 24K        |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - | 6  | 16 | ✓ |        |                    |                                 | 24(1)     | -     | -     | 8     | 2  | 8  | 4<br>+1<br>(Dedicated for PPG) | -                              | 16                             | -                              | -  | -  | 2  | -  | -  | 7  | -  |    |                    |           | -  | -         | -  | -  | Option without CAN | MB96V300C |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96F348HW   | ✓                                      |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    | 2  |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F348HW  | ✓            | 4                                      | 2             |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F353AS  | -            | LQFP-64                                | 3.0 to 5.5    | -                          | FLASH     | 96K         |            |            | 8K            | -         | 4                   | 13           | ✓                     | 15(1)                        | -                            | -                              | 4                              | 4                   | 6<br>+3<br>(Dedicated for LIN) | 4<br>+1<br>(Dedicated for PPG) | -              | -              | 20             | -                    | -                 | -                     | 1            | -        | -                 | 4        | 1             | -                          | -                    | -                  | -                  | Option without CAN | MB96V300C |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F353AW  | ✓            |                                        |               | -                          |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F353RS  | -            |                                        |               | -                          |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F353RW  | ✓            |                                        |               | -                          |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F355AS  | -            |                                        |               | 160K                       |           | 12K         | -          | 4          | 13            |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          | ✓             |                            |                      |                    |                    |                    |           | 15(1) | - | -     | 4     | 4 | 6<br>+3<br>(Dedicated for LIN) | 4<br>+1<br>(Dedicated for PPG) | - | -                              | 20                             | -  | -  | - | - | 1 | - | - | 4 | 1 | -  | -  | - | -      | Option without CAN | MB96V300C                       |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F355AW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F355RS  | -            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F355RW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356AS  | -            |                                        |               | 288K                       |           | 12K         |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   | - |    |    |   |        |                    |                                 | 4         | 13    | ✓     | 15(1) | -  | -  | 4                              | 4                              | 6<br>+3<br>(Dedicated for LIN) | 4<br>+1<br>(Dedicated for PPG) | -  | -  | 20 | -  | -  | -  | -  | 1  | -                  | -         | 4  | 1         | -  | -  | -                  | -         | Option without CAN | MB96V300C |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356AW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    | -         |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356RS  | -            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    | -         |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356RW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    | -         |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356RS  | -            | 288K                                   | 12K           | -                          | 4         | 13          |            |            |               | ✓         | 15(1)               | -            | -                     | 4                            | 4                            | 6<br>+3<br>(Dedicated for LIN) | 4<br>+1<br>(Dedicated for PPG) | -                   | -                              | 20                             | -              | -              | -              | -                    | 1                 | -                     | -            | 4        | 1                 | -        |               | -                          | -                    | -                  | Option without CAN | MB96V300C          |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356AW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | -                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356RS  | -            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | -                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F356RW  | ✓            |                                        |               |                            |           |             |            |            |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | -                 |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F378HS  | -            | LQFP-144                               | 3.0 to 5.5    |                            |           |             | -          | FLASH      | 544K +32K     |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 28K               |          | -             |                            |                      |                    |                    |                    | 7         | 8     | ✓ | 22(1) | -     | - | 6                              | 2                              | 8 | 4<br>+1<br>(Dedicated for PPG) | -                              | -  | 12 | - | - | 2 | - | - | 6 |   | 2  | -  | - | 72 x 4 | -                  | SMC x 6ch Sound generator x 2ch |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    | MB96V300C |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F378HW  | ✓            |                                        |               |                            |           |             | 832K       |            | 32K           |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 118               |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F379RS  | -            |                                        |               |                            |           |             | -          |            | 120           |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96F379RW  | ✓            |                                        |               |                            |           |             | -          |            | 118           |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          |                   |          |               |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   |    |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| MB96380     | MB96384RS    | 56                                     | LQFP-120      |                            |           |             | 3.0 to 5.5 | -          | MASK          |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 128K              |          | 6K            |                            |                      |                    |                    |                    | -         | 7     | 8 | ✓     | 16(1) | - | -                              | 4                              | 2 | 8                              | 4<br>+1<br>(Dedicated for PPG) | 5  | -  | 8 | - | - | 1 | - | - | 5 | 1  | -  | - | 65 x 4 | -                  | SMC x 5ch Sound generator x 2ch | MB96V300C |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96384RW    |                                        |               |                            |           |             |            | ✓          |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 160K              |          | 8K            |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   | 96 |    |   |        |                    |                                 |           |       |       |       |    |    |                                |                                |                                |                                |    |    |    |    |    |    |    |    |                    |           |    |           |    |    |                    |           |                    |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | MB96385RS    |                                        |               |                            |           |             |            | -          |               |           |                     |              |                       |                              |                              |                                |                                |                     |                                |                                |                |                |                |                      |                   |                       |              |          | 160K              |          | 6K            |                            |                      |                    |                    |                    |           |       |   |       |       |   |                                |                                |   |                                |                                |    |    |   |   |   |   |   |   |   | 96 |    |   |        |                    |                                 |           | 94    | 96    | 94    | 96 | 94 | 96                             | 94                             | 96                             | 94                             | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96                 | 94        | 96 | 94        | 96 | 94 | 96                 | 94        | 96                 | 94        | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 | 94 | 96 |





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