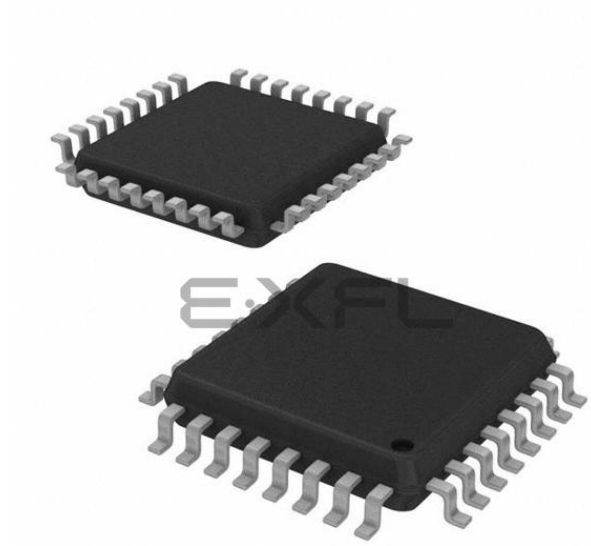


**Welcome to E-XFL.COM**

## 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 | Active |
| Core Processor | 12V1 |
| Core Size | 16-Bit |
| Speed | 25MHz |
| Connectivity | IrDA, LINbus, SCI, SPI |
| Peripherals | LVD, POR, PWM, WDT |
| Number of I/O | 16 |
| Program Memory Size | 32KB (32K x 8) |
| Program Memory Type | FLASH |
| EEPROM Size | 128 x 8 |
| RAM Size | 2K x 8 |
| Voltage - Supply (Vcc/Vdd) | 3.13V ~ 5.5V |
| Data Converters | A/D 2x10b |
| Oscillator Type | Internal |
| Operating Temperature | -40°C ~ 105°C (TA) |
| Mounting Type | Surface Mount |
| Package / Case | 32-LQFP |
| Supplier Device Package | 32-LQFP (7x7) |
| Purchase URL | https://www.e-xfl.com/product-detail/nxp-semiconductors/s9s12vr32f0vlc |

# S12 MagniV® Mixed-Signal MCUs
# S12VR Family

## Integrated Solution for Relay Driver (e.g., Windowlift/Sunroof)

### Features

- Relay Driver
- $V_{REG}$ for 12 V Supply
- Integrated LIN Phy
- Ultra-Reliable Industrial

Product One-Sheet

Get Sample | Data Sheet | Tools

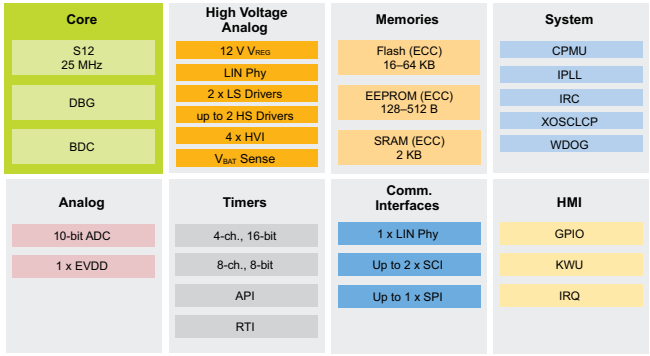
**System in a package**—Highly integrated part ideal for space-constrained relay driven DC motors on LIN Bus

**Low system cost**—Direct connection with battery, integrated LIN Phy, LS & HS drivers and EVDD reduce system, qualification and manufacturing cost.

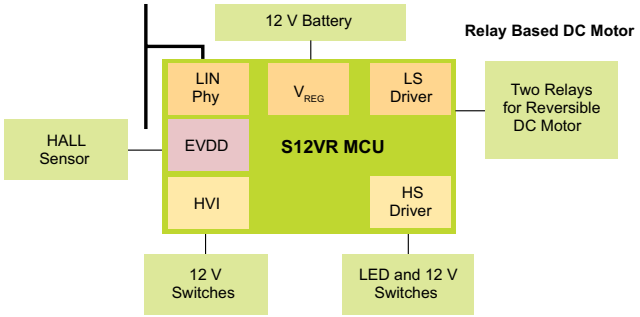
**High reliability**—High immunity to EMI and ESD stresses, LIN 2.x compliant with +/- 8 kV ESD capability.

**Enablement**—Supported by comprehensive hardware and software solution, which reduces development costs and time-to-market

## Product Block Diagram




## Application Example Block Diagram




## S12VR Specifications

| | | | |
|---|---|---|---|
| Flash | 16-64 KB | LS/HS Driver | 2/up to 2 |
| RAM | 2 KB | $V_{REG}$ | 70 mA at 12 V |
| EEPROM | 128–512 B | EVDD | 1-ch. 5 V/20 mA (source) |
| Core | S12, 25 MHz | SCI/SPI | Up to 2/1 |
| ADC | 10-bit, 10-ch. | Packages | 32 LQFP, 48 LQFP |
| HVI | 4 | Timer/PWM | 4-ch., 16-bit/4-ch., 16-bit |
| LIN Phy | 1 | Op Range | 5.5 V–18 V |

## Part Numbers

| Part Number | Temp Range | Package |
|---|---|---|
| S9S12VR64AF0MLF | -40 °C to 125 °C | 48 LQFP |
| S9S12VR64AF0MLC | -40 °C to 125 °C | 32 LQFP |
| S9S12VR32F0MLC | -40 °C to 125 °C | 32 LQFP |

Product Longevity

## Success Stories

- Anti-pinch window lift and sunroof
- Power lift gate
- Seat heating
- Small LIN node

## Target Applications

- Anti-pinch window lift
- Sunroof
- Automatic doors
- Power lift gate
- Seat adjustment
- Seat heating
- Small LIN node

## Enablement Tools

- Evaluation boards/hardware
  - –S12VR64EVB
  - –S12VR32EVB
  - –DEVKIT-S12ZVR64
- Reference solutions
  - –Anti-pinch window lift reference design
- Compiler/Debugger
  - –CodeWarrior® IDE
  - –Cosmic IDE
- LIN stack

**www.NXP.com/S12VR**

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