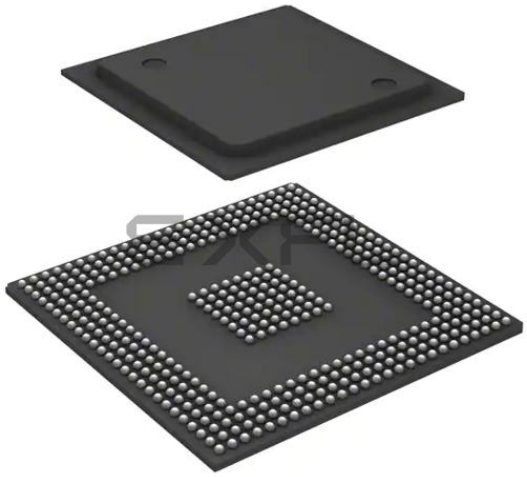
# Infineon Technologies - FT1796256F150EBCNP Datasheet



**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 | Discontinued at Digi-Key |
| Core Processor | TriCore™ |
| Core Size | 32-Bit Single-Core |
| Speed | 150MHz |
| Connectivity | ASC, CANbus, EBI/EMI, MLI, MSC, SSC |
| Peripherals | DMA, POR, WDT |
| Number of I/O | 123 |
| Program Memory Size | 2MB (2M x 8) |
| Program Memory Type | FLASH |
| EEPROM Size | - |
| RAM Size | 256K x 8 |
| Voltage - Supply (Vcc/Vdd) | 1.42V ~ 1.58V |
| Data Converters | A/D 44x12b |
| Oscillator Type | External |
| Operating Temperature | -40°C ~ 85°C (TA) |
| Mounting Type | Surface Mount |
| Package / Case | 416-BBGA |
| Supplier Device Package | PG-BGA-416-4 |
| Purchase URL | https://www.e-xfl.com/product-detail/infineon-technologies/ft1796256f150ebcnp |

**Table 2 Pin Definitions and Functions**

| Symbol | Pins | I/O | Pad Class | Power Supply | Functions |
|---|---|---|---|---|---|
| **External Bus Interface Lines (EBU)** | | | | | |
| **D[31:0]** | | I/O | B1 | $V_{DDEBU}$ | **EBU Data Bus Lines**<br>The EBU Data Bus Lines D[31:0] serve as external data bus. |
| **D0** | T26 | I/O | | | Data bus line 0 |
| **D1** | T24 | I/O | | | Data bus line 1 |
| **D2** | U26 | I/O | | | Data bus line 2 |
| **D3** | T25 | I/O | | | Data bus line 3 |
| **D4** | V26 | I/O | | | Data bus line 4 |
| **D5** | U25 | I/O | | | Data bus line 5 |
| **D6** | U23 | I/O | | | Data bus line 6 |
| **D7** | W26 | I/O | | | Data bus line 7 |
| **D8** | V25 | I/O | | | Data bus line 8 |
| **D9** | U24 | I/O | | | Data bus line 9 |
| **D10** | Y26 | I/O | | | |
| **D11** | AA26 | I/O | | | |
| **D12** | W25 | I/O | | | |
| **D13** | V24 | I/O | | | |
| **D14** | Y25 | I/O | | | |
| **D15** | AB26 | I/O | | | |
| **D16** | W24 | I/O | | | |
| **D17** | AA25 | I/O | | | |
| **D18** | Y24 | I/O | | | |
| **D19** | AA23 | I/O | | | |
| **D20** | AB25 | I/O | | | |
| **D21** | AB24 | I/O | | | |
| **D22** | AA24 | I/O | | | |
| **D23** | AC26 | I/O | | | |
| **D24** | AD26 | I/O | | | |
| **D25** | AC25 | I/O | | | |
| **D26** | AE26 | I/O | | | |
| **D27** | AD25 | I/O | | | |
| **D28** | AC24 | I/O | | | |
| **D29** | AE25 | I/O | | | |
| **D30** | AE24 | I/O | | | |
| **D31** | AD24 | I/O | | | |

### Analog Inputs

| | | | | |
|---|---|---|---|---|
| **AN[43:0]** | | I | D | – | **ADC Analog Input Port**<br>The ADC Analog Input Port provides 44 analog input lines for the A/D converters |
| **AN0** | AE1 | I | | | |
| **AN1** | AD2 | I | | | |
| **AN2** | AA4 | I | | | |
| **AN3** | AB3 | I | | | |
| **AN4** | AC2 | I | | | |
| **AN5** | AA3 | I | | | |
| **AN6** | AD1 | I | | | |
| **AN7** | AB4 | I | | | |
| **AN8** | AC1 | I | | | |
| **AN9** | AB2 | I | | | |
| **AN10** | Y3 | I | | | |
| **AN11** | AA2 | I | | | |
| **AN12** | AB1 | I | | | |
| **AN13** | W3 | I | | | |
| **AN14** | Y2 | I | | | |
| **AN15** | AA1 | I | | | |
| **AN16** | V4 | I | | | |
| **AN17** | W2 | I | | | |
| **AN18** | Y1 | I | | | |
| **AN19** | V3 | I | | | |
| **AN20** | W1 | I | | | |
| **AN21** | V2 | I | | | |
| **AN22** | V1 | I | | | |
| **AN23** | U1 | I | | | |
| **AN24** | AC8 | I | | | |
| **AN25** | AD8 | I | | | |
| **AN26** | AC7 | I | | | |
| **AN27** | AD7 | I | | | |
| **AN28** | AE6 | I | | | |
| **AN29** | AF6 | I | | | |
| **AN30** | AE7 | I | | | |
| **AN31** | AF7 | I | | | |

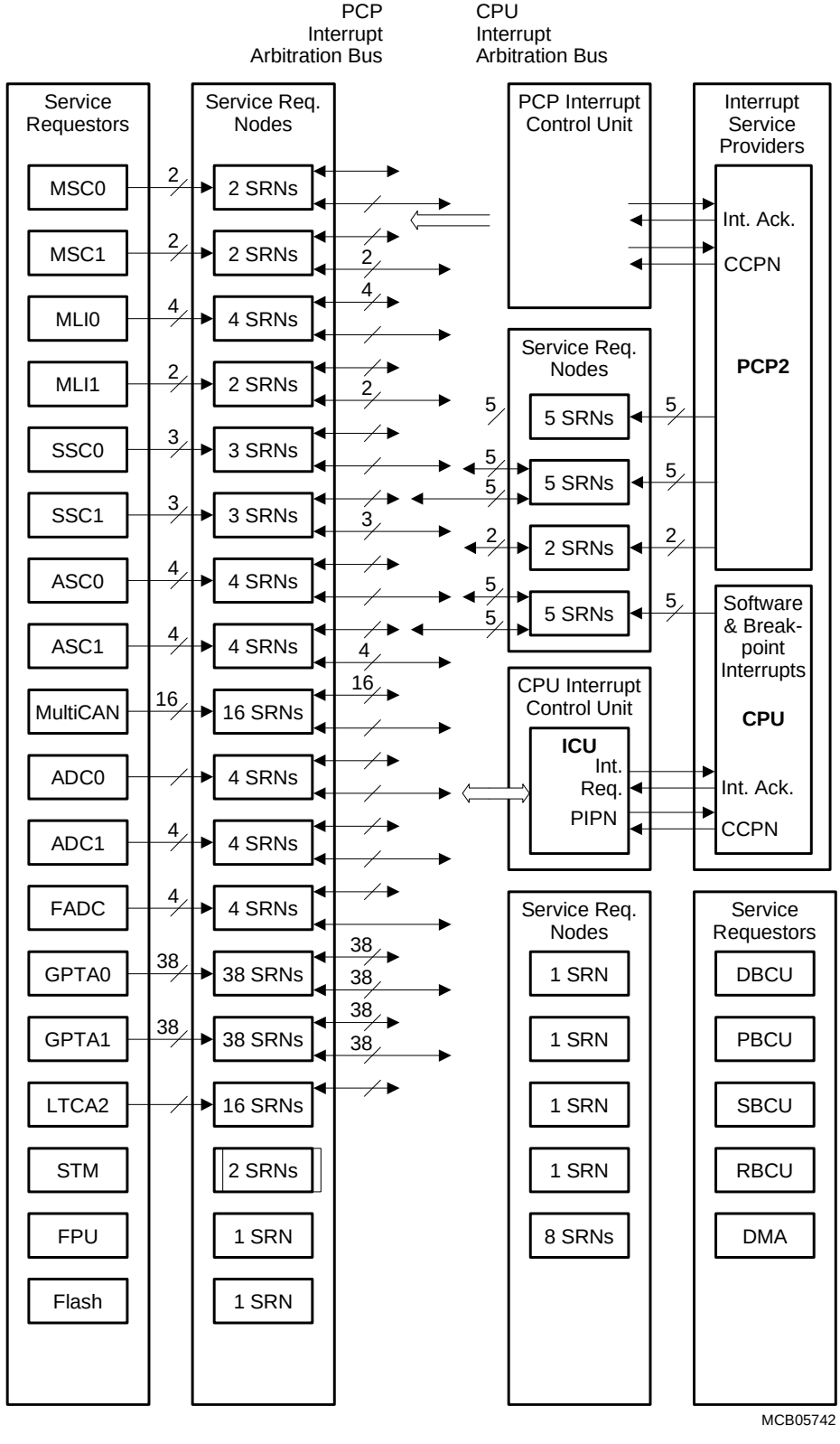



**Figure 7 Block Diagram of the TC1796 Interrupt System**

## 3.14 General Purpose Timer Array

The GPTA provides a set of timer, compare and capture functionalities that can be flexibly combined to form signal measurement and signal generation units. They are optimized for tasks typical of engine, gearbox, and electrical motor control applications, but can also be used to generate simple and complex signal waveforms needed in other industrial applications.

The TC1796 contains two General Purpose Timer Arrays (GPTA0 and GPTA1) with identical functionality, plus an additional Local Timer Cell Array (LTCA2). **Figure 14** shows a global view of the GPTA modules.

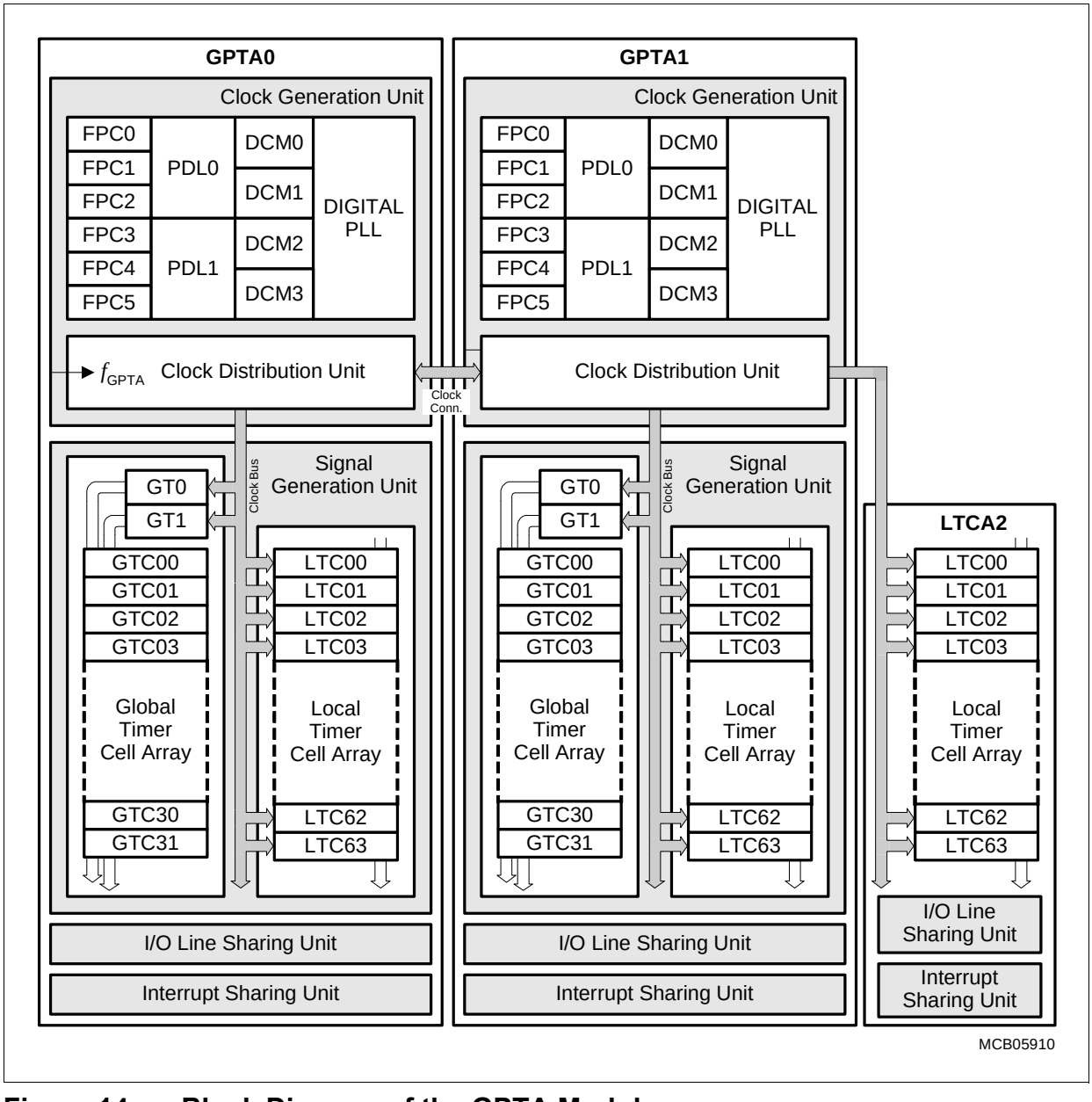



**Figure 14 Block Diagram of the GPTA Modules**

**Figure 17** shows an overview on the System Timer with the options for reading parts of STM contents.

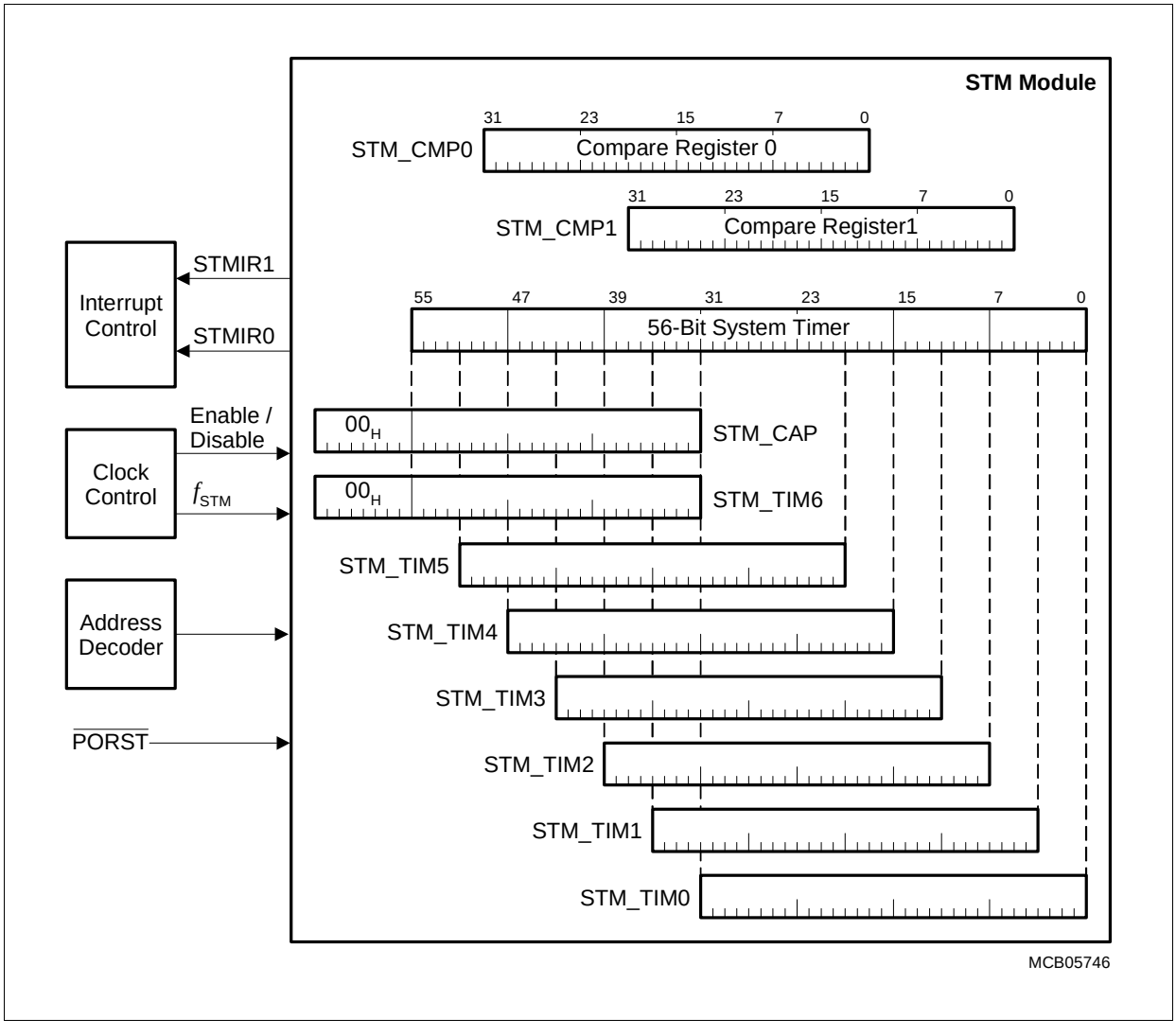



**Figure 17 General Block Diagram of the STM Module Registers**

# Electrical Parameters

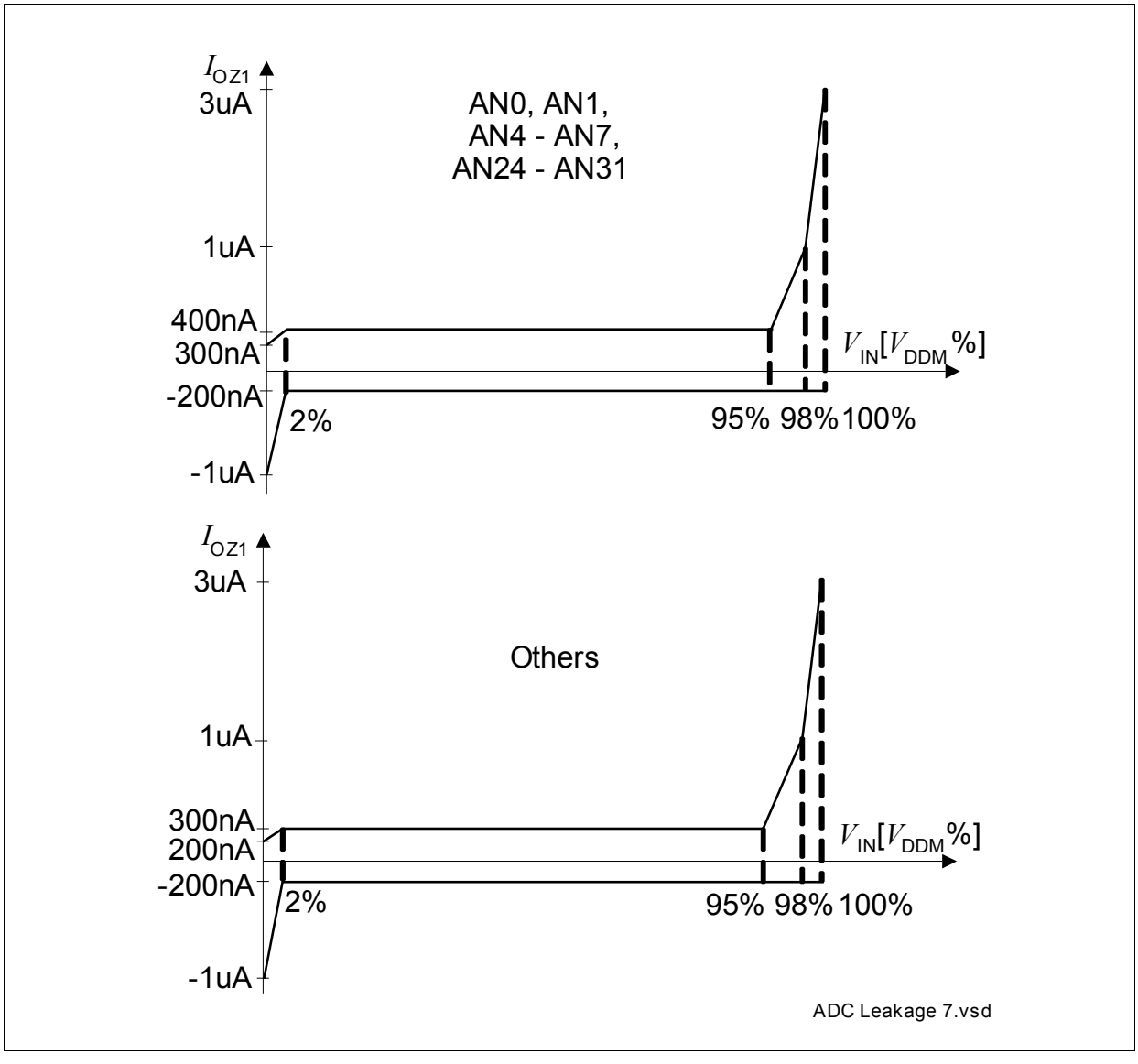



**Figure 24 ADC0/ADC1Analog Inputs Leakage**

### 4.3.7 Debug Trace Timing

$V_{SS}$ = 0 V;

### 4.3.9.2 Demultiplexed Write Timing



**Figure 39 EBU Demultiplexed Write Timing**

### 4.3.11 EBU Arbitration Signal Timing

$V_{SS}$ = 0 V;$V_{DD}$ = 1.5 V ± 5%; $V_{DDEBU}$ = 2.5 V ± 5% and 3.3 V ± 5%, Class B pins;
$T_A$ = -40°C to +125 °C; $C_L$ = 35 pF;

**Table 31 EBU Arbitration Signal Timing Parameters[1)]**

| Parameter | Symbol | | Values | | | Unit | Note / Test Condition |
|---|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | | |
| Output delay from CLKOUT rising edge | $t_{27}$ | CC | – | – | 3 | ns | – |
| Data setup to CLKOUT falling edge | $t_{28}$ | SR | 8 | – | – | ns | – |
| Data hold from CLKOUT falling edge | $t_{29}$ | SR | 2 | – | – | ns | – |

1) Not subject to production test, verified by design/characterization.

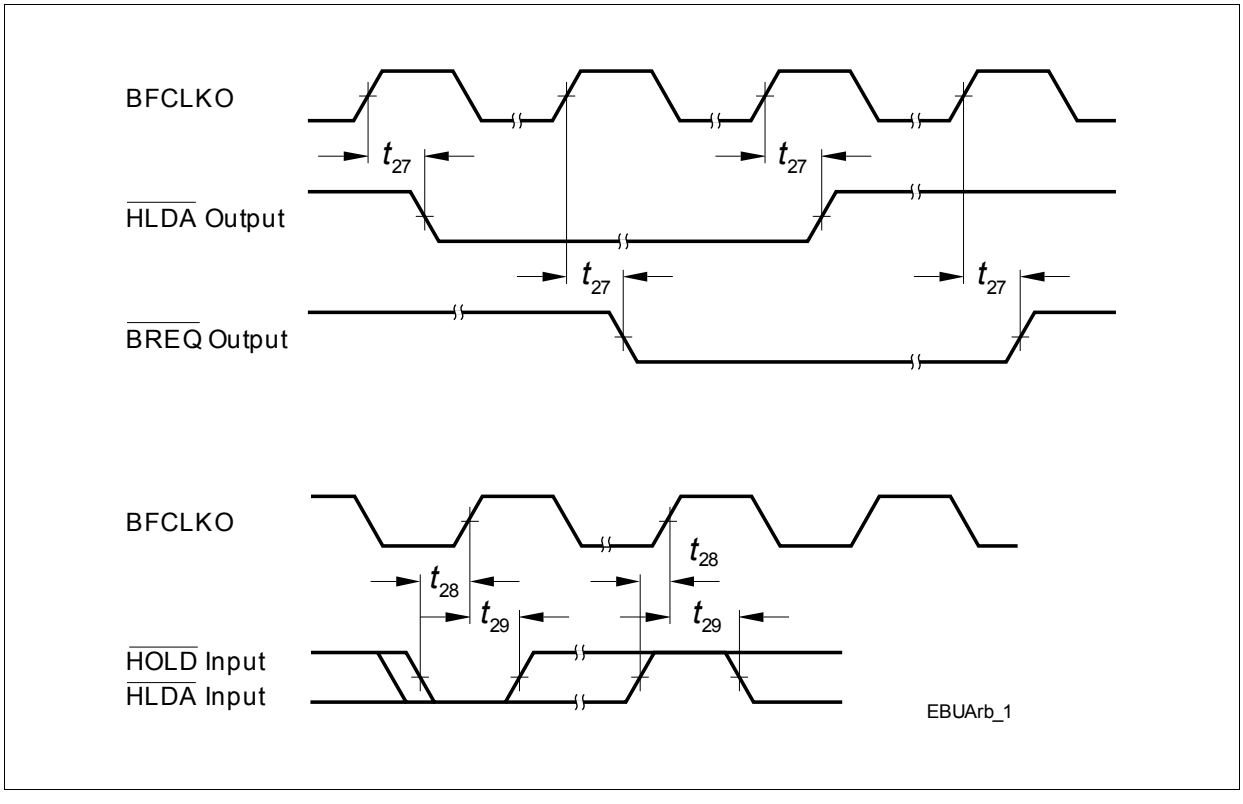



**Figure 41 EBU Arbitration Signal Timing**

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