



**TMPM368FDFG**



**TMPM368FDXBG**

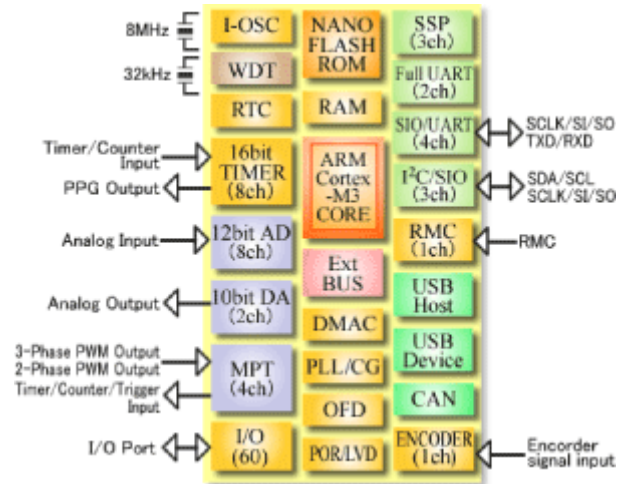


**High-functionality ARM Cortex™-M3 core based microcontroller of maximum operating frequency 80MHz with USB 2.0 Host/device controller (Full speed), and CAN controller.**

**Features**

**ARM Cortex™-M3 CPU Core**

- ▶ Operating voltage:  
2.7 to 3.6V (Single supply/on-chip regulator)  
\* 3.0 to 3.45V when USB is used.
- ▶ Maximum Operating frequency:  
80 MHz
- ▶ On-chip debug circuit:  
JTAG, SWD, SWV or 4-bit trace interface
- ▶ Power saving operation  
Clock gear (for dividing clock to 1/2 to 1/16)  
Standby modes (IDLE, STOP1, STOP2)



**Built-in Functions**

- ▶ CAN controller : 1 channel
- ▶ USB Host controller (Full speed) : 1 channel
- ▶ USB device controller (Full speed) : 1 channel
- ▶ DMA controller : 2 units (32 channels each)
- ▶ 12-bit AD converter :  
1- $\mu$ s conversion time (@ADCLK = 40 MHz (note1)), 2 unit ADCs (4-channels and 4-channels)  
(note1: a high-speed AD conversion (0.5- $\mu$ s conversion time is possible in interleave mode))
- ▶ 10-bit DA converter : 2 channels
- ▶ 16-bit timer : 8 channels
- ▶ Multi-purpose timer (MPT) : 4 channels
  - Three-phase PWM output : 1 channel
  - IGBT control-timer output : 4 channels
- ▶ Encoder output : 1 channel
- ▶ I/O ports : 59 pins  
Output ports : 1 pin
- ▶ UART : 2 channels
- ▶ SIO/UART : 4 channels
- ▶ I²C (100 kHz, 400 kHz)/SIO : 3 channels

**Flash Memory Size**

| Part number    | ROM (Flash) | RAM       |
|----------------|-------------|-----------|
| TMPM368FDFG**  | 512 Kbyte   | 128 Kbyte |
| TMPM368FDXBG** | 512 Kbyte   | 128 Kbyte |

\*\* : Under development

- ▶ SSP (SPI mode) : 3 channels
- ▶ RTC : 1 channel
- ▶ Remote control signal preprocessor : 1 channel
- ▶ External bus interface : 8/16-bit (Multiplex bus)
- ▶ On-chip oscillator (10 MHz)
- ▶ Oscillation frequency detector (OFD)
- ▶ Low voltage detector (LVD)
- ▶ Power-on reset circuit (POR)

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\* NANO FLASH is a trademark of Toshiba Corporation.

## Package Information

FG: LQFP100 (14 × 14 mm)

XBG: TFBGA109 (9 × 9 mm)

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