

# MN101C32G / CF32G

<b>Type</b>	<b>MN101C32G / CF32G (under development)</b>
<b>ROM (×8-Bit)</b>	128 K / 128 K (Flash)
<b>RAM (×8-Bit)</b>	4 096 / 4 096

<b>Minimum Instruction Execution Time</b>	<b>Standard:</b>	<b>0.1 μs (at 2.7 V to 3.6 V, 20 MHz)*2</b> <b>0.2 μs (at 2.3 V to 3.6 V, 10 MHz)*1,2</b> <b>0.5 μs (at 1.8 V to 3.6 V, 4 MHz)*1,2</b> <b>125 μs (at 1.8 V to 3.6 V, 32 kHz)*1,2</b>
	<b>Double speed:</b>	<b>0.1 μs (at 2.7 V to 3.6 V, 10 MHz)*2</b> <b>0.2 μs (at 2.3 V to 3.6 V, 5 MHz)*1,2</b> <b>0.5 μs (at 1.8 V to 3.6 V, 2 MHz)*1,2</b> <b>62.5 μs (at 1.8 V to 3.6 V, 32 kHz)*1,2</b>

\*1 The limit for operation guarantee for low voltage flash EPROM built-in version is 2.3 V to 3.0 V.

\*2 The limit for operation guarantee for high-speed flash EPROM built-in version is 2.7 V to 3.6 V.

<b>Interrupts</b>	<ul style="list-style-type: none"> <li>• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • Timer 0</li> <li>• Timer 1 • Timer 2 • Timer 3 • Timer 4 • Timer 6 • Time Base • Serial 3 • Serial 1 • Serial 2</li> <li>• Automatic Transfer finish • A/D Conversion finish • Timer 7 (2 systems)</li> <li>• Key Interrupts (8 lines)</li> </ul>
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<b>Timer Counter</b>	<b>Timer Counter 0 : 8-Bit × 1</b> (Square-Wave/8-Bit PWM Output, Event Count, Generation of Remote Control Carrier, Pulse Width Measurement)
	Clock Source . . . 1/2, 1/4 of System Clock, 1/1, 1/4, 1/16, 1/32, 1/64 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock, External Clock Input
	Interrupt Source . . . Coincidence with Compare Register 0
	<b>Timer Counter 1 : 8-Bit × 1</b> (Square-Wave Output, Event Count, Synchronous Output Event)
	Clock Source 1/2, 1/8 of System Clock, 1/1, 1/4, 1/16, 1/64, 1/128 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock, External Clock Input
	Interrupt Source Coincidence with Compare Register 1
	<b>Timer Counter 0, 1 can be cascade-connected.</b>
	<b>Timer Counter 2 : 8-Bit × 1</b> (Square-Wave/8-Bit PWM Output, Event Count, Synchronous Output Event, Pulse Width Measurement)
	Clock Source . . . 1/2, 1/4 of System Clock, 1/1, 1/4, 1/16, 1/32, 1/64 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock, External Clock Input
	Interrupt Source . . . Coincidence with Compare Register 2
	<b>Timer Counter 3 : 8-Bit × 1</b> (Square-Wave Output, Event Count, Generation of Remote Control Carrier)
	Clock Source 1/2, 1/8 of System Clock, 1/1, 1/4, 1/16, 1/64, 1/128 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock, External Clock Input
	Interrupt Source Coincidence with Compare Register 3
	<b>Timer Counter 2, 3 can be cascade-connected.</b>
	<b>Timer Counter 4 : 8-Bit × 1</b> (Square-Wave/8-Bit PWM Output, Event Count, Pulse Width Measurement, Serial 1 Baud Rate Timer)
	Clock Source . . . 1/2, 1/4 of System Clock, 1/1, 1/4, 1/16, 1/32, 1/64 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock, 1/1 of External Clock Input
	Interrupt Source . . . Coincidence with Compare Register 4
	<b>Timer Counter 6 : 8-Bit Freerun Timer</b>
	Clock Source . 1/1 of System Clock, 1/1, 1/4096, 1/8192 of OSC Oscillation Clock, 1/1, 1/4096, 1/8192 of XI Oscillation Clock
	Interrupt Source Coincidence with Compare Register 6

<b>Timer Counter (Continue)</b>	<b>Timer Counter 7 : 16-Bit × 1</b> (Square-Wave/16-Bit PWM Output, Cycle / Duty continuous variable, Event Count, Synchronous Output Event, Pulse Width Measurement, Input Capture)	
	Clock Source	1/1, 1/2, 1/4, 1/16 of System Clock, 1/1, 1/2, 1/4, 1/16 of OSC Oscillation Clock, 1/1, 1/2, 1/4, 1/16 of External Clock Input
	Interrupt Source	Coincidence with Compare Register 7 (2 lines)
	<b>Time Base Timer</b> (One-Minute Count Setting)	
	Clock Source	1/1 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock
	Interrupt Source	1/128, 1/256, 1/512, 1/1024, 1/8192, 1/32768, of Clock Source
	<b>Watchdog Timer</b>	
	Interrupt Source	1/65536, 1/262144, 1/1048576 of System Clock
	<b>DMA Controller</b> (Automatic data transfer)	
	Max Transfer Cycles	255
Starting Factor	External Request, Various Types of Interrupt, Software	
Transfer Mode	1-Byte Transfer, Word Transfer, Burst Transfer	

<b>Serial Interface</b>	<b>Serial 1 : 8-Bit × 1</b> (Synchronous Type/Simple UART[Half-Duplex])	
	Clock Source	1/2, 1/4 of System Clock Pulse Output of Timer Counter 4 1/2, 1/4, 1/16, 1/64 of OSC Oscillation Clock
	<b>Serial 2 : 8-Bit × 1</b> (Synchronous Type)	
	Clock Source	1/2, 1/4 of System Clock Pulse Output of Timer Counter 3 1/2, 1/4, 1/16, 1/32 of OSC Oscillation Clock
	<b>Serial 3 : 8-Bit × 1</b> (Synchronous Type/Simple I <sup>2</sup> C)	
	Clock Source	1/2, 1/4 of System Clock Pulse Output of Timer Counter 3 1/2, 1/4, 1/16, 1/32 of OSC Oscillation Clock

<b>I/O Pins</b>	<b>I/O</b>	<b>57</b>	• Common use • Specified pull-up Resistor available • Input / Output selectable (bit unit)
	<b>Input</b>	<b>12</b>	• Common use • Specified pull-up Resistor available

<b>A/D Inputs</b>	10-Bit × 7ch (with S/H)
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<b>Special Ports</b>	Buzzer Output, Remote Control Carrier Signal Output, High-Current Drive Port
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<b>Package</b>	TQFP080-P-1212C *Pb Free
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**Electrical Characteristics**

**Supply Current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	fosc = 10 MHz, VDD = 3 V			10	mA
	IDD2	fx = 4 MHz, VDD = 3 V			4	mA
Supply Current at STOP	IDD6	VDD = 3 V, Ta = 25 °C			2	µA
	IDD7	VDD = 3 V, Ta = -40 °C to +85 °C			20	µA

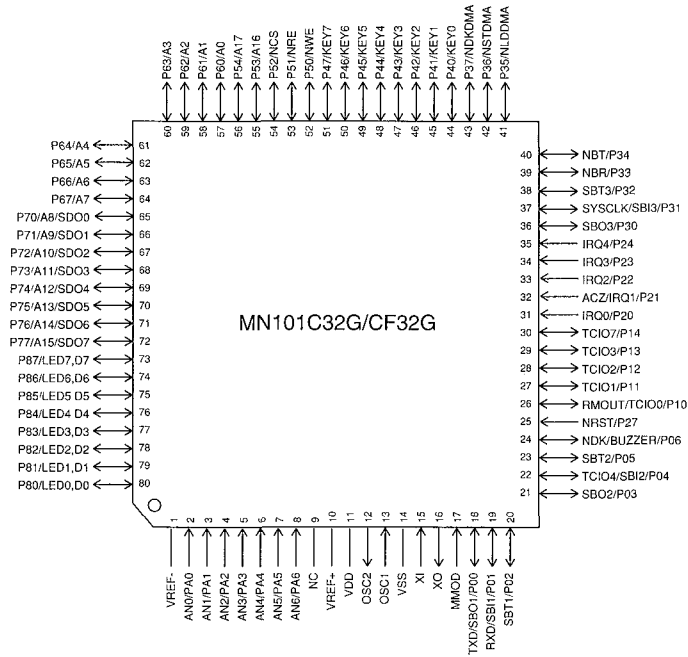
See the next page for support tool and pin assignment.

# Support Tool

## In-Circuit Emulator

PX-ICE101C / D + PX-PRB101C32-MBB

## Pin Assignment



TQFP080-P-1212C\*

\*Pb Free

NC serves as the VPP terminal in the MN101CF32G, and cannot be used as a user terminal