

# MN1020019 / 0219 / 0419 / 0819

<b>Type</b>		<b>MN1020019 / 0219 / 0419 / 0819</b>	
<b>ROM (×8-Bit / ×16-Bit)</b>		External / 16 K / 32 K / 64 K (External Memory Expandable)	
<b>RAM (×8-Bit / ×16-Bit)</b>		3 K / 1 K / 2 K / 3 K (External Memory Expandable)	
<b>Minimum Instruction Execution Time</b>		<b>MN1020019 / 0219 / 0419 / 0819 : 100 ns (at 4.5 V to 5.5 V, 20 MHz)</b> <b>MN1020019 / 0219 / 0419 : 200 ns (at 2.7 V to 3.3 V, 10 MHz)</b>	
<b>Interrupts</b>		<ul style="list-style-type: none"> <li>• RESET • Watchdog • Timer Counter 0 to 3</li> <li>• External 0 to 3 • NMI • Serial ch 0, 1 Transmission • Serial ch 0, 1 Reception</li> <li>• A/D Conversion finish</li> </ul>	
<b>Timer Counter</b>		<p><b>Timer Counter 0,1 : 8-Bit × 1</b> (Timer Output, Event Count)</p> <p>Clock Source . . . 1/(1 to 256) of System Clock, External Clock</p> <p>Interrupt Source . . . Underflow of Timer Counter 0, 1</p> <p><b>Timer Counter 2 : 8-Bit × 1</b> (Timer Output, Event Count, UART Baud Rate Generator, Synchronous Serial Clock Generator, DRAM Refresh Timing Generator)</p> <p>Clock Source . . . 1/(1 to 256) of System Clock, External Clock</p> <p>Interrupt Source . . . Underflow of Timer Counter 2</p> <p><b>Timer Counter 3 : 8-Bit × 1</b> (Timer Output, Event Count, UART Baud Rate Generator, Synchronous Serial Clock Generator)</p> <p>Clock Source . . . 1/(1 to 256) of System Clock, External Clock</p> <p>Interrupt Source . . . Underflow of Timer Counter 3</p> <p style="text-align: center;">(Connectable) Timer Counter 0, 1</p>	
<b>Serial Interface</b>		<p><b>Serial 0 : 7,8-Bit × 1</b> (Common use with UART, Transfer direction of MSB/LSB selectable)</p> <p>Clock Source . . . 1/8 of Timer Counter 2, 1/8 of Timer Counter 3, External Clock</p> <p><b>Serial 1 : 7,8-Bit × 1</b> (Common use with UART, Transfer direction of MSB/LSB selectable)</p> <p>Clock Source . . . 1/8 of Timer Counter 2, 1/8 of Timer Counter 3, External Clock</p> <p><b>UART × 2</b> (Common use with Serial 0, 1)</p>	
<b>I/O Pins</b>	<b>I/O</b>	<b>51</b>	<ul style="list-style-type: none"> <li>• Common use 51 (35 by-bit, 16 by-byte) (MN1020219 / 0419 / 0819), 21 (All individual bit control) (MN1020019)</li> </ul>
	<b>Input</b>	<b>1</b>	<ul style="list-style-type: none"> <li>• Common use 1</li> </ul>
<b>A/D Inputs</b>		8-Bit × 4ch (with S/H)	
<b>Notes</b>		DRAM Refresh Controller	
<b>Package</b>		QFH064-P-1414B	

## Electrical Characteristics

### A/D, D/A Characteristics

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
A/D Conversion Relative Error		VDD = 5 V, VSS = 0 V			±3	LSB
A/D Conversion Time		fosc = 20 MHz	4	8		μs
Analog Input Voltage	VIA		VSS		VDD	V

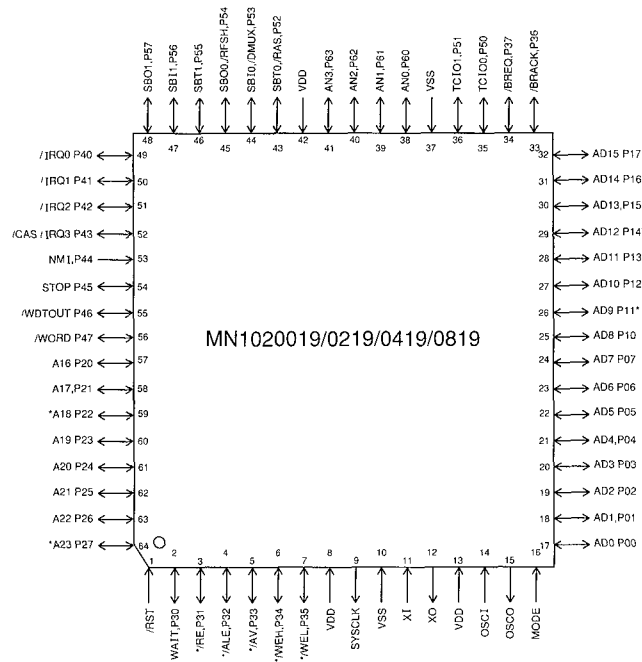
(Ta = 25 °C, VDD = 5.0 V, VSS = 0 V)

Support Tool

In-Circuit Emulator

PX-ICE102L00 + PX-PRB1020019

Pin Assignment



QFH064-P-1414B

\* Use of these ports are disabled for MN1020019

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Datasheets for electronics components.