

MN1020019 / 0219 / 0419 / 0819

Type		MN1020019 / 0219 / 0419 / 0819	
ROM (×8-Bit / ×16-Bit)		External / 16 K / 32 K / 64 K (External Memory Expandable)	
RAM (×8-Bit / ×16-Bit)		3 K / 1 K / 2 K / 3 K (External Memory Expandable)	
Minimum Instruction Execution Time		MN1020019 / 0219 / 0419 / 0819 : 100 ns (at 4.5 V to 5.5 V, 20 MHz) MN1020019 / 0219 / 0419 : 200 ns (at 2.7 V to 3.3 V, 10 MHz)	
Interrupts		• RESET • Watchdog • Timer Counter 0 to 3 • External 0 to 3 • NMI • Serial ch 0, 1 Transmission • Serial ch 0, 1 Reception • A/D Conversion finish	
Timer Counter		Timer Counter 0,1 : 8-Bit × 1 (Timer Output, Event Count) Clock Source . . . 1/(1 to 256) of System Clock, External Clock Interrupt Source . . Underflow of Timer Counter 0, 1 Timer Counter 2 : 8-Bit × 1 (Timer Output, Event Count, UART Baud Rate Generator, Synchronous Serial Clock Generator, DRAM Refresh Timing Generator) Clock Source . . . 1/(1 to 256) of System Clock, External Clock Interrupt Source . . Underflow of Timer Counter 2 Timer Counter 3 : 8-Bit × 1 (Timer Output, Event Count, UART Baud Rate Generator, Synchronous Serial Clock Generator) Clock Source . . . 1/(1 to 256) of System Clock, External Clock Interrupt Source . . Underflow of Timer Counter 3 Connectable . . . Timer Counter 0, 1	
Serial Interface		Serial 0 : 7,8-Bit × 1 (Common use with UART, Transfer direction of MSB/LSB selectable) Clock Source . . . 1/8 of Timer Counter 2, 1/8 of Timer Counter 3, External Clock Serial 1 : 7,8-Bit × 1 (Common use with UART, Transfer direction of MSB/LSB selectable) Clock Source . . . 1/8 of Timer Counter 2, 1/8 of Timer Counter 3, External Clock UART × 2 (Common use with Serial 0, 1)	
I/O Pins	I/O	51	• Common use 51 (35 by-bit, 16 by-byte) (MN1020219 / 0419 / 0819), 21 (All individual bit control) (MN1020019)
	Input	1	• Common use 1
A/D Inputs		8-Bit × 4ch (with S/H)	
Notes		DRAM Refresh Controller	
Package		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

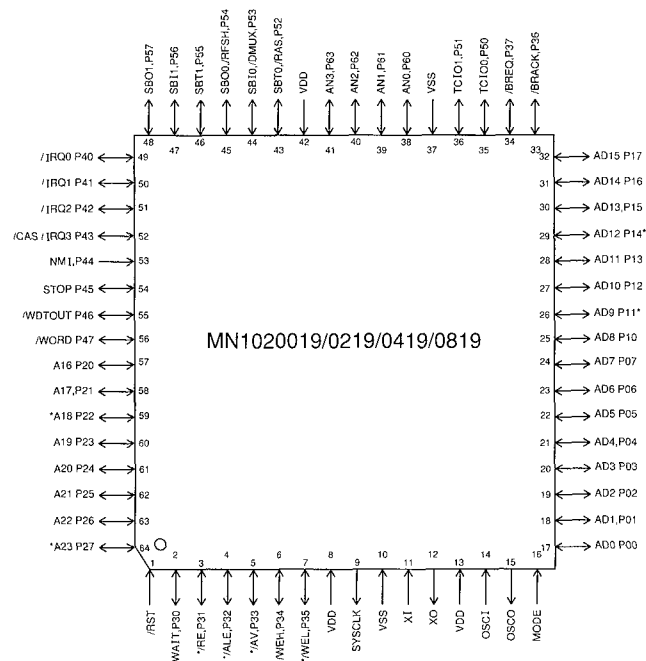
(Ta = 25 °C, VDD = 5.0 V, VSS = 0 V)

Support Tool

In-Circuit Emulator

PX-ICE102L00 + PX-PRB1020019

Pin Assignment



QFH064-P-1414B

* Use of these ports are disabled for MN1020019