

# MN101C309 / 30A

<b>Type</b>	<b>MN101C309 (under planning) / 30A (under development)</b>	
<b>ROM (×8-Bit)</b>	24 K / 32 K (External memory can be expanded)	
<b>RAM (×8-Bit)</b>	1 024 / 1 536 (External memory can be expanded)	
<b>Minimum Instruction Execution Time</b>	<b>0.10 μs (at 4.5 V to 5.5 V, 20 MHz)</b> <b>0.25 μs (at 2.7 V to 5.5 V, 8 MHz)</b> <b>1.00 μs (at 2.0 V to 5.5 V, 2 MHz)*</b> <b>125 μs (at 2.0 V to 5.5 V, 32 kHz)*</b> * The lower limit for operation guarantee for EPROM built-in version is 2.7 V.	
<b>Interrupts</b>	• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • Timer 0 • Timer 1 • Timer 2 • Timer 3 • Timer 4 • Timer 5 • Time Base • Serial 0 • Serial 1 • Automatic Transfer finish • A/D Conversion finish	
<b>Timer Counter</b>	<p><b>Timer Counter 0 : 8-Bit × 1</b> (Square-Wave/8-Bit PWM Output, Event Count, Generation of Remote Control Carrier)                      Clock Source 1/1, 1/4 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input                      Interrupt Source Coincidence with Compare Register 0</p> <p><b>Timer Counter 1 : 8-Bit × 1</b> (Square-Wave Output, Event Count, Synchronous Output Event)                      Clock Source 1/16, 1/64 of System Clock, 1/1 of XI Oscillation Clock, External Clock Input                      Interrupt Source . Coincidence with Compare Register 1</p> <p><b>Timer Counter 0, 1 can be cascade-connected.</b></p> <p><b>Timer Counter 2 : 8-Bit × 1</b> (Square-Wave/8-Bit PWM Output, Event Count, Synchronous Output Event)                      Clock Source 1/1, 1/4 of System Clock, 1/1 of XI Oscillation Clock, External Clock Input                      Interrupt Source Coincidence with Compare Register 2</p> <p><b>Timer Counter 3 : 8-Bit × 1</b> (Square-Wave Output, Event Count, Generation of Remote Control Carrier, Serial 0 Baud Rate Timer)                      Clock Source . 1/4, 1/16 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input                      Interrupt Source Coincidence with Compare Register 3</p> <p><b>Timer Counter 2, 3 can be cascade-connected.</b></p> <p><b>Timer Counter 4 : 16-Bit × 1</b> (Square-Wave/16-Bit PWM Output, Event Count, Synchronous Output Event, Input Capture)                      Clock Source 1/4, 1/16 of System Clock, 1/1 of OSC Oscillation Clock, External Clock Input                      Interrupt Source Coincidence with Compare Register 4</p> <p><b>Time Base Timer</b> (One-Minute Count Setting, Independently operable 8-Bit Timer Counter 5)                      Clock Source . . . 1/4 of System Clock, 1/1, 1/8192 of OSC Oscillation Clock,                      1/1, 1/8192 of XI Oscillation Clock                      Interrupt Source . . . Coincidence with Compare Register 5, 1/8192 Prescaler Overflow</p> <p><b>Watchdog Timer</b>                      Interrupt Source 1/65536, 1/262144, 1/1048576 of System Clock (ROM Option)</p>	
<b>Serial Interface</b>	<p><b>Serial 0 : 8-Bit × 1</b> (Synchronous Type/Simple UART[Half-Duplex])                      Clock Source 1/2, 1/4, 1/16 of System Clock                      1/2 of Timer Counter 3</p> <p><b>Serial 1 : 8-Bit × 1</b> (Synchronous Type)                      Clock Source . 1/2, 1/8, 1/64 of System Clock                      1/2 of Timer Counter 3</p>	

<b>I/O Pins</b>	<b>I/O</b>	<b>41</b>	• Common use • Specified pull-up Resistor available • Input/Output selectable (bit unit)
	<b>PD Input</b>	<b>13</b>	• Common use • Specified pull-up Resistor available



<b>A/D Inputs</b>	10-Bit × 8ch (with S/H)
<b>Special Ports</b>	Buzzer Output, Remote Control Carrier Signal Output, High-Current Drive Port
<b>Package</b>	MN101C309 LQFP064-P-1414 MN101C30A LQFP064-P-1414, SDIP064-P-0750 (under planning)

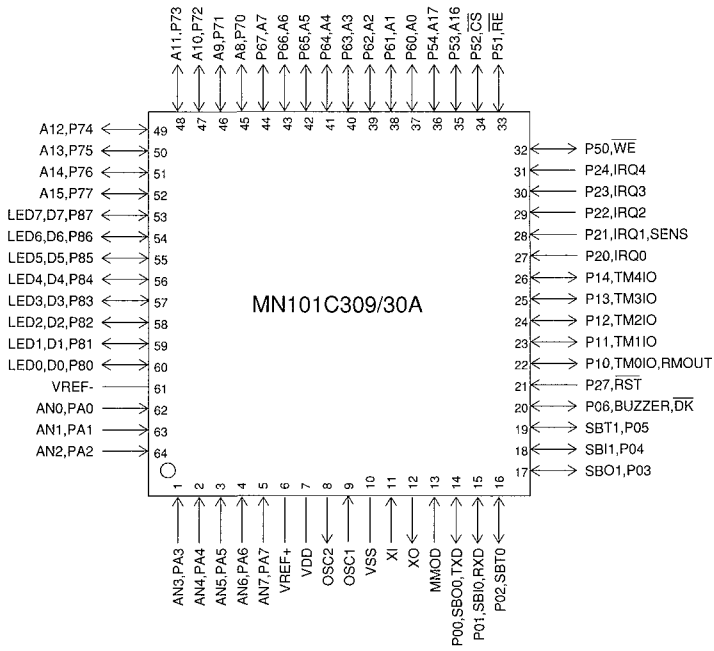
**Electrical Characteristics****Supply Current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	f <sub>osc</sub> = 20 MHz, VDD = 5 V			60	mA
	IDD2	f <sub>x</sub> = 32 kHz, VDD = 3 V			100	μA
Supply Current at HALT1	IDD3	f <sub>x</sub> = 32 kHz, VDD = 3 V, Ta = 25 °C			8	μA
		f <sub>x</sub> = 32 kHz, VDD = 3 V, Ta = 85 °C			18	μA
Supply Current at STOP	IDD4	VDD = 5 V, Ta = 25 °C			2	μA
		VDD = 5 V, Ta = -40 °C to +85 °C			20	μA

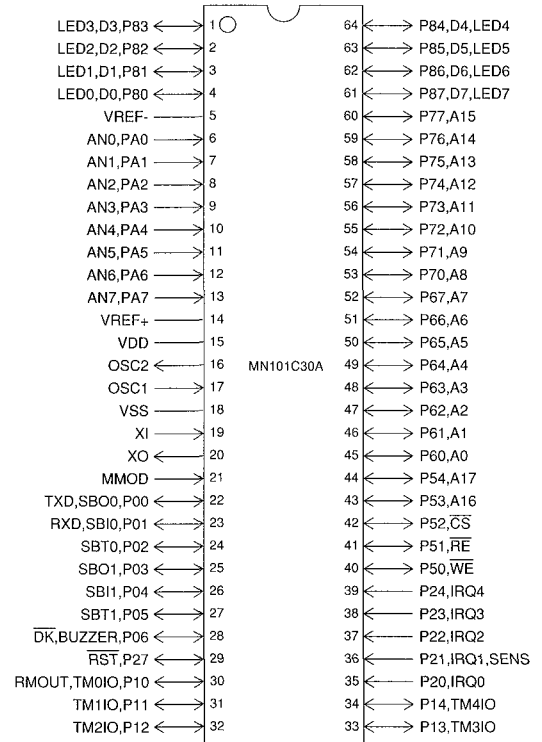
**Support Tool**

<b>In-Circuit Emulator</b>	PX-ICE101C / D + PX-PRB101C30-C / D	
<b>EPROM built-in Type</b>	<b>Type</b>	MN101CP30ABL (under development)
	<b>ROM (× 8-Bit)</b>	32 K
	<b>RAM (× 8-Bit)</b>	1 536
	<b>Minimum Instruction Execution Time</b>	0 10 μs (at 4.5 V to 5.5 V, 20 MHz)
		0 25 μs (at 2.7 V to 5.5 V, 8 MHz)
	<b>Package</b>	LQFP064-P-1414, SDIP064-P-0750 (under planning)

## Pin Assignment



LQFP064-P-1414



SDIP064-P-0750 (under planning)