

# MN101C109 / 10A

<b>Type</b>	<b>MN101C109 (under development) / 10A</b>	
<b>ROM (x8-bit)</b>	24K/32K (External memory can be expanded)	
<b>RAM (x8-bit)</b>	1024/1536 (External memory can be expanded)	
<b>Minimum Instruction Execution Time</b>	<b>0.10 <math>\mu</math>s (at 4.5 to 5.5V, 20MHz)</b> <b>0.25 <math>\mu</math>s (at 2.7 to 5.5V, 8MHz)</b> <b>1.00 <math>\mu</math>s (at 2.0 to 5.5V, 2MHz)*</b> <b>125 <math>\mu</math>s (at 2.0 to 5.5V, 32kHz)*</b> * The lower limit for operation guarantees for EPROM built-in version is 2.7V.	
<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 • Clock Timer • Serial 0 • Serial 1 • Automatic Transfer finish • A/D Conversion finish	
<b>Timer Counter</b>	<p><b>Timer Counter 0 : 8-bit x 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 x 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 x 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 x 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 x 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, Five independently operable 8-bit Timer Counter)                      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>                      Clock Source ..... 1/65536, 1/262144, 1/1048576 of System Clock (ROM Option)</p>	
<b>Serial Interface</b>	<p><b>Serial 0 : 8-bit x 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 x 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>Input</b>	<b>13</b> • Common use • Specified pull-up Resistor available

<b>A/D Inputs</b>	10-bit x 8ch (with S/H)
<b>Special Ports</b>	Buzzer Output, Remote Control Carrier Signal Output, High-current Drive Port
<b>Package</b>	LQFP064-P-1414, SDIP064-P-0750
<b>Electrical Characteristics</b>	

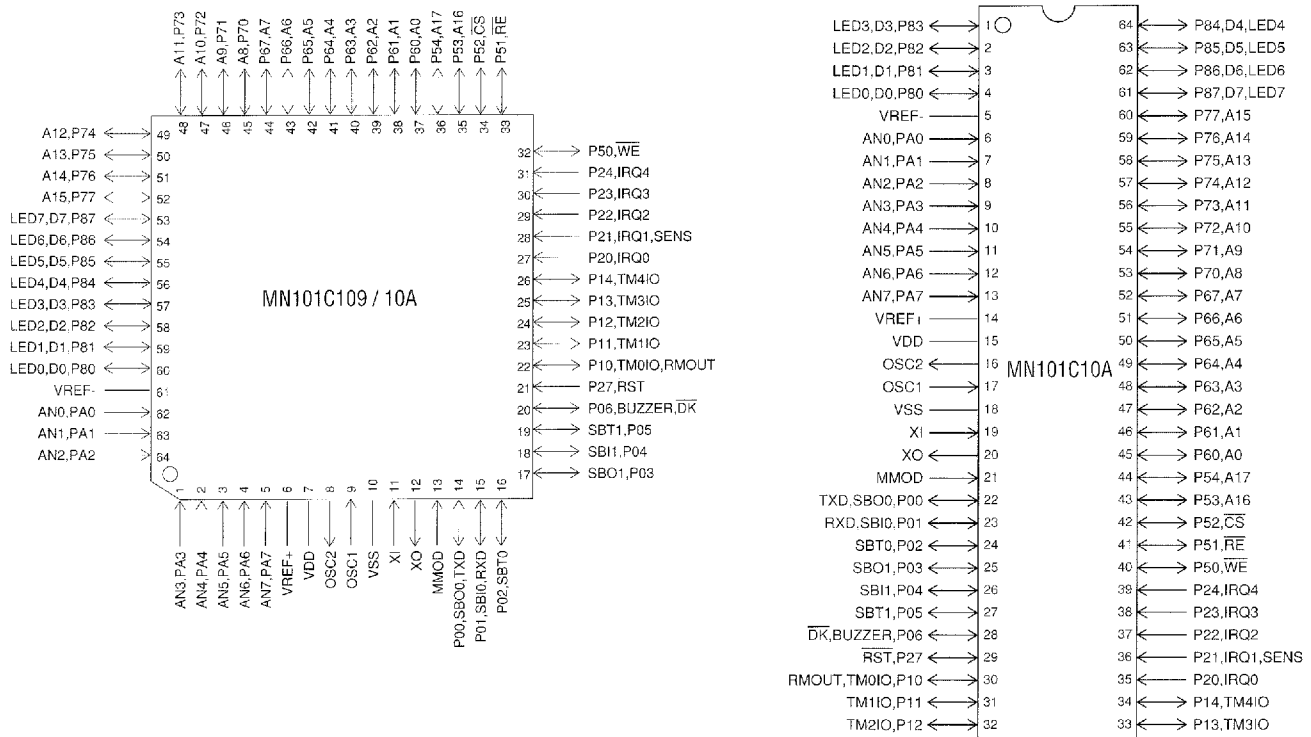
**Supply Current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	fosc = 20MHz, VDD = 5V			60	mA
	IDD2	fx = 32kHz, VDD = 3V			100	µA
Supply Current at HALT	IDD3	fx = 32kHz, VDD = 3V			8	µA
Supply Current at STOP	IDD4	VDD = 5V, Ta = 25°C			1	µA
		VDD = 5V, Ta = -40~85°C			30	µA

**Support Tool**

<b>In-Circuit Emulator</b>	PX-ICE101C + PX-PRB101C10A
<b>EPROM built-in Type</b>	Use <b>MN101CP10D</b> [ES (Engineering Sample) available] / MN101CP10A (under development) in LQFP064-P-1414 / SDIP064-P-0750 package.

**Pin Assignment**



LQFP064-P-1414

SDIP064-P-0750