❑ MN101C18A

Type	**MN101C18A (under development)**
ROM (x8-bit)	32K (External memory can be expanded)
RAM (x8-bit)	1024 (External memory can be expanded)
Minimum Instruction Execution Time	**Standard: 0.10 µs (at 4.5 to 5.5V, 20MHz)** **0.25 µs (at 2.7 to 5.5V, 8MHz)** **1.00 µs (at 2.0 to 5.5V, 2MHz)*** **125 µs (at 2.0 to 5.5V, 32kHz)*** **Double speed: 0.10 µs (at 4.5 to 5.5V, 10MHz)** **0.25 µs (at 2.7 to 5.5V, 4MHz)** **1.00 µs (at 2.0 to 5.5V, 1MHz)*** **62.5 µs (at 2.0 to 5.5V, 32kHz)***
	*** The lower limit for operation guarantee for EPROM built-in version is 2.7V.**
Interrupts	• RESET • Watch dog • 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 (2 systems) • Key interruption (8 lines) • Serial 1 • Automatic Transfer finish • A/D conversion finish • External 5 • Timer 6 • Timer 7 (2 systems) • Timer8
Timer Counter	**Timer Counter 0 : 8-bit x 1** (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, External Clock Input, 1/1 of XI Oscillation Clock Interrupt Source.....Coincidence with Compare Register 0 **Timer Counter 1: 8-bit x 1** (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 **Timer Counter 0, 1 can be cascade-connected.** **Timer Counter 2: 8-bit x 1** (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 **Timer Counter 3: 8-bit x 1** (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 Clock, 1/1 of XI Oscillation Clock, External Clock Input Interrupt Source.....Coincidence with Compare Register 3 **Timer Counter 2, 3 can be cascade-connected.** **Timer Counter 4: 8-bit x 1** (Square-wave/8-bit PWM Output, Event Count, Pulse Width Measurement, Serial 0 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 **Timer Counter 5: 8-bit x 1** (Square-wave Output, Event Count, Serial 1 Baud Rate Timer) 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, 1/1 of External Clock Input Interrupt Source.....Coincidence with Compare Register 5 **Timer Counter 4, 5 can be cascade-connected.**

Timer Counter (Continue)

Timer Counter 6: 8-bit Freerun Timer

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

Timer Counter 7: 16-bit x 1 (Square-wave/16-bit PWM Output [Frequency/Duty Continuously Variable], Event Count, Input Capture, Synchronous Output Event, Pulse Width Measurement)

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)

Timer Counter 8: 16-bit x 1 (Square-wave/8-bit PWM Output, Event Count, Input Capture, Pulse Width Measurement)

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 8

Time Base Timer (One-minute Count Setting)

Clock Source.....1/1 of OSC Oscillation Clock, 1/1 of XI Oscillation Clock

Interrupt Source.....Overflow of 1/32768 Prescaller

Watchdog Timer

Clock Source.....1/1048576, 1/65536, 1/262144 of System Clock

DMA Controller

Max. Transfer Cycles.....255

Starting Factor .....External Request, Various Types of Interrupt, Software

Transfer Mode .....1-byte Transfer, Word Transfer, Burst Transfer

Serial Interface

Serial 0: 8-bit x 1 (Synchronous Type/UART [full-duplex])

Clock Source.....1/2, 1/16 of System Clock, 1/2 of Timer Counter 4, 1/2, 1/4, 1/16, 1/32 of OSC Oscillation Clock

Serial 1: 8-bit x 1 (Synchronous Type/Simple UART [Half-duplex])

Clock Source.....1/2, 1/16 of System Clock, 1/2 of Timer Counter 5, 1/2, 1/4, 1/16, 1/32 of OSC Oscillation Clock

I/O Pins	**I/O**	**57**	• Common use • Specified pull-up Resistor available • Input/Output selectable (bit unit)
	Input	**13**	• Common use • Specified pull-up Resistor available

A/D Inputs

10-bit x 8ch (with S/H)

Special Ports

Buzzer Output, Remote Control Carrier Signal Output, High-current Drive Port

Package

LQFP080-P-1414A, QFP084-P-1818E

Electrical Characteristics

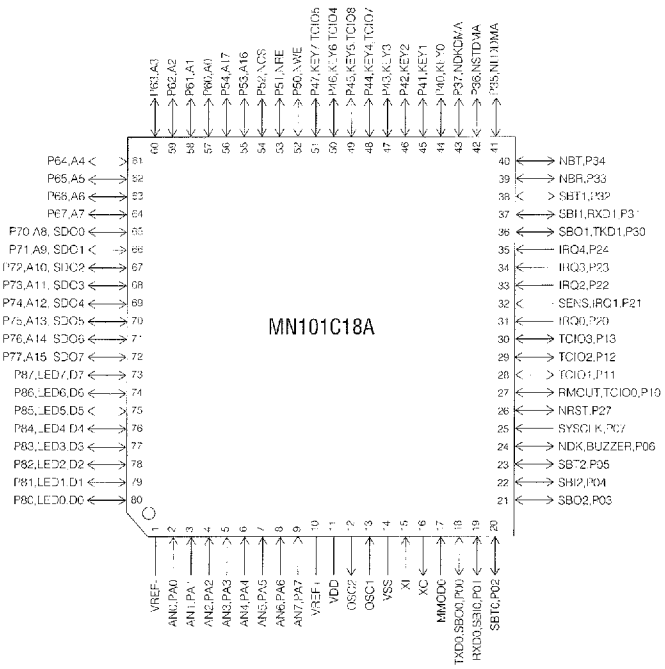
Supply Current

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=85°C			30	µA

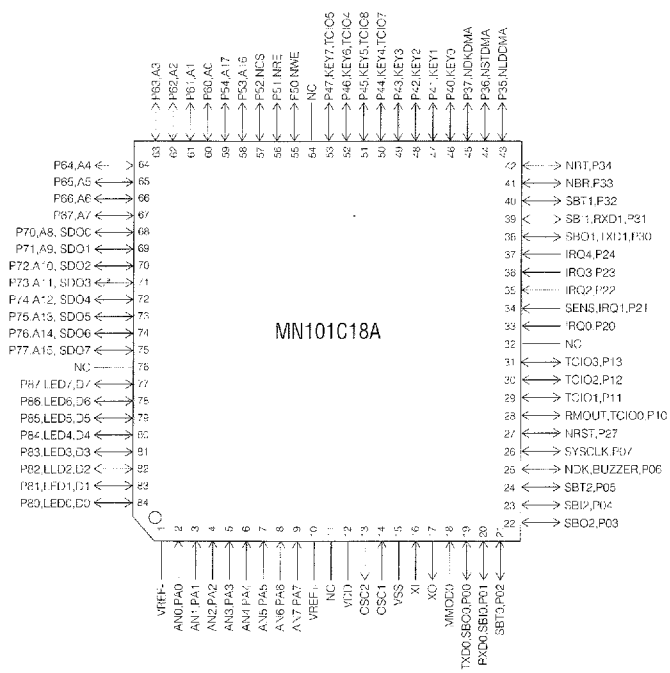
Support Tool

In-Circuit Emulator	PX-ICE101C + PX-PRB101C18
EPROM built-in Type	Use **MN101CP18A** [ES (Engineering Sample) available] in LQFP080-P-1414A, QFP084-P-1818E package.

Pin Assignment



LQFP080-P-1414A



QFPS084-P-1818E