

MN101C28A / 28C / 28D / 28L

Type	MN101C28A (under planning) / 28C (under planning) / 28D (under development) / 28L (under development)
ROM (x8-bit)	32K/48K/64K/96K (External memory can be expanded)
RAM (x8-bit)	1536/2048/2048/10240 (External memory can be expanded)
Minimum Instruction Execution Time	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)* * The lower limit for operation guarantee for EPROM built-in version is 2.7V.
Interrupts	• 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 • Serial 2 • Automatic Transfer finish • A/D Conversion finish
Timer Counter	Timer Counter 0 : 8-bit x 1 (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 Timer Counter 1 : 8-bit x 1 (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 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) 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 Timer Counter 3 : 8-bit x 1 (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 Timer Counter 2, 3 can be cascade-connected. Timer Counter 4 : 16-bit x 1 (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 Time Base Timer (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 Watchdog Timer Interrupt Source 1/65536, 1/262144, 1/1048576 of System Clock (ROM Option)
Serial Interface	Serial 0 : 8-bit x 1 (Synchronous Type/Simple UART[Half-duplex]) Clock Source 1/2, 1/4, 1/16 of System Clock 1/2 of Timer Counter 3 Serial 1 : 8-bit x 1 (Synchronous Type) Clock Source 1/2, 1/8, 1/64 of System Clock 1/2 of Timer Counter 3 Serial 2 : 8-bit x 1 (Synchronous Type/Simple I²C) Clock Source 1/1, 1/2, 1/4 of System Clock 1/2 of Timer Counter 0

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		MN101C28A / 28C / 28D LQFP080-P-1414A, TQFP080-P-1212, QFP084-P-1818E MN101C28L LQFP080-P-1414A	

Electrical Characteristics

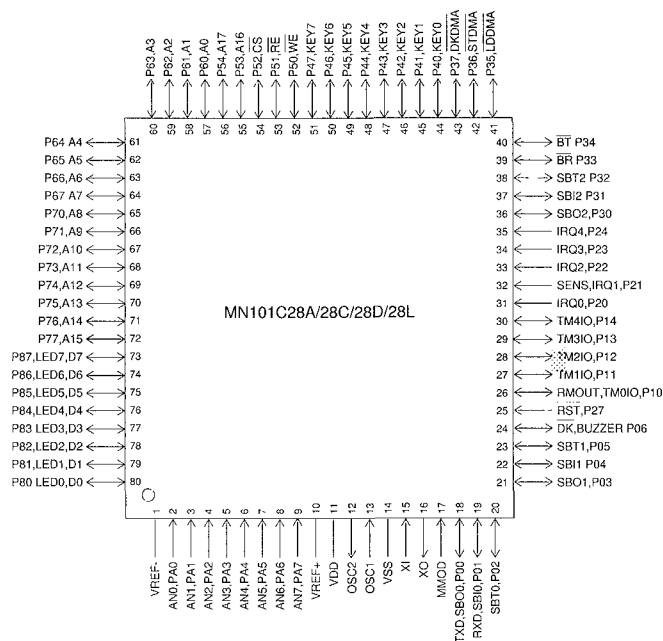
Supply Current

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, Ta =25°C			8	μA
		fx = 32kHz, VDD = 3V, Ta =85°C			20	μA
Supply Current at STOP	IDD4	VDD = 5V, Ta =25°C			1	μA
		VDD = 5V, Ta =85°C			30	μA

Support Tool

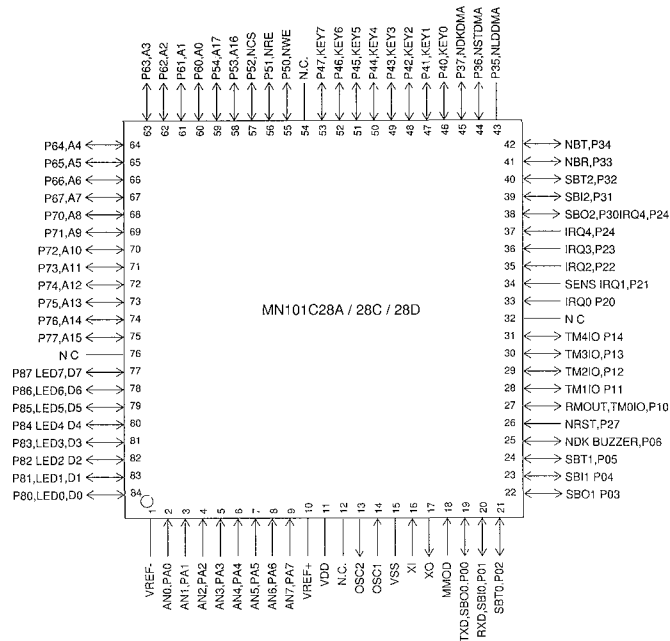
In-Circuit Emulator	PX-ICE101C / D + PX-PRB101C28-C / D	
EPROM built-in Type	Type	MN101CP28DAL (under development) / CP28LAL (under development)
	ROM (x 8-bit)	96K/96K
	RAM (x 8-bit)	2048/10240
	Minimum Instruction Execution Time	0 10μs (at 4 5 to 5 5V, 20MHz) 0 25μs (at 2 7 to 5 5V, 8MHz)
	Package	LQFP080-P-1414A, TQFP080-P-1212, QFP084-P-1818E

Pin Assignment



LQFP080-P-1414A (MN101C28A / 28C / 28D / 28L)

TQFP080-P-1212 (MN101C28A / 28C / 28D)



QFP084-P-1818E