

# □ MN101C38A , MN101C38C

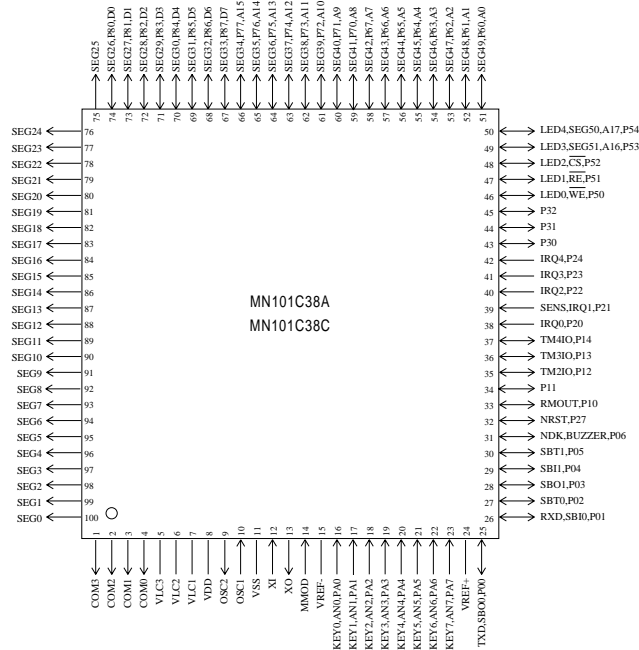
<b>Type</b>		MN101C38A	MN101C38C
<b>ROM (×8-bit)</b> External memory can be expanded		32 K	48 K
<b>RAM (×8-bit)</b> External memory can be expanded		1.5 K	2 K
<b>Package</b>		QFP100-P-1818B *Lead-free, LQFP100-P-1414 *Lead-free	
<b>Minimum Instruction Execution Time</b>		0.1 μs (at 4.5 V to 5.5 V, 20 MHz) 0.25 μs (at 2.7 V to 5.5 V, 8 MHz) 125 μs (at 2.0 V to 5.5 V, 32 kHz)*	
* The lower limit for operation guarantee for EPROM built-in type is 2.3 V.			
<b>Interrupts</b>		• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • Timer 2 • Timer 3 • Timer 4 • Timer 5 • Time base • Serial 0 • Serial 1 • A/D conversion finish	
<b>Timer Counter</b>		<p>Timer counter 2 : 8-bit × 1 (square-wave/8-bit PWM output, event count, synchronous output event)            Clock source ..... 1/1, 1/4 of system clock frequency; 1/1 of XI oscillation clock frequency;            external clock input            Interrupt source ..... coincidence with compare register 2</p> <p>Timer counter 3 : 8-bit × 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 frequency; 1/1 of OSC oscillation clock frequency;            external clock input            Interrupt source ..... coincidence with compare register 3</p> <p>Timer counter 2, 3 can be cascade-connected.</p> <p>Timer counter 4 : 16-bit × 1            (square-wave/16-bit PWM output, event count, synchronous output event, input capture)            Clock source ..... 1/4, 1/16 of system clock frequency; 1/1 of OSC oscillation clock frequency;            external clock input            Interrupt source ..... coincidence with compare register 4</p> <p>Time base timer (one-minute count setting, independently operable 8-bit timer counter 5)            Clock source ..... 1/4 of system clock frequency; 1/1, 1/8192 of OSC oscillation clock frequency;            1/1, 1/8192 of XI oscillation clock frequency            Interrupt source ..... coincidence with compare register 5; 1/8192 prescaler overflow</p> <p>Watchdog timer            Interrupt source ..... 1/65536, 1/262144, 1/1048576 of system clock frequency (mask option)</p>	
<b>Serial Interface</b>		<p>Serial 0 : synchronous type/simple UART (half-duplex) × 1            Clock source ..... 1/2, 1/4, 1/16 of system clock frequency; 1/2 of timer counter 3 frequency</p> <p>Serial 1 : synchronous type × 1            Clock source ..... 1/2, 1/8, 1/64 of system clock frequency; 1/2 of timer counter 3 frequency</p>	
<b>I/O Pins</b>	<b>I/O</b>	44	• Common use • Specified pull-up resistor available • Input/output selectable (bit unit) • Specified pull-down resistor partially selectable
	<b>Input</b>	13	• Common use • Specified pull-up resistor available • Specified pull-down resistor partially selectable
<b>A/D Inputs</b>		10-bit × 8-ch. (with S/H)	
<b>LCD</b>		52 segments × 4 commons (Static, 1/2, 1/3, or 1/4 duty)	
<b>Special Ports</b>		Buzzer output, remote control carrier signal output, high-current drive port	

**Electrical Characteristics**

**Supply current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	fosc = 8 MHz, VDD = 5 V		10	25	mA
	IDD2	fx = 32 kHz, VDD = 3 V		30	100	µA
Supply current at HALT	IDD3	fx = 32 kHz, VDD = 3 V, Ta = 25°C			8	µA
	IDD4	fx = 32 kHz, VDD = 3 V, Ta = -40°C to +85°C			24	µA
Supply current at STOP	IDD5	VDD = 5 V, Ta = 25°C			1	µA
		VDD = 5 V, Ta = -40°C to +85°C			20	µA

**Pin Assignment**



QFP100-P-1818B \*Lead-free

LQFP100-P-1414 \*Lead-free

**Support Tool**

**In-circuit Emulator**

PX-ICE101C / D + PX-PRB101C38-QFP100-P-1818B  
 PX-ICE101C / D + PX-PRB101C38-LQFP100-P-1414

**EPROM Built-in Type**

Type	MN101CP38C
ROM (× 8-bit)	48 K
RAM (× 8-bit)	2 K
Minimum instruction execution time	0.1 µs (at 4.5 V to 5.5 V, 20 MHz) 0.25 µs (at 2.7 V to 5.5 V, 8 MHz) 125 µs (at 2.3 V to 5.5 V, 32 kHz)
Package	QFP100-P-1818B *Lead-free, LQFP100-P-1414 *Lead-free

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