

□ MN101C73A, MN101C73D

Type	MN101C73A (under development)	MN101C73D (under planning)
ROM (x8-bit)	32 K	64 K
RAM (x8-bit)	1.5 K	2 K
Package	TQFP064-P-1010C *Lead-free, LQFP064-P-1414 *Lead-free (under planning)	
Minimum Instruction Execution Time	0.1 μ s (at 3.0 V to 3.6 V, 10 MHz) 0.235 μ s (at 1.8 V to 3.6 V, 4.25 MHz) 62.5 μ s (at 1.8 V to 3.6 V, 32 kHz)	
* The lower limit for operation guarantee for flash memory built-in type is 2.2 V.		
Interrupts	• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • External 5 • External 6 (key interrupt dedicated) • Timer 0 • Timer 1 • Timer 2 • Timer 3 • Timer 6 • Time base • Timer 7 (2 systems) • Timer 8 (2 systems) • Serial 0 (2 systems) • Serial 1 (2 systems) • Serial 3 • A/D conversion finish	
Timer Counter	<p>Timer counter 0 : 8-bit \times 1 (square-wave/8-bit PWM output, event count, generation of remote control carrier, simple pulse width measurement, added pluse (2-bit) system PWM output) (square-wave/PWM output to large current terminal P50 possible)</p> <p>Clock source 1/2, 1/4 of system clock frequency; 1/1, 1/4, 1/16, 1/32, 1/64 of OSC oscillation clock frequency; 1/1 of XI oscillation clock frequency; external clock input</p> <p>Interrupt source coincidence with compare register 0</p> <p>Timer counter 1 : 8-bit \times 1 (square-wave output, event count, synchronous output event)</p> <p>Clock source 1/2, 1/8 of system clock frequency; 1/1, 1/4, 1/16, 1/64, 1/128 of OSC oscillation clock frequency; 1/1 of XI oscillation clock frequency; external clock input; timer counter 8 output</p> <p>Interrupt source coincidence with compare register 1</p> <p>Timer counter 0, 1 can be cascade-connected.</p> <p>Timer counter 2 : 8-bit \times 1 (square-wave output, added pluse (2-bit) system PWM output, PWM output, serial transfer clock output, event count, synchronous output event, simple pulse width measurement) (square-wave/PWM output to large current terminal P51 possible)</p> <p>Clock source 1/2, 1/4 of system clock frequency; 1/1, 1/4, 1/16, 1/32, 1/64 of OSC oscillation clock frequency; 1/1 of XI oscillation clock frequency; external clock input</p> <p>Interrupt source coincidence with compare register 2</p> <p>Timer counter 3 : 8-bit \times 1 (square-wave output, event count, serial transfer clock)</p> <p>Clock source 1/2, 1/8 of system clock frequency; 1/1, 1/4, 1/16, 1/64, 1/128 of OSC oscillation clock frequency; 1/1 of XI oscillation clock frequency; external clock input</p> <p>Interrupt source coincidence with compare register 3</p> <p>Timer counter 2, 3 can be cascade-connected.</p> <p>Timer counter 6 : 8-bit freerun timer</p> <p>Clock source 1/1 of system clock frequency; 1/1, 1/128, 1/8192 of OSC oscillation clock frequency; 1/1, 1/128, 1/8192 of XI oscillation clock frequency</p> <p>Interrupt source coincidence with compare register 6</p>	

■ **Timer Counter (Continue)**

Timer counter 7 : 16-bit × 1
 (square-wave output, 16-bit PWM output (cycle / duty continuous variable), event count, synchronous output event, pulse width measurement, input capture, real time output control, high performance IGBT output (Cycle/Duty can be changed constantly)) (square-wave/PWM output to large current terminal P52 possible)
 Clock source 1/1, 1/2, 1/4, 1/16 of system clock frequency; 1/1, 1/2, 1/4, 1/16 of OSC oscillation clock frequency; 1/1, 1/2, 1/4, 1/16 of external clock input frequency
 Interrupt source coincidence with compare register 7 (2 lines), input capture register

Timer counter 8: 16 bit × 1
 (square-wave/16-bit PWM output [duty continuous variable], event count, pulse width measurement, input capture)
 (square-wave/PWM output to large current terminal P53 possible)
 Clock source 1/1, 1/2, 1/4, 1/16 of system clock frequency;
 1/1, 1/2, 1/4, 1/16 of OSC oscillation clock frequency;
 1/1, 1/2, 1/4, 1/16 of external clock input frequency
 Interrupt source coincidence with compare register 8 (2 lines), input capture register

Timer counters 7, 8 can be cascade-connected.
 (square-wave output, PWM is possible as a 32-bit timer.)

Time base timer (one-minute count setting)
 Clock source 1/1 of OSC oscillation clock frequency; 1/1 of XI oscillation clock frequency
 Interrupt source 1/128, 1/256, 1/512, 1/1024, 1/4096, 1/8192, 1/16384, 1/32768, of clock source frequency

Watchdog timer
 Interrupt source 1/65536, 1/262144, 1/1048576 of system clock frequency

■ **Serial Interface**

Serial 0 : synchronous type/UART (full-duplex) × 1
 Clock source 1/2, 1/4 of system clock frequency; pulse output of timer counter 1 or 2;
 1/2, 1/4, 1/16, 1/64 of OSC oscillation clock frequency, external clock

Serial 1 : synchronous type/UART (full-duplex) × 1
 Clock source 1/2, 1/4 of system clock frequency; pulse output of timer counter 1 or 2;
 1/2, 1/4, 1/16, 1/64 of OSC oscillation clock frequency, external clock

Serial 3 : synchronous type/single-master I²C × 1
 Clock source 1/2, 1/4 of system clock frequency; pulse output of timer counter 2 or 3;
 1/2, 1/4, 1/16, 1/32 of OSC oscillation clock frequency, external clock

I/O Pins	I/O	55	• Common use • Specified pull-up resistor available • Input/output selectable (bit unit)
A/D Inputs		10-bit × 12-ch. (with S/H)	
LCD		32 segments × 4 commons (static, 1/2, 1/3, or 1/4 duty) Usable if VLCD ≤ VDD LCD power shunt resistance contained	
Special Ports		Buzzer output, remote control carrier signal output, high-current drive port	
ROM Correction		Correcting address designation : up to 3 addresses possible	

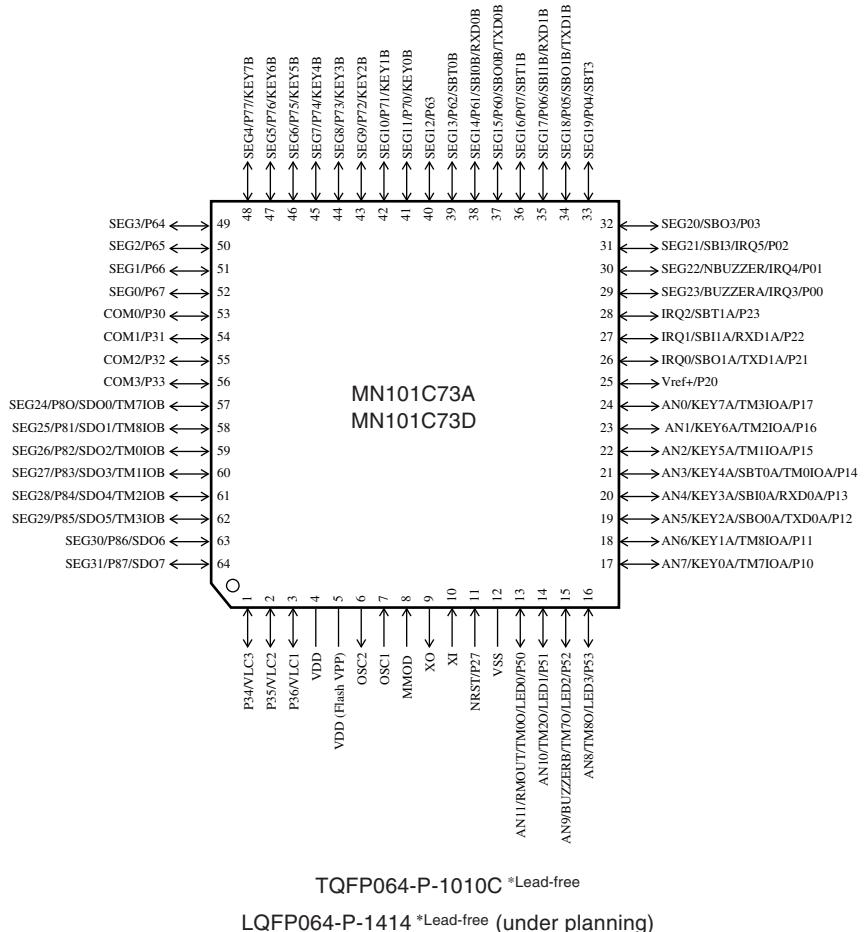
See the next page for pin assignment and support tool.

Electrical Characteristics

Supply current

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	$f_{osc} = 4 \text{ MHz}$, $VDD = 3 \text{ V}$		1	1.8	mA
	IDD2	$f_x = 32 \text{ kHz}$, $VDD = 3 \text{ V}$		4	15	µA
Supply current at HALT	IDD3	$f_x = 32 \text{ kHz}$, $VDD = 3 \text{ V}$, $T_a = 25^\circ\text{C}$		2	5	µA
	IDD4	$f_x = 32 \text{ kHz}$, $VDD = 3 \text{ V}$, $T_a = -40^\circ\text{C} \text{ to } +85^\circ\text{C}$			10	µA
Supply current at STOP	IDD5	$VDD = 3 \text{ V}$, $T_a = 25^\circ\text{C}$			2	µA
	IDD6	$VDD = 3 \text{ V}$, $T_a = -40^\circ\text{C} \text{ to } +85^\circ\text{C}$			8	µA

Pin Assignment



Support Tool

In-circuit Emulator	PX-ICE101C / D + PX-PRB101C73-TQFP064-P-1010C-M (under development) PX-ICE101C / D + PX-PRB101C73-LQFP064-P-1414-M (under development)	
Flash Memory Built-in Type	Type	MN101CF73A (under development), MN101CF73D (under planning)
	ROM (x 8-bit)	32 K, 64K
	RAM (x 8-bit)	2.0 K
	Minimum instruction execution time	0.1 μ s (at 3.0 V to 3.6 V, 10 MHz) 0.235 μ s (at 2.2 V to 3.6 V, 4.25 MHz) 62.5 μ s (at 2.2 V to 3.6 V, 32 kHz)
	Package	TQFP064-P-1010C *Lead-free, LQFP064-P-1414 *Lead-free (under planning)

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