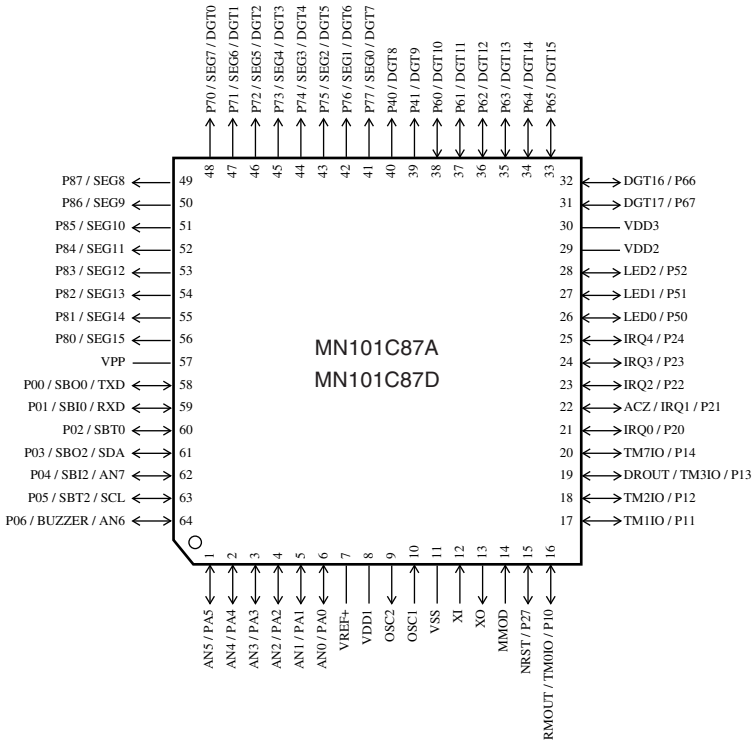
❑ MN101C87A , MN101C87D

Type	MN101C87A (under development)	MN101C87D (under planning)
ROM (×8-bit)	32 K	64 K
RAM (×8-bit)	1.5 K	2 K
Package	LQFP064-P-1414 *Lead-free	
Minimum Instruction Execution Time	0.1 µs (at 4.5 V to 5.5 V, 20 MHz) 0.24 µs (at 2.7 V to 5.5 V, 8.4 MHz) 0.48 µs (at 2.3 V to 5.5 V, 4.19 MHz) * 0.24 µs (at 2.0 V to 5.5 V, 2.0 MHz)* 62.5 µs (at 2.0 V to 5.5 V, 32 kHz) * * The lower limit for operation guarantee for EPROM built-in type is 2.5 V	
Interrupts	• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • Timer 0 • Timer 1 • Timer 2 • Timer 3 • Timer 6 • Time base • Timer 7 (2 systems) • Serial 0 (2 systems) • Serial 2 • A/D conversion finish • Automatic transfer finish • FL display key scan • FL display dimmer	
Timer Counter	Timer counter 0 : 8-bit × 1 (square-wave/8-bit PWM output, event count, generation of remote control carrier, simple pulse width measurement) 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 Interrupt source ····· coincidence with compare register 0 Timer counter 1 : 8-bit × 1 (square-wave output, event count, serial transfer clock) 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 Interrupt source ····· coincidence with compare register 1 Timer counter 0, 1 can be cascade-connected. Timer counter 2 : 8-bit × 1 (square-wave output, PWM output, serial transfer clock, event count, simple pulse width measurement) 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 Interrupt source ····· coincidence with compare register 2 Timer counter 3 : 8-bit × 1 (square-wave output, event count, generation of remote control carrier, serial transfer clock) 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 Interrupt source ····· coincidence with compare register 3 Timer counter 2, 3 can be cascade-connected. Timer counter 6 : 8-bit freerun timer 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 Interrupt source ····· coincidence with compare register 6 Timer counter 7 : 16-bit × 1 (square-wave output, 16-bit PWM output (cycle / duty continuous variable), event count, pulse width measurement, input capture) 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)	

Timer Counter (Continue)			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, 1/8192, 1/32768, of clock source frequency Watchdog timer Interrupt source ····· 1/65536, 1/262144, 1/1048576 of system clock frequency
DMA Controller (Automatic Data Transfer)			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 : 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 2 : synchronous type/single-master I^2C × 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**	26	• Common use • Specified pull-up resistor available • Input/output selectable (bit unit)
	High voltage	26	• Output: 18 • I/O: 8 • P-ch. open drain (breakdown voltage −30 V) : FL drive: 26 • Specified pull-down resistor mask option: 16
A/D Inputs			10-bit × 8-ch. (with S/H)
FL			(8 to 16) segments × (18 to 10) digits
Special Ports			Buzzer output, high-current drive port

Pin Assignment



LQFP064-P-1414 *Lead-free

See the next page for pin assignment and support tool.

Support Tool

In-circuit Emulator	PX-ICE101C / D + PX-PRB101C87-LQFP064-P-1414-M (under development)	
Flash Memory Built-in Type	Type	MN101CF87G (under development)
	ROM (× 8-bit)	128 K
	RAM (× 8-bit)	4 K
	Minimum instruction execution time	0.1 µs (at 4.5 V to 5.5 V, 20 MHz)
		0.24 µs (at 2.7 V to 5.5 V, 8.4 MHz)
		0.48 µs (at 2.5 V to 5.5 V, 4.19 MHz)
		62.5 µs (at 2.5 V to 5.5 V, 32 kHz)
	Package	LQFP064-P-1414 *Lead-free

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