❑ MN101C51F

Type	MN101C51F
ROM (×8-bit)	96 K (External memory can be expanded)
RAM (×8-bit)	6 K (External memory can be expanded)
Package	LQFP080-P-1414A *Lead-free
Minimum Instruction Execution Time	0.10 µs (4.5 V to 5.5 V, 20 MHz) 0.238 µs (2.6 V to 5.5 V, 8.39 MHz)* 0.333 µs (2.3 V to 5.5 V, 6 MHz)* 1.00 µs (2.0 V to 5.5 V, 2 MHz)* 125 µs (2.0 V to 5.5 V, 32.768 kHz)* * The lower limit for operation guarantee for flash memory built-in type is 3.0 V. The flash memory built-in type cannot be used in low speed mode (SLOW mode).
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 × 1 (square-wave/8-bit PWM output, event count, generation of remote control carrier) Clock source ····· 1/1, 1/4 of system clock frequency; 1/1 of OSC oscillation clock frequency; external clock input Interrupt source ····· coincidence with compare register 0 Timer counter 1 : 8-bit × 1 (square-wave output, event count, synchronous output event) Clock source ····· 1/16, 1/64 of system 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/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 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 Timer counter 2, 3 can be cascade-connected. 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 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 Watchdog timer Interrupt source ····· 1/1048576 of system clock frequency

Serial Interface			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 Serial 1 : synchronous type × 1 Clock source ····· 1/2, 1/8, 1/64 of system clock frequency; 1/2 of timer counter 3 frequency Serial 2 : synchronous type/simple I^2C × 1 Clock source ····· 1/4, 1/8, 1/16, 1/32 of system clock frequency; 1/4 of timer counter 0 frequency
I/O Pins	**I/O**	57 (55)	• Common use • Specified pull-up resistor available • Input/output selectable (bit unit) ( ) : Flash memory built-in type
	Input	13	• Common use • Specified pull-up resistor available
A/D Inputs			10-bit × 8-ch. (with S/H)
Special Ports			Buzzer output, remote control carrier signal output, high-current drive port

Electrical Characteristics

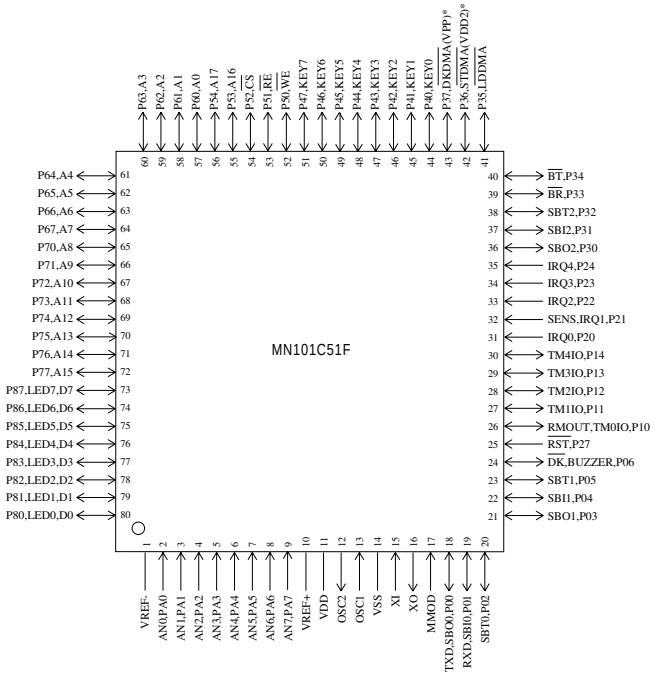
Supply current

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	fosc = 20 MHz, VDD = 5 V			50	mA
	IDD2	fx = 32.768 kHz, VDD = 3 V			120	µA
Supply current at HALT	IDD3	fx = 32.768 kHz, VDD = 3 V, Ta = 25°C			8	µA
		fx = 32.768 kHz, VDD = 3 V, Ta = 85°C			20	µA
Supply current at STOP	IDD4	VDD = 5 V, Ta = 25°C			1(3)	µA
		VDD = 5 V, Ta = 85°C			30(60)	µA

( ) : Flash memory built-in type

See the next page for pin assignment and support tool.

Pin Assignment



LQFP080-P-1414A *Lead-free

* Port 36 and port 37 serve as the power supply pin in the MN101CF51G, and cannot be used as a user pin.

Support Tool

In-circuit Emulator	PX-ICE101C/D+PX-PRB101C51-LQFP080-P-1414A	
Flash Memory Built-in Type	Type	MN101CF51G [ES (Engineering Sample) available]
	ROM (× 8-bit)	128 K
	RAM (× 8-bit)	10 K
	Minimum instruction execution time	0.10 µs (at 4.5 V to 5.5 V, 20 MHz) 0.238 µs (at 3.0 V to 5.5 V, 8.39 MHz) 0.333 µs (at 3.0 V to 5.5 V, 6 MHz)
	Package	LQFP080-P-1414A *Lead-free

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