

□ MN101EF35D

Type	MN101EF35D
Internal ROM type	FLASH
ROM (byte)	64K+4K
RAM (byte)	4K
Package (Lead-free)	TQFP048-P-0707B (Under development)
Minimum Instruction Execution Time	0.042 μ s (at 3.0 V to 3.6 V, 24 MHz) 62.5 μ s (at 3.0 V to 3.6 V, 32 kHz)

■ Interrupts

RESET, Watchdog, External 0 to 4, External 5 (key interrupt dedicated), External 6, Timer 0 to 4, Timer 6, Timer 7 (2 systems), Timer 8 (2 systems), Timer 9 (2 systems), Time base, Serial 1 (2 systems), Serial 2 (2 systems), Serial 4 (2 systems), A/D conversion finish, USB interrupts

■ Timer Counter

Timer counter 0 : 8-bit \times 1 (square-wave output, PWM output, event count, simple pulse width measurement)
(square-wave/PWM output to large current terminal P03 (TM0IOB) possible)

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 \times 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 \times 1

(square-wave output, PWM output, event count, simple pulse width measurement, serial transfer clock)

(square-wave/PWM output to large current terminal P03 (TM2IOB) possible)

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 \times 1 (square-wave output, event count)

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 4 : 8-bit \times 1 (square-wave output, PWM output, event count, simple pulse width measurement)

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 4

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 \times 1

(square-wave output, PWM output (cycle / duty continuous variable), event count, pulse width measurement, input capture)

(square-wave/PWM output to large current terminal P00 (TM7IOB) 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 output, PWM output (cycle / duty continuous variable), event count, pulse width measurement, input capture)

(square-wave/PWM output to large current terminal P01 (TM8IOB) 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 counter 9 : 16 bit × 1

(square-wave output, 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 8 (2 lines), input capture register

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 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 2 : 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 4 : synchronous type/multi-master I²C × 1 (applicable for 7-bit/10-bit address setting, general call)

■ **USB Functions**

Conforms to USB2.0. (Full-speed (12 Mbps) supported.)

USB transceiver built-in

3 endpoints (FIFO built-in independently)

FIFO size

(EP0, 1, 2) : 16, 128, 128 bytes

• EP0

Control transfer

IN/OUT (bi-direction)

• EP1 to EP2

Interrupt/Bulk/Isochronous transfer supported.

Settable to IN or OUT.

Double Buffering function supported.

When the MAXP size is set to a half or less of the MAXFIFO size for each EP, the Double Buffering function is made validated automatically.

■ **I/O Pins**

I/O	37	Common use , Specified pull-up resistor available, Input/output selectable (bit unit)
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■ **A/D converter**

10-bit × 8-ch. (with S/H)

■ **Special Ports**

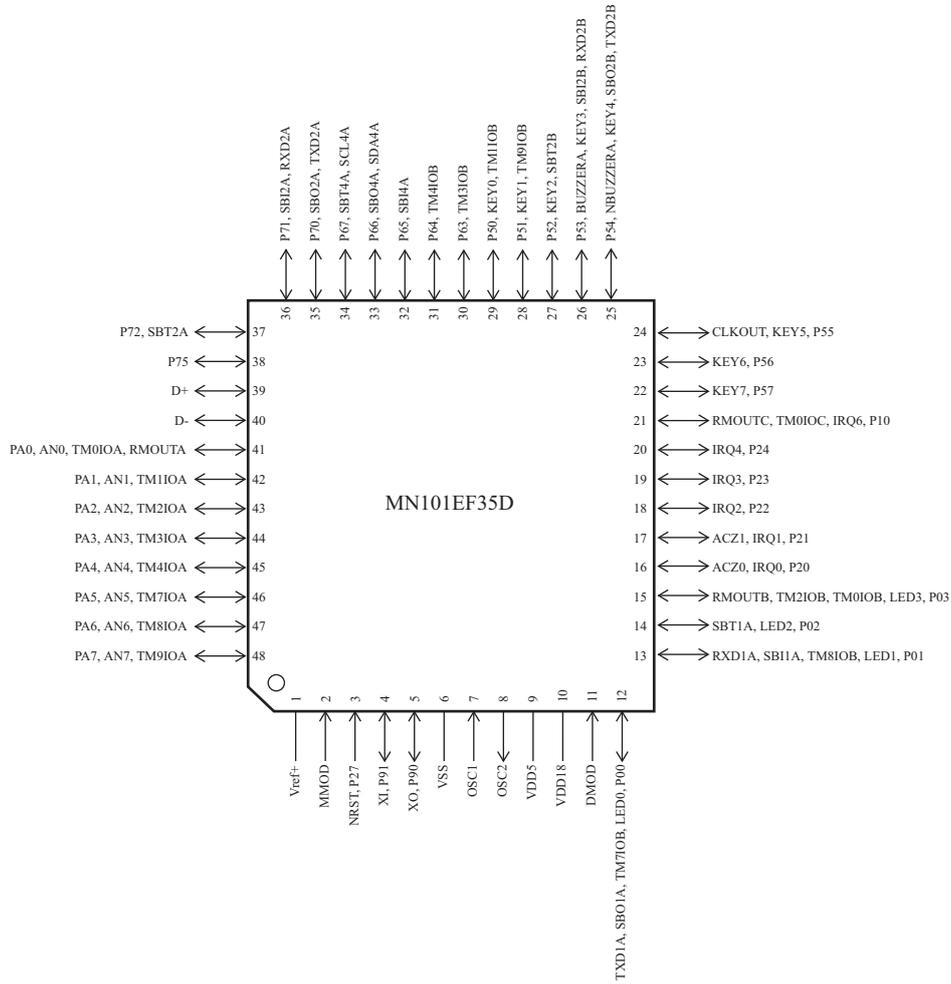
USB ports (D+, D-), Buzzer output, remote control carrier signal output, high-current drive port, clock output

■ **ROM Correction**

Correcting address designation : up to 7 addresses possible

- Development tools
 - In-circuit Emulator (Under development)

- Pin Assignment



TQFP048-P-0707B

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