❑ MN101C97A, MN101C97D

Type	MN101C97A	MN101C97D	MN101CF97D
Internal ROM type	Mask ROM		FLASH
ROM (byte)	32K	64K	
RAM (byte)	1K		
Package (Lead-free)	QFN044-P-0606A (Under planning), QFP044-P-1010F (Under planning), TQFP048-P-0707B		
Minimum Instruction Execution Time	0.25 µs (at 2.2 V to 3.6 V, 8 MHz) 0.5 µs (at 1.8 V to 3.6 V, 4 MHz)* 62.5 µs (at 1.8 V to 3.6 V, 32 kHz)* * The lower limit for operation guarantee for flash memory built-in type is 2.0 V.		

■ Interrupts

RESET, Watchdog, External 0 to 5, External 6 (key interrupt dedicated), Timer 0 to 3, Timer 6, Timer 7 (2 systems), Time base, Serial 0 (2 systems), Serial 3, 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, simple pulse width measurement, added pluse (2-bit) system PWM output)
(square-wave/PWM output to large current terminal P51 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 × 1
(square-wave output, event count, synchronous output event, serial transfer clock output)
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, 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 P52 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 × 1
(square-wave output, event count, generation of remote control carrier, serial transfer clock output)
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, synchronous output event, pulse width measurement, input capture, real time output control, high performance IGBT output)
(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 7 (2 lines), input capture register

Timer counters 7, 8 can be cascade-connected.
(square-wave output, PWM input capture, pluse width measurement 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 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	38	Common use , Specified pull-up resistor available, Input/output selectable (bit unit)

■ A/D converter

10-bit × 8-ch. (with S/H)

■ Special Ports

Buzzer output, remote control carrier signal output, high-current drive port

■ ROM Correction

Correcting address designation : up to 3 addresses possible

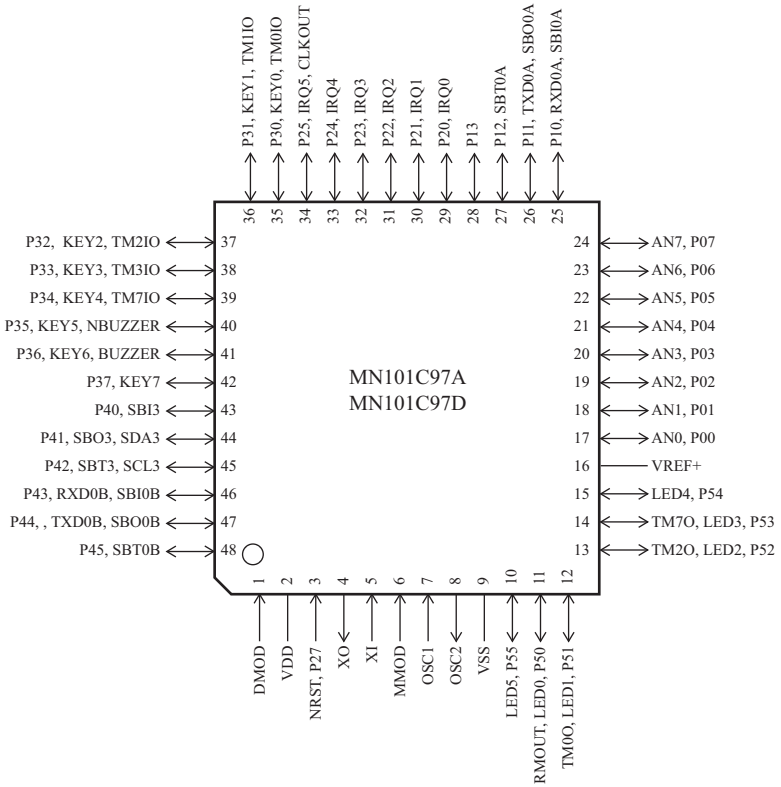
■ Electrical Charactreistics (Supply current)

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	fosc = 4 MHz, VDD = 3 V		0.9	1.7	mA
	IDD2	fx = 32 kHz, VDD = 3 V		4	24	µA
Supply current at HALT	IDD3	fx = 32 kHz , VDD = 3 V, Ta = 25°C		2.6	5	µA
	IDD4	fx = 32 kHz , VDD = 3 V , Ta = –40°C to +85°C			20	µA
Supply current at STOP	IDD5	VDD = 3 V , Ta = 25°C			2	µA
	IDD6	VDD = 3 V , Ta = –40°C to +85°C			15	µA

■ Development tools

In-circuit Emulator
PX-ICE101C/D+PX-PRB101C97-TQFP048-P-0707B-M
PX-ICE101C/D+PX-PRB101C97-QFP044-P-1010 (under planning)

■ Pin Assignment



TQFP048-P-0707B
QFP044-P-1010F
QFN044-P-0606A

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