❑ MN101C399 , MN101C39C

Type			MN101C399 (under planning)	MN101C39C
ROM (×8-bit) External memory can be expanded			24 K	48 K
RAM (×8-bit) External memory can be expanded			1 K	2 K
Package **(Conventional Package)**			TQFP080-P-1212D *Lead-free (TQFP080-P-1212C)	
Minimum Instruction Execution Time			0.10 µs (at 4.5 V to 5.5 V, 20 MHz) 0.25 µs (at 2.7 V to 5.5 V, 8 MHz) 125 µs (at 2.0 V to 5.5 V, 32 kHz)* * The lower limit for operation guarantee for EPROM built-in type is 2.3 V.	
Interrupts			• RESET • Watchdog • External 0 • External 1 • External 2 • External 3 • External 4 • Timer 2 • Timer 3 • Timer 4 • Timer 5 • Time base • Serial 0 • Serial 1 • A/D conversion finish	
Timer Counter			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 ····· 1/65536, 1/262144, 1/1048576 of system clock frequency (ROM option)	
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	
I/O Pins	**I/O**	49	• Common use • Specified pull-up resistor available • Input/output selectable (bit unit) • Specified pull-down resistor partially selectable	
	Input	12	• Common use • Specified pull-up resistor available • Specified pull-down resistor partially selectable	
A/D Inputs			10-bit × 8-ch. (with S/H)	
LCD			28 segments × 4 commons (Static , 1/2, 1/3, or 1/4 duty)	
Special Ports			Buzzer output, remote control carrier signal output, high-current drive port	

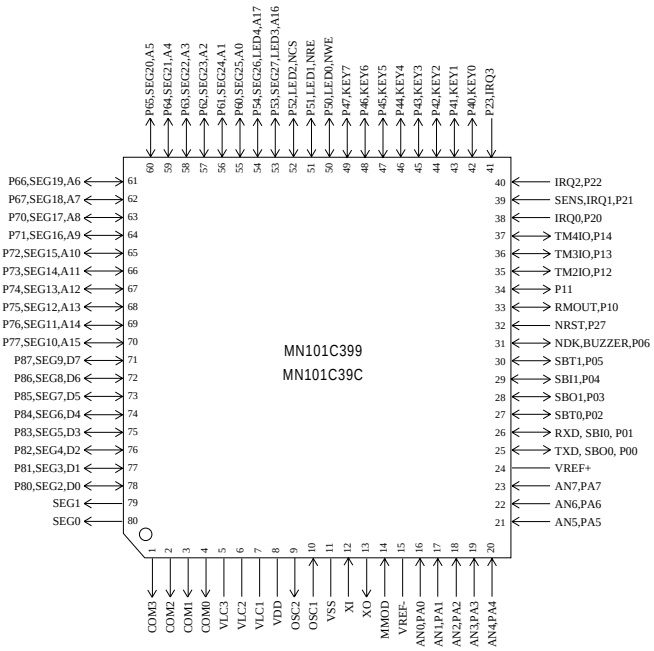
Electrical Characteristics

Supply current

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating supply current	IDD1	fosc = 8 MHz, VDD = 5 V		8	25	mA
	IDD2	fx = 32 kHz, VDD = 3 V		18	100	µA
Supply current at HALT	IDD3	fx = 32 kHz, VDD = 3 V, Ta = 25°C		3	8	µA
	IDD4	fx = 32 kHz, VDD = 3 V, Ta = –40°C to +85°C			25	µA
Supply current at STOP	IDD5	VDD = 5 V, Ta = 25°C			1	µA
		VDD = 5 V, Ta = –40°C to +85°C			20	µA

Pin Assignment

( ) : Conventional Package



TQFP080-P-1212D *Lead-free

(TQFP080-P-1212C)

Support Tool

In-circuit Emulator	PX-ICE101C / D + PX-PRB101C39-TQFP080-P-1212	
EPROM Built-in Type	Type	MN101CP39C
	ROM (× 8-bit)	48 K
	RAM (× 8-bit)	2 K
	Minimum instruction execution time	0.10 µs (at 4.5 V to 5.5 V, 20 MHz) 0.25 µs (at 2.7 V to 5.5 V, 8 MHz) 125 µs (at 2.3 V to 5.5 V, 32 kHz)*
	Package (Conventional Package)	TQFP080-P-1212D *Lead-free (TQFP080-P-1212C)

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