

MN150413 / 0813

Type			MN150413 / 0813
ROM (x8-bit)			4K/8K
RAM (x4-bit)			256/432
Number of Instructions			103
Minimum Instruction Execution Time			2.0μs at 1/4 frequency dividing (at 1.8 to 5.5V, 2MHz) 0.94μs at 1/4 frequency dividing (at 2.7 to 5.5V, 4.24MHz) 1.818μs at 1/8 frequency dividing (at 1.8 to 5.5V, 4.4MHz)
Interrupts			• RESET • External (Key Interrupt is available) • Timer • Serial
Timer Counter			Timer Counter 1 : 8-bit x 1 (Event Count) Clock Source : 1/2, 1/8, 1/32, 1/128 of System Clock, XI Oscillation Clock Remote Control Carrier Output 1/1, 1/4, 1/16, 1/64 of Time Base 8Hz Dividing Signal Interrupt Source : Overflow of Timer Counter 1 Time Counter 2 : 8-bit x 1 Clock Source : 1/1, 1/16, 1/32, 1/64 of OSC Oscillation Clock, 1/1, 1/16, 1/32, 1/64 of XI Oscillation Clock, 1/1, 1/16, 1/32, 1/64 of TC12 Pin Input Interrupt Source : Overflow of Timer Counter 2 Possible cascade connection with timer counter 1 Time Base Counter Clock Source : 1/8 of XI Oscillation Clock Watchdog Timer
Serial Interface			Serial : 8-bit x 1 (Synchronous Type) Clock Source : SBT Pin Input, System Clock
I/O Pins	I/O	16	• Common use 10 • Specified pull-up Resistor available 16 (Software Programmable) • SEG output selectable 8 (Software Programmable)
	Input	9	• Common use 5 • Specified pull-up Resistor available 9 (Software Programmable)
	Output	1	• Common use 1
LCD			33 Segments • 2 Common • 1/2 Duty, 33 Segments • 3 Common • 1/3 Duty, 32 Segments • 4 Common • 1/4 Duty
Special Ports			Buzzer Output, Remote Control Transmission
Notes			Built-in Carrier Generator Circuit for Remote Controller
Package			QFP064-P-1414

Electrical Characteristics

Supply Current

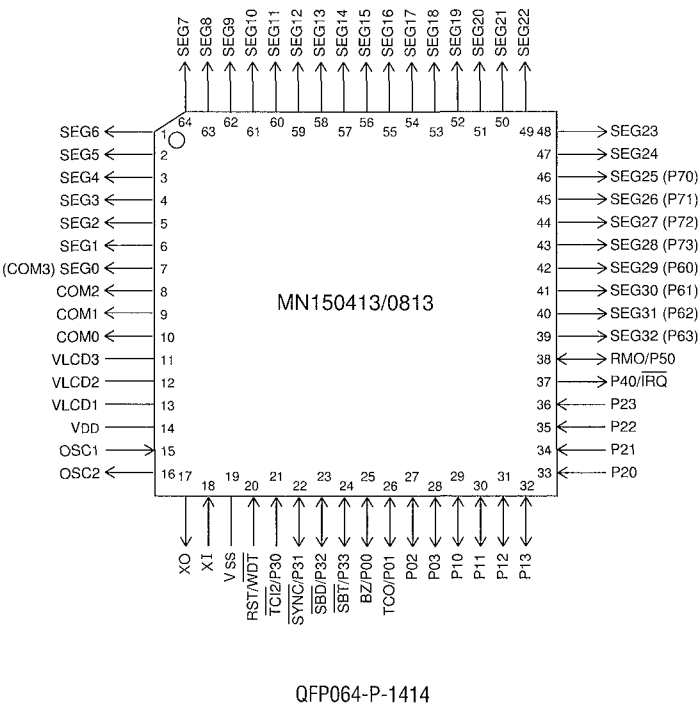
Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	fosc=4MHz, 1/8 dividing		1 0	3 0	mA
Supply Current at STOP	IDD8	fxi=32.768kHz		4 0	10	μ A
	IDD9	Oscillation halt			2 0	μ A
Supply Current at HALT	IDD4	fosc=4MHz		0 6	1 2	mA

(Ta= -40 to +85°C, VDD=3.0V, VSS=0V)

Support Tool

In-Circuit Emulator	PX-ICE1500 + PX-PRB150413/0813		
EPROM built-in Type	Type	MN15P0813	
	ROM (x 8-bit)	8K	
	RAM (x 4-bit)	432	
	Minimum Instruction Execution Time	1 818μs at 1/8 frequency dividing (at 2 35 to 5 5V, 4 4MHz) 0 94μs at 1/4 frequency dividing (at 3 0 to 5 5V, 4 24MHz)	
	Package	QFP064-P-1414	

Pin Assignment



※ P30 to P33 Input only when used as the port 3
P60 to P63, P70 to P73 I/O when used as the port 6 or 7