❑ MN15G0202 / 0402

Type	**MN15G0202 (under development) / 0402 (under planning)**
ROM (×8-Bit)	2 K / 4 K
RAM (×4-Bit)	128 / 128
Number of Instructions	105
Minimum Instruction Execution Time	**0.5 µs at 1/4 frequency dividing (at 3.0 V to 5.5 V, 8 MHz)** **1.0 µs at 1/4 frequency dividing (at 2.4 V to 5.5 V, 4 MHz)** **2.0 µs at 1/8 frequency dividing (at 2.0 V to 5.5 V, 4 MHz)**
Interrupts	• Reset • IRQ1 • IRQ2 • IRQ3
Timer Counter	**Timer Counter 2 : 8-Bit × 1** (Pulse Output, PWM Output, One-Shot Timer Output) Clock Source 1/2, 1/8, 1/32, 1/128 of System Clock, 1/1, 1/4, 1/16, 1/64 of OSC Oscillation Clock **Timer Counter 3 : 8-Bit × 1** (Pulse Output, High-Functional PWM Output) Clock Source . 1/2 of System Clock, 1/1, $1/2^6$, $1/2^{14}$ of OSC Oscillation Clock **Timer Counter 2 can be cascade-connected.** **Watchdog Timer**
I/O Pins I/O **15**	• Common use 11 • Specified pull-up Resistor available 7 (Software Programmable) • Specified output architecture available Nch Open drain / Push-Pull · 11 (Software Programmable) • 4ch LED direct drive available (15 mA / 1 0 V)

Electrical Characteristics

Supply Current

Parameter	Symbol	Condition	Limit min	Limit typ	Limit max	Unit
Operating Supply Current	IDD1	fosc = 8 MHz		4	8	mA
	IDD2	fosc = 4 MHz		2	5	mA
	IDD3	fosc = 32 768 kHz		30	60	µA
Supply Current at HALT	IDD4	fosc = 4 MHz		0 6	1 2	mA
	IDD5	fosc = 32 768 kHz		15	30	µA
Supply Current at STOP	IDD6	ACZ = 1/2 VDD, Ta = 25 °C		5	10	µA
	IDD7	ACZ = 1/2 VDD, Ta = -40 °C to +85 °C			20	µA
	IDD8	Ta = 25 °C		0 01	2	µA
	IDD9	Ta = -40 °C to +85 °C			10	µA
Auto reset current consumption	IDD10				t • b • f	µA

(Ta = –40 °C to +85 °C, VDD = 5.0 V, VSS = 0 V)

A/D Converter Characteristics

Parameter	Symbol	Condition	Limit min	Limit typ	Limit max	Unit
A/D Conversion Relative Error					±3	LSB
A/D Conversion Time		fosc = 4 MHz (1/4 frequency dividing)	12	–	28	µs
Analog Input Voltage	VADIN		VSS		VDD	V

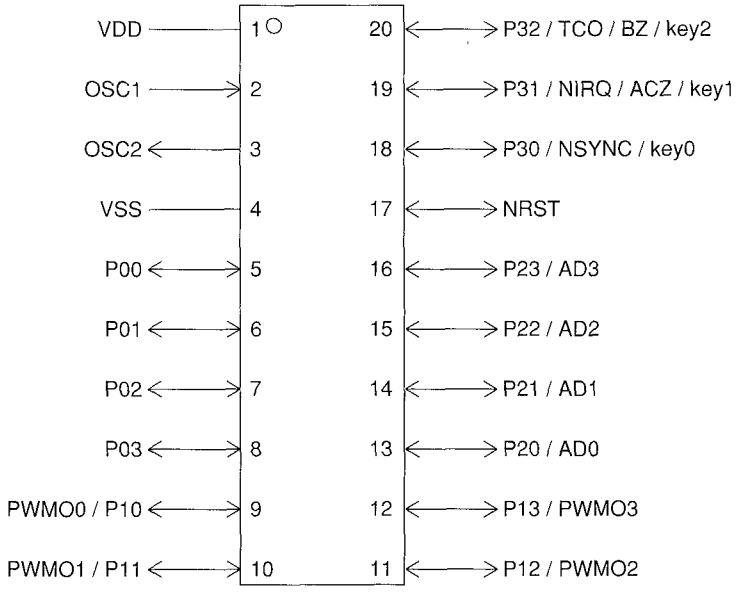
(Ta = –40 °C to +85 °C, VDD = 5.0 V, VSS = 0 V)

A/D Inputs	10-Bit × 4ch (with S/H)
Zero-Cross Inputs	1
Special Ports	Buzzer Output (1 kHz, 2 kHz, 4 kHz fosc = at 4 MHz)
Notes	Auto-Reset circuit selectable (Mask option)
Package	SOP020-P-0300

Support Tool

In-Circuit Emulator	PX-ICE1500 + PX-PRB15G0202	
EPROM built-in Type	**Type**	MN15GP0402
	ROM (× 8-Bit)	4 K
	RAM (× 4-Bit)	128
	Minimum Instruction Execution Time	0 5 µs at 1/4 frequency dividing (at 3 0 V to 5 5 V, 8 MHz) 1 0 µs at 1/4 frequency dividing (at 2 4 V to 5 5 V, 4 MHz) 2 0 µs at 1/8 frequency dividing (at 2 0 V to 5 5 V, 4 MHz)
	Package	SOP020-P-0300

Pin Assignment



SOP020-P-0300