

MN675048 , MN675058

VTR Servo

Type	MN675048 , MN675058	
ROM (×8-Bit)	64 K / 80 K	
RAM (×8-Bit)	1 024 / 1 280	
Minimum Instruction Execution Time	With Main Clock operated	0.279 μs (at 4.5 V to 5.5 V, 14.32 MHz)
	With Sub-Clock operated	143 μs (at 2.7 V to 5.5 V, 14.32 MHz internal dividing) 122 μs (at 2.7 V to 5.5 V, 32.768 kHz)
Interrupts	<ul style="list-style-type: none"> • RESET • Runaway • External 0, 1, 2 / Key Input (P50 to 54) • Input Capture 0, 1 • Timer 0 / Timer 6 • Timer 1 • Timer 2 • Timer 3 / Cylinder FG • Timer 4 / Synchronous Output / Continuous Synchronous Output • Serial 0 • Serial 1 / A/D Conversion / Remote Control Receive 	
Timer Counter	<p>Timer Counter 0 : 16-Bit × 1 (Timer Output, Output Compare)</p> <p>Clock Source 1/1, 1/2, of System Clock, 1/16, 1/32 of OSC Oscillation Clock, 1/512 of XI Oscillation Clock or OSC Oscillation Clock</p> <p>Interrupt Source Overflow of Timer Counter 0, Coincidence of Output Compare Register 0 and Timer Counter 0</p> <p>Timer Counter 1 : 16-Bit × 1 (Timer Output, Event Count [CTL Signal], Synchronous Serial Clock Generator)</p> <p>Clock Source 1/1, 1/2, of System Clock, 1/16, 1/32 of OSC Oscillation Clock, CTL Signal</p> <p>Interrupt Source Overflow of Timer Counter 1</p> <p>Timer Counter 2 : 16-Bit × 1 (Timer Output, Input Capture, [DCTL Specified Edge], DCTL Signal Duty Judge)</p> <p>Clock Source 1/1, 1/2 of System Clock, 1/16, 1/24, 1/32, 1/48 of OSC Oscillation Clock</p> <p>Interrupt Source Overflow of Timer Counter 2, DCTL Specified Edge Input, Timer-2 Shift Register 4-Bit Counter Underflow, Coincidence of Timer-2 Shift Register and Timer-2 Shift Register compare-register</p> <p>Timer Counter 3 : 16-Bit × 1 (Timer Output, Serial Index Search)</p> <p>Clock Source 1/1, 1/2 of System Clock, 1/16, 1/32 of OSC Oscillation Clock</p> <p>Interrupt Source Overflow of Timer Counter 3</p> <p>Timer Counter 4 : 16-Bit × 1 (Timer Output, Event Count [P92 Input])</p> <p>Clock Source 1/16, 1/32 of OSC Oscillation Clock, External Clock Input</p> <p>Interrupt Source Overflow of Timer Counter 4</p> <p>Timer Counter 5 : 16-Bit × 1 (Timer Output, Watchdog)</p> <p>Clock Source 1/8 of OSC Oscillation Clock, XI Oscillation Clock</p> <p>Interrupt Source 1/2¹¹, 1/2¹², 1/2¹³ of Timer Counter 5, Overflow (PI)</p> <p>Timer Counter 6 : 30-Bit × 1 (Timer Output, Clock function [Maximum 4 hours], Buzzer Output)</p> <p>Clock Source 1/32, 1/64, 1/256, 1/512 of OSC Oscillation Clock, XI Oscillation Clock, 1/2 of System Clock</p> <p>Interrupt Source 1 second Output, 1 minute Output, 1 hour Output, 4 hour Output</p> <p>Timer Counter 7 : 8-Bit × 1 (Simple Remote Control Reception)</p> <p>Clock Source 1/8, 1/16, 1/32, 1/64 of System Clock</p> <p>Interrupt Source 8th Overflow of Timer Counter 7</p>	

Serial Interface		<p>Serial 0 : 8-Bit × 1 (Synchronous Type) (Transfer direction of MSB/LSB selectable, Start Condition function, FIFO • 8 or 16-Bit length Transmission/Reception[8bits by 8 stages])</p> <p>Clock Source 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, of System Clock, Timer 4 Output 2 dividing, $\overline{\text{SBT0}}$ Pin Input</p> <p>Serial 1 : 8-Bit × 1 (Synchronous Type) (Transfer direction of MSB/LSB selectable, Start Condition function, Simple I²C function)</p> <p>Clock Source 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, of System Clock, Timer 4 Output 2 dividing, $\overline{\text{SBT1}}$ pin Input</p>	
I/O Pins	I/O	60	• Common use 41 Port 0, 1, 4, 5, 6, 7, A, B, by -bit
	Input	14	• Common use 14
	Output	1	• Common use 1
A/D Inputs		8-Bit × 12ch (without S/H)	
PWM		10-Bit × 2ch (at Repetition Cycle 143 μs, 14.32 MHz), 11-Bit × 2ch (at Repetition Cycle 286 μs, 14.32 MHz), 14-Bit × 1ch (at Repetition Cycle 2.288 μs, 14.32 MHz)	
ICR		16-Bit × 5ch	
OCR		16-Bit × 7ch, 8-Bit × 1ch	
Special Ports		Buzzer Output, Tri-State Output (PTO) VLP Pin, Synchronous Output 7, Tri-State Synchronous Output 4 Remote Control Receive, CTL Amp, FG Amp built-in, 1/2 Output of OSC Oscillation Clock (2 V[p-p]), 1/4 Output of OSC Oscillation Clock (1 V[p-p]), Error Amp etc built-in	
Notes		VISS/VASS Detector function	
Package		QFP100-P-1818B	
Electrical Characteristics			

Supply Current

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	At 14.32 MHz Operation, No load		30	60	mA
	IDD2	14.32 MHz Oscillation, SLOW Operation, No load		2	5	mA
Supply Current at STOP	IDSP	Oscillation halt, No load			20	μA
Supply Current at HALT	IDHT	14.32 MHz Oscillation, No load			5	mA

(Ta = 25 °C±2 °C, VDD = 5.0 V, VSS = 0 V)

A/D Converter Characteristics

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Differential Nonlinearity	ΔNLAD				±3	LSB
A/D Conversion Time	tAD	fosc = 14.32 MHz		8		μs
Analog Input Voltage			0.5		4.5	V

(Ta = 25 °C±2 °C, VDD = 5.0 V, VSS = 0 V)

See the next page for support tool and Pin assignment.

Support Tool

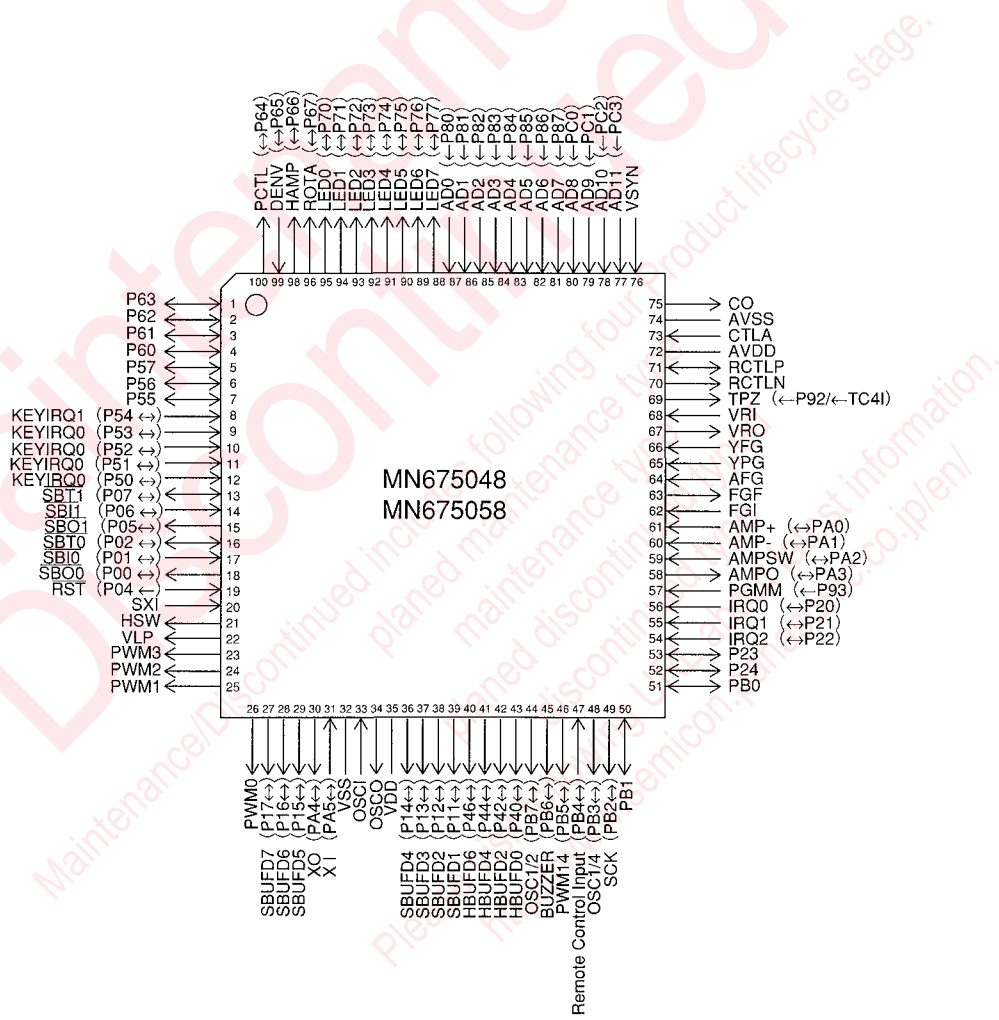
In-Circuit Emulator

PX-ICE1880-2 + PX-PRB67508

EPROM built-in Type

Type	MN67P5068 [ES (Engineering Sample) available]
ROM (× 8-Bit)	96 K
RAM (× 8-Bit)	1 560
Minimum Instruction Execution Time	0 279 μs (at 4.5 V to 5.5 V, 14 32 MHz) 122 μs (at 2.7 V to 5.5 V, 32 768 kHz)
Package	QFP100-P-1818B

Pin Assignment



QFP100-P-1818B

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