

# MN6750165 / 245 / 325 / 405

<b>Type</b>		<b>MN6750165 / 245 / 325 / 405</b>	
<b>ROM (x8-bit)</b>		16K / 24K / 32K / 40K	
<b>RAM (x8-bit)</b>		384 / 512 / 640 / 768	
<b>Minimum Instruction Execution Time</b>		<b>0.5<math>\mu</math>s (at 4.5 to 5.5V, 8MHz)</b> <b>128<math>\mu</math>s (at 3.0 to 5.5V, 8MHz, operates in fosc/256)</b> <b>(Operation with 32.768kHz by Mask Option)</b>	
<b>Interrupts</b>		<ul style="list-style-type: none"> <li>• RESET • Runaway • External • Input Capture 0 • Input Capture 1 • Timer 0 • Timer 1</li> <li>• Timer 2 • Timer 3 • Timer 4 • Serial Transmission/Reception</li> <li>• Serial Transmission/Reception / A/D</li> </ul>	
<b>Timer Counter</b>		<p><b>Timer Counter 0 : 16-bit x 1</b> (Synchronous Interrupt function)  Clock Source .....System Clock, 1/16, 1/256 of OSC Oscillation Clock  Interrupt Source .....Overflow of Timer Counter 0,  Coincidence of Output Compare Register 0 compare to Timer Counter 0</p> <p><b>Timer Counter 1 : 16-bit x 1</b> (Timer Output, Event Count, Synchronous Serial Clock Generator,  Linear Time Counter [Counter for CTL Signal])  Clock Source .....System Clock, 1/16 of OSC Oscillation Clock, CTL Signal  Interrupt Source .....Overflow of Timer Counter 1</p> <p><b>Timer Counter 2 : 16-bit x 1</b> (Timer Output, Input Capture)  Clock Source .....System Clock, 1/16, 1/24 of OSC Oscillation Clock  Interrupt Source .....Overflow of Timer Counter 2, DCTL Signal Edge,  Shift Register 4-bit Counter Underflow,  Coincidence of Compare Register and Shift Register</p> <p><b>Timer Counter 3 : 16-bit x 1</b> (Timer Output, Serial Index Search)  Clock Source .....System Clock, 1/16 of OSC Oscillation Clock  Interrupt Source .....Overflow of Timer Counter 3</p> <p><b>Timer Counter 4 : 16-bit x 1</b> (Timer Output, Event Count, Time Base)  Clock Source .....1/4, 1/16, 1/256 of OSC Oscillation Clock, XI Oscillation Clock, External Clock  Input  Interrupt Source .....SPGIRQ, HOCRIQ, Overflow of Timer Counter 4</p> <p><b>Timer Counter 5 : 16-bit x 1</b> (Timer Output, Watchdog)  Clock Source .....1/4 of OSC Oscillation Clock</p>	
<b>Serial Interface</b>		<p><b>Serial 0 : 8-bit x 1</b> (Synchronous Type) (Transfer direction of MSB/LSB selectable, Start Condition function)  Clock Source .....1/2 1/4, 1/8 of Timer Counter 1, 1/2 of Timer 4, SBT0 Pin Input</p> <p><b>Serial 1 : 8-bit x 1</b> (Synchronous Type) (Transfer direction of MSB/LSB selectable, Start Condition  function, Simple Remote Control Reception)  Clock Source .....1/2, 1/4, 1/8 of Timer Counter 2, 1/2 of Timer 4, SBT1 Pin Input</p>	
<b>I/O Pins</b>	<b>I/O</b>	<b>39</b>	• Common use : 23 • Clock / HSW Synchronous Output Port selectable (Mask Option)
	<b>Input</b>	<b>12</b>	• Common use
	<b>Output</b>	<b>1</b>	• Common use
<b>A/D Inputs</b>		8-bit x 8ch (without S/H)	
<b>PWM</b>		11-bit x 2ch (at Repetition Cycle 256 $\mu$ s, 8MHz), 10-bit x 2ch (at Repetition Cycle 128 $\mu$ s, 8MHz), 14-bit x 1ch (at Repetition Cycle 8.192ms, 8MHz)	
<b>ICR</b>		16-bit x 5ch	

<b>OCR</b>	16-bit x 7ch, 8-bit x 1ch
<b>Special Ports</b>	Tri-state Output : VLP, Synchronous Output : 7, Tri-state Synchronous Output : 4, CTL Amp, FG Amp etc. built-in
<b>Notes</b>	VISS/VASS Detector function, 14-bit PWM, Digital PGMM, XI/XO Pin, added to MN675201
<b>Package</b>	QFP084-P-1818E

**Electrical Characteristics**

**Supply Current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current		At 8MHz Operation, No load STBH (ANACNT; bp0)=1		25	50	mA
Supply Current at STOP		Oscillation halt, No load STBH (ANACNT; bp0)=0			50	μA

(Ta=25°C, VDD=5.0V, VSS=0V)

**A/D Converter Characteristics**

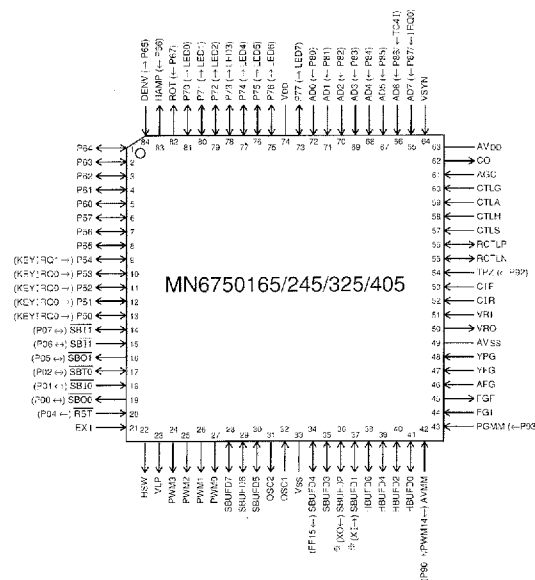
Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Differential Nonlinearity	ΔNLad				±3	LSB
A/D Conversion Time	Tad	8MHz		32		μs

(Ta=25°C, VDD=5.0V, VSS=0V)

**Support Tool**

<b>In-Circuit Emulator</b>	PX-ICE1870 / 80 + PX-PRB6750325
<b>Piggyback</b>	Use EP6750325 as piggy in QFP084-P-1818E package.
<b>EPROM built-in Type</b>	Use MN67P50645 [ES (Engineering Sample) available] in QFP084-P-1818E package.

**Pin Assignment**



QFP084-P-1818E  
※ XI, XO : Mask Option