



<b>Special Ports</b>	Synchronous Output (4-bit x 1ch)
<b>Expanded Memory Access Mode</b>	High-speed bus mode/standard bus mode function * A memory-wait addition function is available during the high-speed mode on the MN1884824 / 3224 / 2424 MN18P86424 only.
<b>Package</b>	MN1880024 / 4824 / 3224 / 2424: QFP084-P-1818E MN1880024 / 4824: QFH084-P-1212

**Electrical Characteristics**

**Supply Current**

Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
Operating Supply Current	IDD1	At 20MHz Opeation			70	mA
	IDD2	At 32kHz Operation			5	mA
Supply Current at STOP	IDD3	Oscillation halt			50	μA
Supply Current at HALT	IDD4	20MHz Oscillaiton halt			500	μA

(Ta= -20 to +70°C, VDD=5.0V, VSS=0V)

**A/D Converter Characteristics**

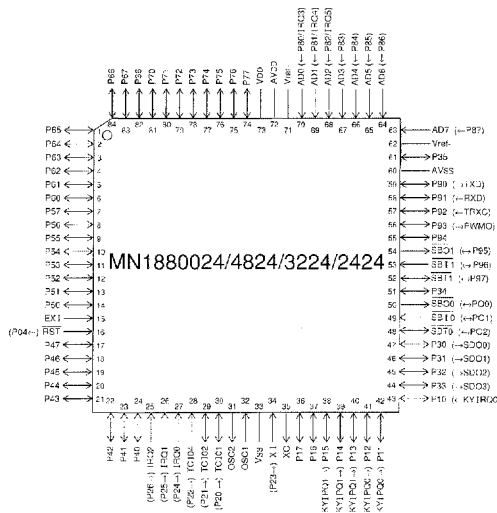
Parameter	Symbol	Condition	Limit			Unit
			min	typ	max	
A/D Conversion Linearity Error					±2	LSB
Zero Transition Voltage	VOT				500	mV
Full-scale Transition Voltage	VFT		4500			mV
A/D Conversion Time		fosc=20MHz, at High Speed A/D Conversion			2.60	μs
Analog Input Voltage	VIA		Vref-		Vref+	V

(Ta=25°C, VDD=5.0V, VSS=0V)

**Support Tool**

<b>In-Circuit Emulator</b>	Mr. ICE / 1880 (made by Computex Co. Ltd.) For 18mm x 18mm package only PX-ICE1880-2
<b>EPROM built-in Type</b>	Use <b>MN18P86424</b>

**Pin Assignment**



QFP084-P-1818E (MN1880024 / 4824 / 3224 / 2424)  
QFH084-P-1212 (MN1880024/4824)