



电子元器件系列(中国.厦门) China.Xiamen
www.rf-china.com RF-Micom co.,Ltd

Email:sales@rf-china.com

Telephone:0086-592-5713956 Fax:5201617

Low-Cost, μ P Supervisory Circuits

ABSOLUTE MAXIMUM RATINGS

Terminal Voltage (with respect to GND)		SO (derate 5.88mW/°C above +70°C)	471mW
V_{CC}	-0.3V to 6.0V	μ MAX (derate 4.10mW/°C above +70°C)	330mW
All Other Inputs (Note 1)	-0.3V to ($V_{CC} + 0.3V$)	CERDIP (derate 8.00mW/°C above +70°C)	640mW
Input Current		Operating Temperature Ranges	
V_{CC}	20mA	MAX70_C_, MAX813LC_	0°C to +70°C
GND	20mA	MAX70_E_, MAX813LE_	-40°C to +85°C
Output Current (all outputs)	20mA	MAX70_MJA	-55°C to +125°C
Continuous Power Dissipation		Storage Temperature Range	-65°C to +160°C
Plastic DIP (derate 9.09mW/°C above +70°C)	727mW	Lead Temperature (soldering, 10sec)	+300°C

Note 1: The input voltage limits on PFI and MR can be exceeded if the input current is less than 10mA.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

($V_{CC} = 4.75V$ to $5.5V$ for MAX705/MAX707/MAX813L, $V_{CC} = 4.5V$ to $5.5V$ for MAX706/MAX708, $T_A = T_{MIN}$ to T_{MAX} , unless otherwise noted.)

PARAMETER		SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
Operating Voltage Range		V _{CC}	MAX70_C	1.0		5.5	V	
			MAX813LC	1.1		5.5		
			MAX70_E/M, MAX813LE/M		1.2			5.5
Supply Current		I _{SUPPLY}	MAX705C, MAX706C, MAX813LC		150	350	μA	
			MAX705E/M, MAX706E/M, MAX813LE/M			150		500
			MAX707C, MAX708C			50		350
			MAX707E/M, MAX708E/M			50		500
Reset Threshold (Note 2)		V _{RT}	MAX705, MAX707, MAX813L	4.50	4.65	4.75	V	
			MAX706, MAX708	4.25	4.40	4.50		
Reset Threshold Hysteresis (Note 2)					40		mV	
Reset Pulse Width (Note 2)		t _{RS}		140	200	280	ms	
RESET Output Voltage			I _{SOURCE} = 800μA		V _{CC} - 1.5		V	
			I _{SINK} = 3.2mA		0.4			
			MAX70_C, V _{CC} = 1V, I _{SINK} = 50μA		0.3			
			MAX70_E/M, V _{CC} = 1.2V, I _{SINK} = 100μA		0.3			
RESET Output Voltage			MAX707, MAX708, I _{SOURCE} = 800μA		V _{CC} - 1.5		V	
			MAX707, MAX708, I _{SINK} = 1.2mA		0.4			
			MAX813LC, I _{SOURCE} = 4μA, V _{CC} = 1.1V		0.8			
			MAX813LE/M, I _{SOURCE} = 4μA, V _{CC} = 1.2V		0.9			
			MAX813L	I _{SOURCE} = 800μA		V _{CC} - 1.5		
				I _{SINK} = 3.2mA		0.4		
Watchdog Timeout Period		t _{WD}	MAX705, MAX706, MAX813L		1.00	1.60	2.25	sec
WDI Pulse Width		t _{WP}	V _{IL} = 0.4V, V _{IH} = (V _{CC}) (0.8)		50			ns
WDI Input Threshold	Low		MAX705, MAX706, MAX813L, V _{CC} = 5V		0.8		V	
	High				3.5			
WDI Input Current			MAX705, MAX706, MAX813L, WDI = V _{CC}		50	150	μA	
			MAX705, MAX706, MAX813L, WDI = 0V		-150	-50		
WDO Output Voltage			MAX705, MAX706, MAX813L, I _{SOURCE} = 800μA		V _{CC} - 1.5		V	
			MAX705, MAX706, MAX813L, I _{SINK} = 1.2mA		0.4			

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ELECTRICAL CHARACTERISTICS (continued)

(V_{CC} = 4.75V to 5.5V for MAX705/MAX707/MAX813L, V_{CC} = 4.5V to 5.5V for MAX706/MAX708, T_A = T_{MIN} to T_{MAX} , unless otherwise noted.)

PARAMETER		SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
MR Pull-Up Current			MR = 0V	100	250	600	μA
MR Pulse Width		tMR		150			ns
MR Input Threshold	Low			0.8			V
	High			2.0			
MR to Reset Out Delay (Note 2)		tMD				250	ns
PFI Input Threshold			VCC = 5V	1.20	1.25	1.30	V
PFI Input Current				-25.00	0.01	25.00	nA
PFO Output Voltage			ISOURCE = 800μA	VCC - 1.5			V
			ISINK = 3.2mA	0.4			

Note 2: Applies to both RESET in the MAX705-MAX708 and RESET in the MAX707/MAX708/MAX813L.

MAX705-MAX708/MAX813L

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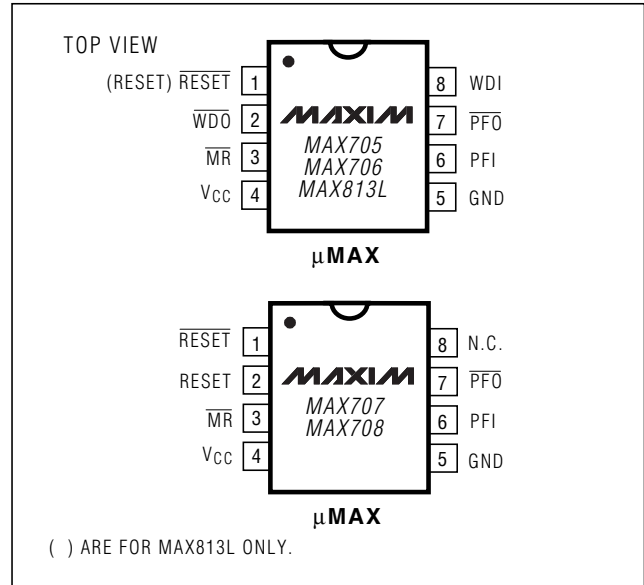
Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE
MAX705EPA	-40°C to +85°C	8 Plastic DIP
MAX705ESA	-40°C to +85°C	8 SO
MAX705EUA	-40°C to +85°C	8 μ MAX
MAX705MJA	-55°C to +125°C	8 Cerdip**
MAX706CPA	0°C to +70°C	8 Plastic DIP
MAX706CSA	0°C to +70°C	8 SO
MAX706CUA	0°C to +70°C	8 μ MAX
MAX706C/D	0°C to +70°C	Dice*
MAX706EPA	-40°C to +85°C	8 Plastic DIP
MAX706ESA	-40°C to +85°C	8 SO
MAX706EUA	-40°C to +85°C	8 μ MAX
MAX706MJA	-55°C to +125°C	8 Cerdip**
MAX707CPA	0°C to +70°C	8 Plastic DIP
MAX707CSA	0°C to +70°C	8 SO
MAX707CUA	0°C to +70°C	8 μ MAX
MAX707C/D	0°C to +70°C	Dice*
MAX707EPA	-40°C to +85°C	8 Plastic DIP
MAX707ESA	-40°C to +85°C	8 SO
MAX707EUA	-40°C to +85°C	8 μ MAX
MAX707MJA	-55°C to +125°C	8 Cerdip**
MAX708CPA	0°C to +70°C	8 Plastic DIP
MAX708CSA	0°C to +70°C	8 SO
MAX708CUA	0°C to +70°C	8 μ MAX
MAX708C/D	0°C to +70°C	Dice*
MAX708EPA	-40°C to +85°C	8 Plastic DIP
MAX708ESA	-40°C to +85°C	8 SO
MAX708EUA	-40°C to +85°C	8 μ MAX
MAX708MJA	-55°C to +125°C	8 Cerdip**
MAX813LCPA	0°C to +70°C	8 Plastic DIP
MAX813LCSA	0°C to +70°C	8 SO
MAX813LCUA	0°C to +70°C	8 μ MAX
MAX813LC/D	0°C to +70°C	Dice*
MAX813LEPA	-40°C to +85°C	8 Plastic DIP
MAX813LESA	-40°C to +85°C	8 SO
MAX813LEUA	-40°C to +85°C	8 μ MAX
MAX813LMJA	-55°C to +125°C	8 Cerdip**

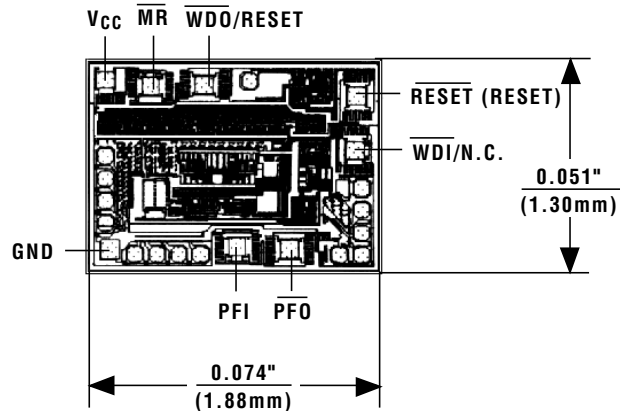
*Dice are specified at $T_A = +25^\circ\text{C}$.

**Contact factory for availability and processing to MIL-STD-883.

Pin Configuration (continued)



Chip Topography



() ARE FOR MAX813L ONLY.

TRANSISTOR COUNT: 572

SUBSTRATE MUST BE LEFT UNCONNECTED.

MAX705-MAX708/MAX813L