



SPECIFICATION FOR HCMOS/TTL COMPATIBLE SMT OSCILLATOR MtronPTI P/N M2002S893

Electrical Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency of Operation	F _O		20.000000		MHz	
Frequency Stability	ΔF/F	-50		+50	ppm	
Operating Temperature	T _A	-40		+85	°C	
Storage Temperature	T _S	-65		+95	°C	
Aging		-3		+3	ppm	1 st year
		-1		+1	ppm	Thereafter (per year)
Operating Voltage	V _{DD}	3.135	3.3	3.465	V	
Operating Current	I _{DD}			10	mA	
Output Type	HCMOS/TTL Compatible					
Output Load				15/2	pF/TTL	
Symmetry (duty cycle)	T _{DC}	45		55	%	Ref to ½ V _{DD}
Logic "1" Level	V _{OH}	90% V _{DD}			V	HCMOS load
	V _{OH}	V _{DD} - 0.5			V	TTL Load
Logic "0" Level	V _{OL}			10% V _{DD}	V	HCMOS load
	V _{OL}			0.5 V	V	TTL Load
Rise/Fall Time	T _R /T _F			6	ns	From 10% to 90% V _{DD}
Random Jitter	R _J		4	10	ps RMS	1-Sigma
Start-up Time	T _{SU}			10	ms	
Tri-state Function		Logic "1" enables output. Logic "0" disables output to a Hi-Z.				Pad1

Environmental & Mechanical Requirements:

Mechanical Shock	Per MIL-STD-202, Method 213, Condition C (100 g's, 6 ms duration, ½ sinewave)
Vibration	Per MIL-STD-202, Method 201 & 204 (10 g's from 10-2000 Hz)
Thermal Cycle	Per MIL-STD-883, Method 1010, B (-55°C to 125°C, 15 min. dwell, 10 cycles)
Fine Leak Test	Per MIL-STD-202, Method 112 (1 x 10 ⁻⁸ atm cc/s of Helium)
Gross Leak Test	Per MIL-STD-202, Method 112 (30 second immersion)
Solderability	Per EIAJ-STD-002
Max. Soldering Conditions	See solder profile, Figure 1
Package Type	4-pad 5 X 7 mm leadless ceramic. Sn-Pb solder tinned pads.

Special Requirements:

1. All units 100% electrical test over -40°C to +85°C and at +25°C.
2. Domestic USA build only.
3. CoC and Packing Slip to be included with each shipment.

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Dimensions, Marking, and Pin Out Information:

Pad	Function
1	Tri-state
2	Ground
3	Output
4	+V _{DD}

Part Marking	
Line 1	M2002S893
Line 2	20M000
Line 3	M yyww

Legend	
yy	Year
ww	Work week

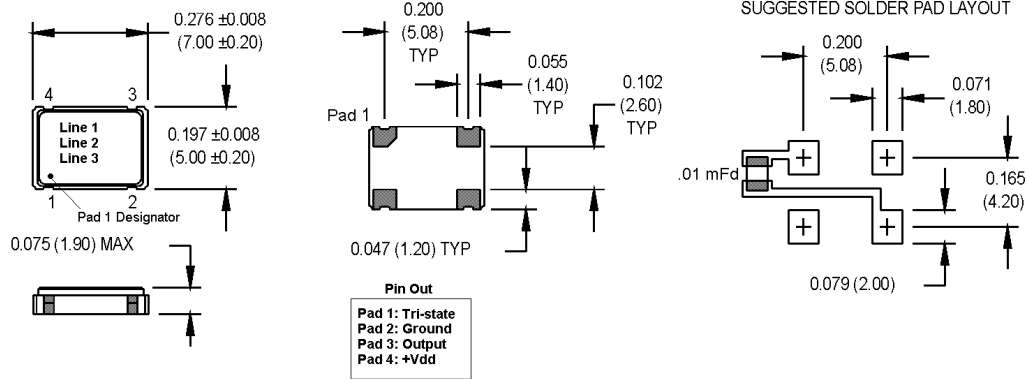
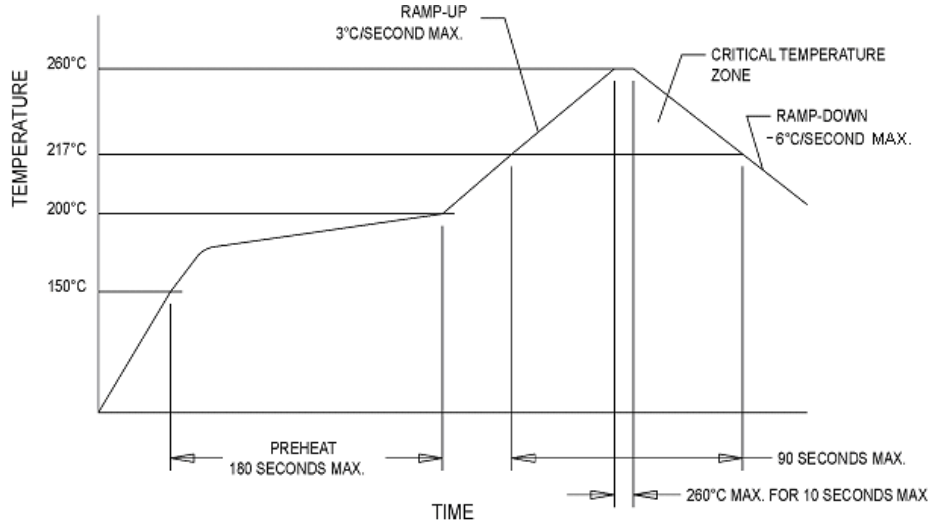


Figure 1



DATA SHEET REVISION TABLE:

Date	Rev.	Author	Details of Revision
10/13/09	0	WNJ	Original release.
11/24/09	A	WNJ	Added Gross Leak Test requirement. Added USA build only note.
05/08/14	B	MM	Added CoC and packing slip requirements under special requirements.