

## SPECIFICATION FOR RoHS 6 COMPLIANT HCMOS SMT OSCILLATOR MtronPTI P/N M2002T189

### Electrical Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency of Operation	F <sub>o</sub>		98.304000		MHz	
<b>Frequency Stability</b>						
vs. Temperature	ΔF/F	-20		+20	ppm	Inclusive of initial tolerance, deviation over temperature, shock, vibration, voltage and 1 year aging
<b>RF Output</b>						
Output Type		HCMOS Compatible				
Output Load				15	pF	
Symmetry (duty cycle)	T <sub>DC</sub>	45	50	55	%	Ref to ½ V <sub>DD</sub>
Logic "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub>			V	HCMOS load
Logic "0" Level	V <sub>OL</sub>			10% V <sub>DD</sub>	V	HCMOS load
Rise/Fall Time	T <sub>R</sub> /T <sub>F</sub>			2.0	nS	From 10% to 90% V <sub>DD</sub>
Standby Logic		80% V <sub>DD</sub> or N/C			V	Pad 1: Output Enabled
				20% V <sub>DD</sub>	V	Pad 1: Output Disabled to high-Z
Standby Current	I <sub>SB</sub>			10	μA	
Output Enable Time				5	mS	
Output Disable Time				150	nS	
<b>Supply Voltage &amp; Power Consumption</b>						
Operating Voltage	V <sub>DD</sub>	3.0	3.3	3.6	V	
Operating Current	I <sub>DD</sub>			55	mA	
<b>Additional Specifications</b>						
Period Jitter	R <sub>J</sub>		5		pS RMS	1-Sigma

### Environmental & Mechanical Requirements:

Operating Temperature	T <sub>A</sub>	-10		+70	°C	
Storage Temperature	T <sub>S</sub>	-55		+125	°C	
Mechanical Shock	Per JESD22-B-104-A 1500g Peak 0.5 msec duration 5 pulses in 6 directions					
Vibration	Per JESD22-B-103-A 20g Peak (20-2000 Hz) in X, Y and Z directions					
Thermal Cycle	Per MIL-STD-883, Method 1010, B (-55°C to 125°C, 15 min. dwell, 10 cycles)					
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 <sup>-8</sup> atm cc/s of Helium)					
ESD-Human Body Model	2000 volts; Per JESD22A-114-A					
ESD-Machine Model	200 volts; Per JESD22A-115-A					
Solderability	Per EIAJ-STD-002					
Max. Soldering Conditions	See solder profile, Figure 1					
Package Type	5.0 x 7.0 x 1.7 mm, 4-pad Ceramic Leadless Chip Carrier (M2 type)					
Termination (Pad) Material	10 to 15 μm of tungsten (W), 1.29 to 8.89 μm of nickel (Ni), 0.3 to 1.0 μm of gold (Au)					
Moisture Sensitivity Level	1					

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### Dimensions, Marking, and Pin Out Information:

Pad	Function
1	Standby
2	Ground
3	Output
4	+V <sub>DD</sub>

Part Marking	
Line 1	M2002T189
Line 2	98M3040
Line 3	M yy ww vv

Legend	
yy	Year
ww	Work week
vv	Factory code

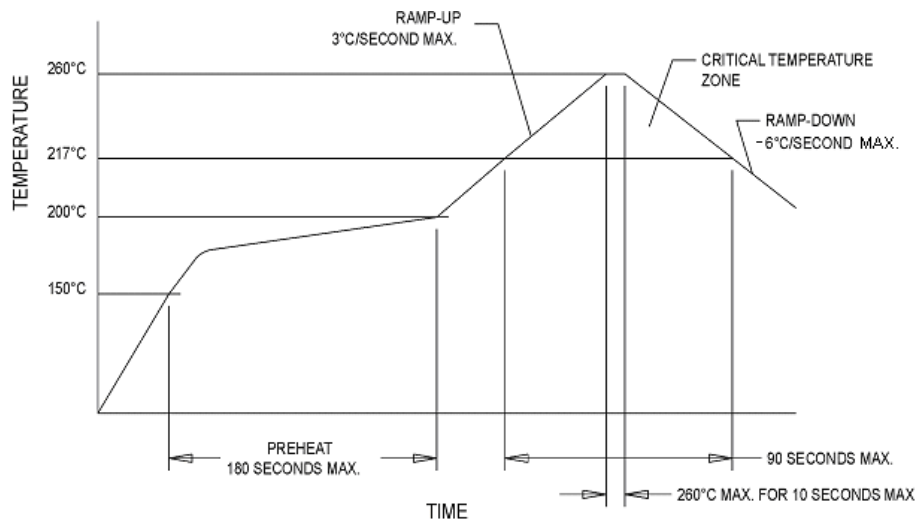
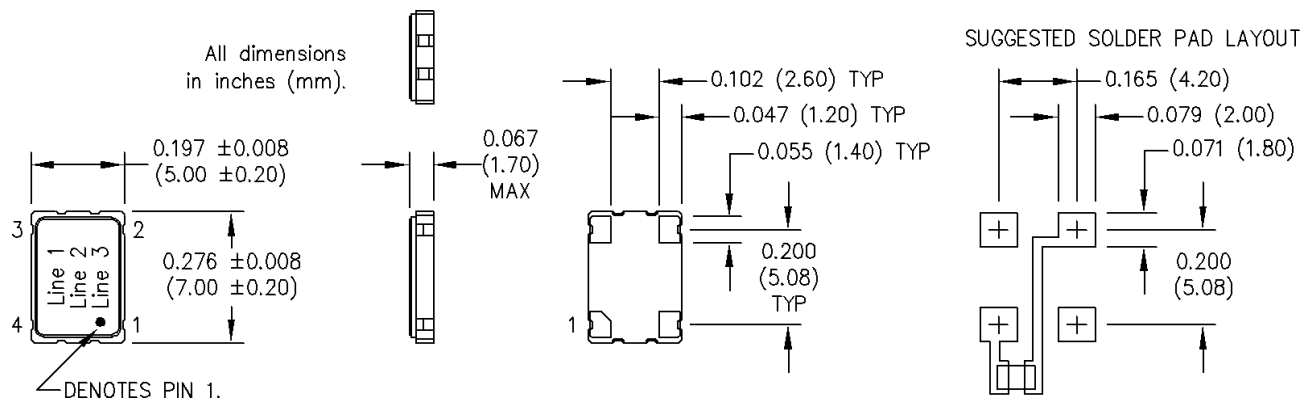


Figure 1

### Datasheet Revision Table:

Date	Rev.	Author	Details of Revision
8/30/13	0	MM	Original release.