1703 E. Highway 50 Yankton, SD 57078 USA
Phone: 800-762-8800 or 605-665-9321 Fax: 605-665-1709
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SPECIFICATION FOR RoHS 6 COMPLIANT HCMOS SMT OSCILLATOR
MtronPTI P/N: M2002T011

Electrical Specifications:

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency of Operation	F_O		44.736000		MHz	
Frequency Stability	ΔF/F	-20		+20	ppm	Inclusive of initial tolerance at 25°C, deviation over temperature, shock, vibration and load variations
Operating Temperature	T_A	-10		+70	°C	
Storage Temperature	T_S	-55		+125	°C	
Operating Voltage	V_{DD}	2.97	3.3	3.63	V	
Aging		-3		+3	ppm	1st year (Referenced to +40°C)
		-1		+1	ppm	Thereafter (per year)
Operating Current	I_{DD}			20	mA	
Output Type		HCMOS Compatible				
Output Load		15			pF	
Symmetry (duty cycle)	T_{DC}	45		55	%	@ 50% of V_{DD}
Logic "1" Level	V_{OH}	90% V_{DD}			V	HCMOS load
Logic "0" Level	V_{OL}			10% V_{DD}	V	HCMOS load
Rise/Fall Time	T_R/T_F			4.0	nS	From 20% to 80% V_{DD}
Random Jitter	R_J		3.5		pS RMS	1-Sigma
Phase Jitter	ΦJ			1.0	pS RMS	Integrated 20kHz to 20MHz
Tri-state Enable Logic		80% V_{DD} or N/C			V	Pad 1. Clock Signal Output
Tri-state Disable Logic				20% V_{DD}	V	Pad 1. Output to high-Z
Start-up Time	T_{SU}			15	mS	

Environmental Conditions:

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^{-8} 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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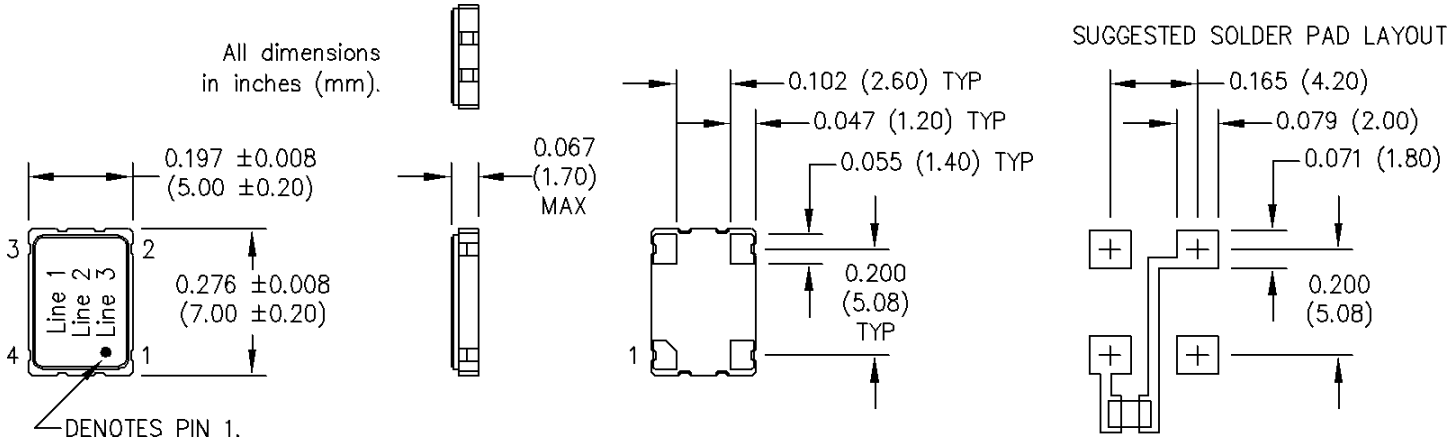
Mechanical, Marking and Layout Information:

Pad	Function
1	Tri-state
2	Ground
3	Output
4	$+V_{DD}$

Part Marking	
Line 1	M2002T011
Line 2	44M7360
Line 3	M yy ww vv

Legend	
yy	Year
ww	Work week
vv	Factory code



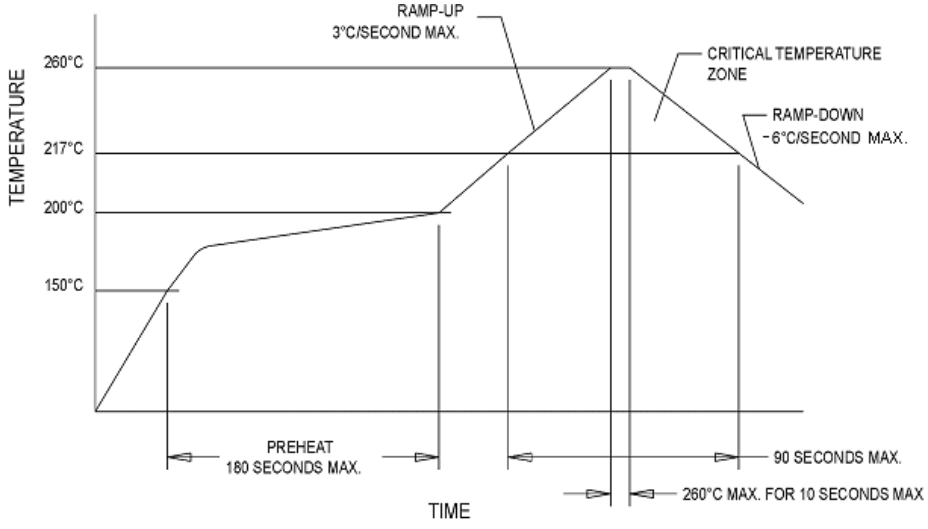


Figure 1

Datasheet Revision Table:

Date	Rev.	Author	Details of Revision
10/19/10	0	DDM	Original release.
8/30/12	A	MM	Corrected frequency.

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