



## SPECIFICATION FOR HCMOS/TTL COMPATIBLE SMT OSCILLATOR MtronPTI P/N: M2010S141

### Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency of Operation	F <sub>O</sub>		1.000000		MHz	
Frequency Stability	ΔF/F	-50		+50	ppm	
Operating Temperature	T <sub>A</sub>	-40		+85	°C	
Storage Temperature	T <sub>S</sub>	-55		+125	°C	
Aging		-3		+3	ppm	1 <sup>st</sup> year
		-2		+2	ppm	Thereafter (per year)
Operating Voltage	V <sub>DD</sub>	4.5	5.0	5.5	V	
Operating Current	I <sub>DD</sub>			20	mA	
Output Type		HCMOS/TTL Compatible				
Output Load				15/10	pF/TTL	
Symmetry (duty cycle)	T <sub>DC</sub>	40		60	%	Ref to ½ V <sub>DD</sub>
Logic "1" Level	V <sub>OH</sub>	90% V <sub>DD</sub>			V	HCMOS load
	V <sub>OH</sub>	V <sub>DD</sub> - 0.5			V	TTL Load
Logic "0" Level	V <sub>OL</sub>			10% V <sub>DD</sub>	V	HCMOS load
	V <sub>OL</sub>			0.5 V		TTL Load
Output Current	I <sub>OH</sub>			-16	mA	
	I <sub>OL</sub>			+16	mA	
Rise/Fall Time	T <sub>R</sub> /T <sub>F</sub>			10	ns	From 10% to 90% V <sub>DD</sub>
Random Jitter (RMS)	R <sub>j</sub>		5	12	ps	1-Sigma
Start-Up Time				10	ms	

### 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)
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 <sup>-8</sup> atm cc/s of Helium)
Solderability	Per EIAJ-STD-002
Max. Soldering Conditions	See solder profile, Figure 1
Package Type	5 X 7 X 1.9 mm leadless ceramic. RoHS compliant.

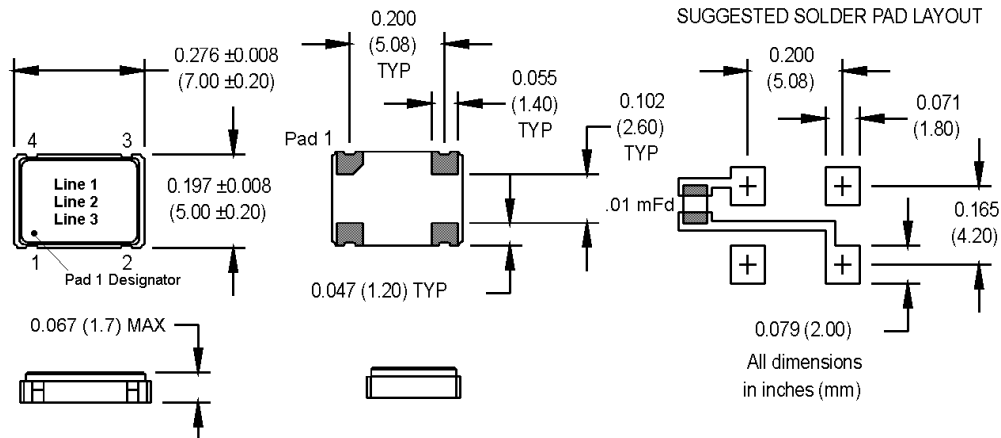
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### Dimensions, Marking, and Pin Out Information:

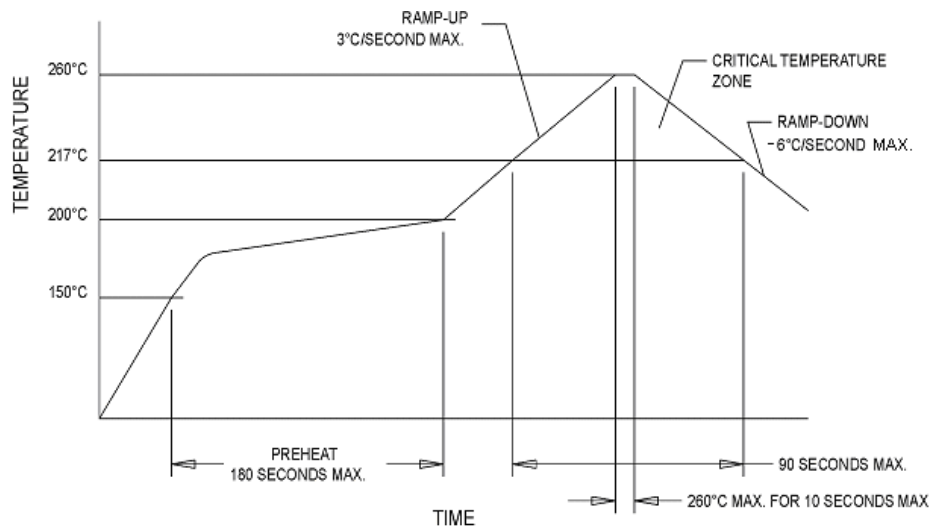
Pad	Function
1	N/C
2	Ground
3	Output
4	+V <sub>DD</sub>

Part Marking	
Line 1	M2010S141
Line 2	1M0000
Line 3	M yywwvv

Legend	
yy	Year
ww	Work week
vv	Factory code



**Figure 1**



### Datasheet Revision Table

Date	Rev.	Author	Details of Revision
10/16/09	0	WNJ	Original release.