

# M4001 & M4002 Series

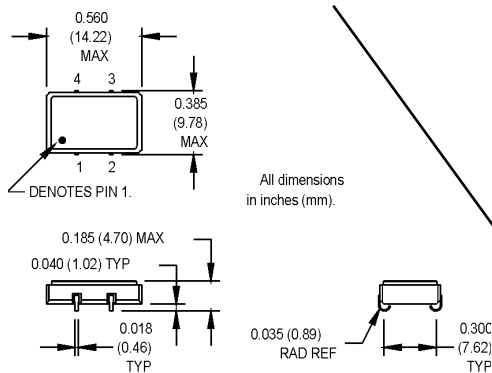
## 9x14 mm, 5.0 or 3.3 Volt, Sinewave, VCSCO



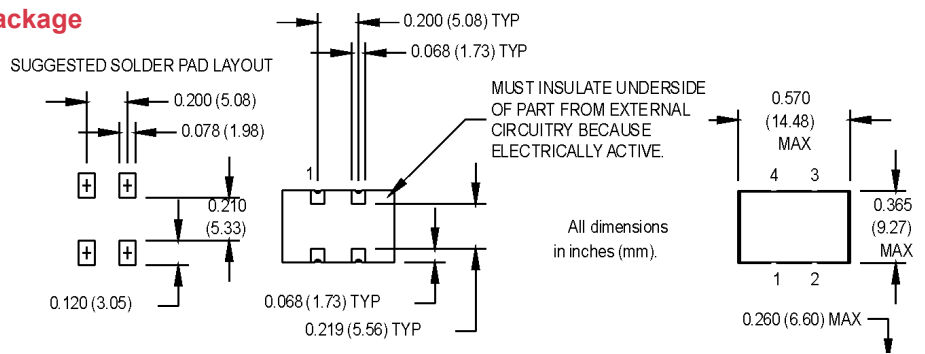
- Low Jitter - <1 ps from 12 kHz to 20 MHz
- Ideal for clock smoothing application for OC-48 and OC-192

Ordering Information		M4001/M4002		1	3	V	S	K	-R	00.0000	MHz
Product Series											
M4001 = 3.3 V											
M4002 = 5.0 V											
Temperature Range											
1: 0°C to +70°C											
7: 0°C to +85°C											
Stability											
3: ±100 ppm (typical)											
Output Type											
V: Voltage Controlled											
Symmetry/Output Type											
S: 45/55% Sinewave											
Package/Lead Configurations											
J: J-lead											
K: FR-4											
RoHS Compliance											
Blank: non-RoHS compliant part											
-R: RoHS compliant part											
Frequency (customer specified)											

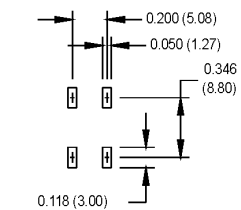
### J-Lead Package



### FR-4 Package



### SUGGESTED SOLDER PAD LAYOUT



### Pin Connections

PIN	FUNCTION
1	Control Voltage
2	Ground
3	RF Out
4	+Vdd

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	622.08		2488	MHz	See Note 1
Operating Temperature	T <sub>A</sub>	(See Ordering Information)				
Storage Temperature	T <sub>s</sub>	-55		+125	°C	
Frequency Stability	ΔF/F	(See Ordering Information)				
Aging 1st Year Thereafter (per year)						
Pullability/APR		50			ppm	See Note 2
Control Voltage	V <sub>c</sub>	0		3.3	V	M4001
		0		5.0	V	M4002
Linearity				15	%	Positive Monotonic Slope
Modulation Bandwidth	f <sub>m</sub>	500			kHz	-3dB Bandwidth
Input Impedance	Z <sub>in</sub>	50k			Ohms	
Input Voltage	V <sub>dd</sub>	3.135	3.3	3.465	V	M4001
		4.5	5.0	5.5	V	M4002
Input Current	I <sub>dd</sub>		50	80	mA	M4001
			70	100	mA	M4002
Output Type						Sinewave
Load			50		Ohms	See Note 3
Symmetry (Duty Cycle)		45/55		55/45	%	@ 0 VDC
Output Power	P <sub>o</sub>	+2	+5	+8	dBm	M4001
		+4	+7	+10	dBm	M4002
Start up Time						
Sub-Harmonic Levels				-20	dBc	
Non-Harmonic Levels				-60	dBc	
Phase Jitter	φ <sub>J</sub>					
@ 1244.16 MHz			0.10	0.3	ps RMS	Integrated 12 kHz - 20 MHz
Phase Noise (Typical)	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	Offset from carrier
@ 1244.16 MHz	-35	-63	-90	-117	-152	dBc/Hz

1. Consult factory for extended temperature operation and exact frequency availability.
2. APR specification inclusive of initial calibration, deviation over temperature, shock, vibration, supply voltage, and aging.
3. See load circuit diagram #3.

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