M4001 & M4002 Series

9x14 mm, 5.0 or 3.3 Volt, Sinewave, VCSO

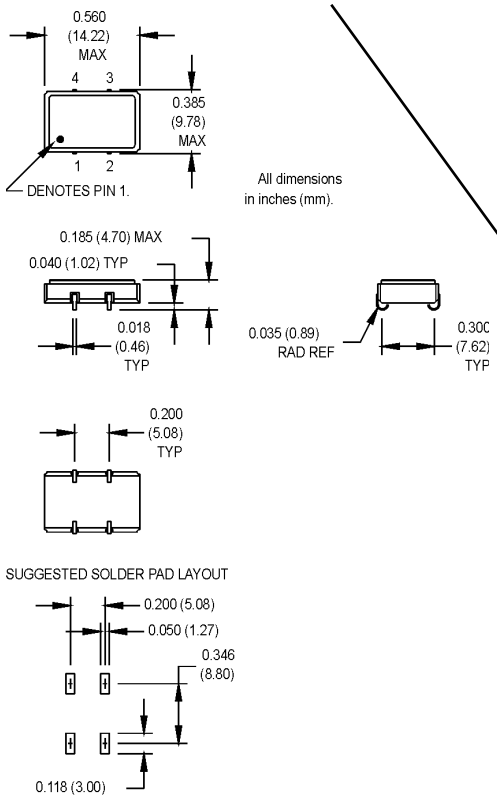
- Low Jitter - <1 ps from 12 kHz to 20 MHz
- Ideal for clock smoothing application for OC-48 and OC-192

Ordering Information

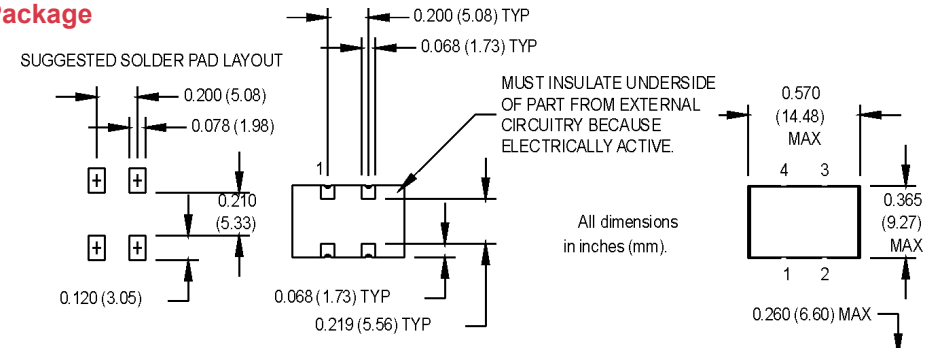
M4001/M4002 | 1 | 3 | V | S | K | -R | 00.0000 MHz

- **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



Pin Connections

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

Electrical Specifications

PARAMETER	Symbol	Min.	Typ.	Max.	Units	Condition/Notes
Frequency Range	F	622.08		2488	MHz	See Note 1
Operating Temperature	T_A	(See Ordering Information)				
Storage Temperature	Ts	-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	Vc	0		3.3	V	M4001
		0		5.0	V	M4002
Linearity				15	%	Positive Monotonic Slope
Modulation Bandwidth	fm	500			kHz	-3dB Bandwidth
Input Impedance	Zin	50k			Ohms	
Input Voltage	Vdd	3.135	3.3	3.465	V	M4001
		4.5	5.0	5.5	V	M4002
Input Current	Idd		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	Po	+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 J					
@ 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.