OX-046

VHF low g-Sensitivity
Oven Controlled Crystal Oscillator

Features

- Ultra Low G-Sensitivity
- Low Phase Noise
- Very High Frequency
- Frequency Range: 50 MHZ to 250 MHZ
- Standard Frequency: 100 MHz
- Vibration Compensation

Applications

- Military Avionics
- Airborne Radar
- Test Equipment
- Frequency Synthesizers
- Position Location
- Satellite Communications

Performance Specifications

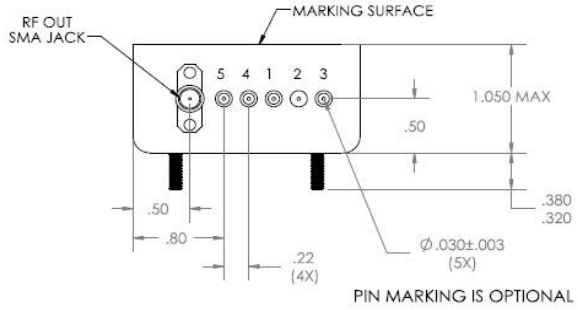
Parameter	Min	Typ	Max	Units	Condition
Available Frequencies					
Frequency Range	50		250	MHz	
G-Sensitivity Performance					
standard crystal			1.5	ppb/g	
g-Sensitivity w\ Low g-Crystal			0.5	ppb/g	
g-Sensitivity w\ Low g-Crystal & Vibration compensation			0.05	ppb/g	Degrades to 0.5 ppb/g above 250 Hz
(No mechanical resonances out to 2KHz)					G sensitivity specified per axis
For oscillators with 0.2 ppb/g out to 2 KHz please contact factory.					
Frequency Stabilities[1] (Stabilities listed for 100 MHz. For Stabilities above 100 MHz values may degrade. Please contact factory.)					
vs. Operating Temperature Range (referenced to +25°C) 	-200 -150 -100 -50		+200 +150 +100 +50	ppb ppb ppb ppb	-40… +85°C -40… +70°C -20… +70°C 0… +70°C
Initial Tolerance vs. Supply Voltage Change vs. Load Change vs. Aging / Daily vs. Aging / 1st Year vs. Aging / 10 Year	-500 -10 -10 -5 -200 -1.5		+500 +10 +10 +5 +200 +1.5	ppb ppb ppb ppb ppb ppm	at time of shipment, nominal EFC Vs ± 5% Load ± 5% after 30 days operation after 30 days operation after 30 days operation
Retrace[2]	-200		+200	ppb	
Warm-up Time			5	minutes	to ± 100ppb of final frequency (2 hour reading) @ +25°C

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Supply Voltage (Vs)					
Supply voltage	14.25	15.0	15.75	VDC	ordering code A
	11.4	12.0	12.6	VDC	ordering code B
Oven Power Consumption			10.0	Watts	during warm-up all temperatures
			3.8	Watts	steady state @ +25°C
			7.0	Watts	steady state @ -40°C
			1.0	Watts	steady state @ +85°C
RF Output					
Start Time		1	2	s	time required to achieve 90% of amplitude
Signal		Sinewave			
Load		50		Ohm	
Output Power	+7.0	+10	+13	dBm	
Harmonics			-30	dBc	
Subharmonics			-30	dBc	for oscillator with output frequency > 120 MHz
Frequency Tuning (EFC)					
Tuning Range	±2.0		±3.0	ppm	Electronic frequency control
Linearity			20	%	
Tuning Slope		Positive			
Control Voltage Range	0.0	+5.0	+10.0	VDC	
Input Resistance	15			kOhm	
Modulation Bandwidth	150			Hz	
Phase Noise					
Phase Noise[3] (@ 100 MHZ) (under static conditions - no vibration)			-100 -130 -150 -165 -175	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz
Phase Noise[3] (@ 200 MHZ) (under static conditions - no vibration)			-90 -120 -140 -155 -165	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz

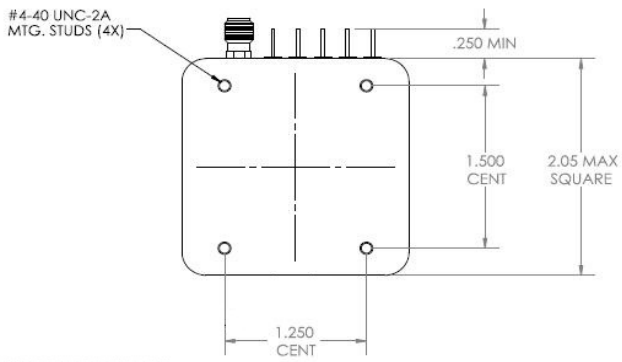
Parameter	Min	Typ	Max	Units	Condition
Additional Parameters[1]					
Weight			150	g	
Absolute Maximum Ratings					
Supply voltage (Vs)			28	V	
Output Load	25		open	ohm	
Operable Temperature Range	-55		+85	°C	
Environmental Specifications					
Shock (Operating)	MIL-STD-202, Method 213, Condition J, 30G, 11ms, half sine				
Shock (Endurance)	Mil-STD-202, Method 213, Condition C, 100G, 6ms, half sine				
Sine Vibration (Operating)	Mil-STD-202, Method 204, Condition C, 10 G				
Sine Vibration (Endurance)	Mil-STD-202, Method 204, Condition D, 20 G				
Random Vibration (Operating)	Mil-STD-202, Method 214, Condition I-C, 9.26 Grms, 3-5min/axis (without vibe comp) Mil-STD-202, Method 214, Condition I-A, 5.35 Grms, 3-5min/axis (with vibe comp)				
Random Vibration (Endurance)	Mil-STD-202, Method 214, Condition I-D, 11.95 Grms, 3hrs/axis				
Seal	Nonhermetic - Mil-STD-202, Method 112, Condition D available only as custom part number - please contact factory				
Humidity	MIL-STD-202, Method 103, Condition B, 90% rh				
Altitude	MIL-STD-202, Method 105, sea level to 30,000 ft				
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition A,B,C				
RoHS	not RoHS compliant				
Terminal Strength	MIL-STD-202, Method 211, Condition C (5 bends at 45°, 2 lbs)				
Moisture Sensitivity Level	1				
Storage Temperature Range	-55		+125	°C	

Outline Drawing / Enclosure

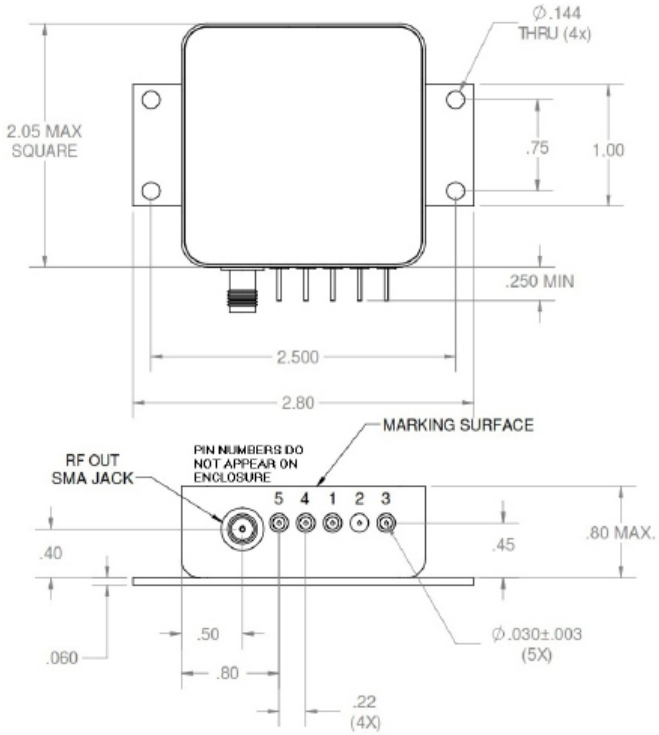


Dimensions in inches

Package configuration A		
ordering code	Height "H"	
5	0.80	
0	1.05	



Pin Connections	
1	Electronic Frequency Control (EFC)
2	Ground (Case)
3	Supply Voltage
4	Microsemi Internal Use Only / NC
5	Microsemi Internal Use Only / NC



Package configuration C		
ordering code	Height "H"	
7	0.80	
2	1.05	

Pin Connections	
1	Electronic Frequency Control (EFC)
2	Ground (Case)
3	Supply Voltage
4	Microsemi Internal Use Only / NC
5	Microsemi Internal Use Only / NC

Ordering Information[4]

OX - 046 0 - A E T-508 3 - 100M000000

Product Family
OX: OCXO

Package
50 x 50 mm

Mounting Style
0: Type A, 1.05
2: Type C, 1.05
5; Type A, 0.80
7: Type C, 0.80

Supply Voltage
A: 15 Vdc
B: 12 Vdc

RF Output Code
E: Sinewave

Temperature Range / Stability Code
E-207: -40°C to +85°C, ± 200 ppb
D-157: -40°C to +70°C, ± 150 ppb
J-107: -20°C to +70°C, ±100 ppb
T-508: 0°C to +70°C, ±50 ppb

Platform Code
Low g, Compensation option
0:: Standard crystal
1: Low g Crystal
3: Low g Crystal, w\vibe comp

Frequency

Additional Ordering Options

Additional ordering options available include custom temperature ranges, custom temperature stabilities, custom phase noise requirements, low profile, custom supply voltage, hermetic option and improved g-sensitvity. These modifications require a custom dash number - please contact the factory for additional information.

Notes:

1. Unless otherwise stated, all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, and temperature (25°C).
2. Retrace is defined as the frequency difference between the end of two 24 hour on power periods with a 24 hour off period in between while at a constant temperature.
3. Phase noise degrades with increasing output frequency.
4. Not all options and codes available at all frequencies.

Contact Information

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