

Helping Customers Innovate, Improve &amp; Grow


**OX-046**
**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**

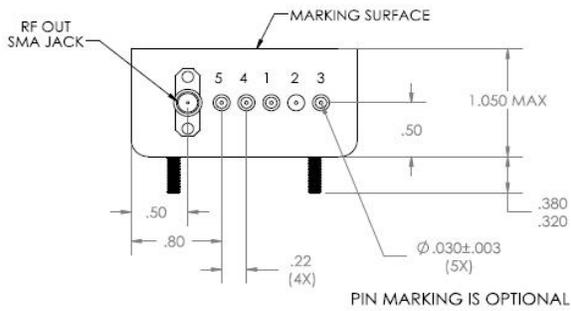
Parameter	Min	Typ	Max	Units	Condition
Available Frequencies					
Frequency Range	50		250	MHz	
G-Sensitivity Performance					
standard crystal			1.5	ppb/g	
g-Sensitivity w\ Low g-Crystal			0.5	ppb/g	
g-Sensitivity w\ Low g-Crystal & Vibration compensation			0.05	ppb/g	Degrades to 0.5 ppb/g above 250 Hz
(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 <sup>1</sup>					
(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	-500		+500	ppb	at time of shipment, nominal EFC
vs. Supply Voltage Change	-10		+10	ppb	Vs ± 5%
vs. Load Change	-10		+10	ppb	Load ± 5%
vs. Aging / Daily	-5		+5	ppb	after 30 days operation
vs. Aging / 1 <sup>st</sup> Year	-200		+200	ppb	after 30 days operation
vs. Aging / 10 Year	-1.5		+1.5	ppm	after 30 days operation
Retrace <sup>2</sup>	-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
<b>Supply Voltage (Vs)</b>					
Supply voltage	14.25	15.0	15.75	VDC	ordering code A
	11.4	12.0	12.6	VDC	oredering code B
Oven Power Consumption			10.0	Watts	during warm-up all temperatures
			3.5	Watts	steady state @ +25°C
			7.0	Watts	steady state @ -40°C
			1.0	Watts	steady state @ +70°C
<b>RF Output</b>					
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
<b>Frequency Tuning (EFC)</b>					
Tuning Range	±1.5		±3.0	ppm	Electronic frequency control
Linearity			20	%	
Tuning Slope	Positive				
Control Voltage Range	0.0	+4.0	+8.0	VDC	
Input Impedance	20			kOhm	
Modulation Bandwidth	150			Hz	
<b>Mechanical Trim (Internal)</b>					
Tuning Range	±1.5		±3.0	ppm	Internal Mechanical
<b>Phase Noise</b>					
Phase Noise <sup>3</sup> (@ 100 MHZ) (under static conditions - no vibration)			-100	dBc/Hz	10 Hz
			-130	dBc/Hz	100 Hz
			-150	dBc/Hz	1 KHz
			-165	dBc/Hz	10 KHz
			-175	dBc/Hz	100 KHz
Phase Noise <sup>3</sup> (@ 200 MHZ) (under static conditions - no vibration)			-90	dBc/Hz	10 Hz
			-120	dBc/Hz	100 Hz
			-140	dBc/Hz	1 KHz
			-155	dBc/Hz	10 KHz
			-165	dBc/Hz	100 KHz

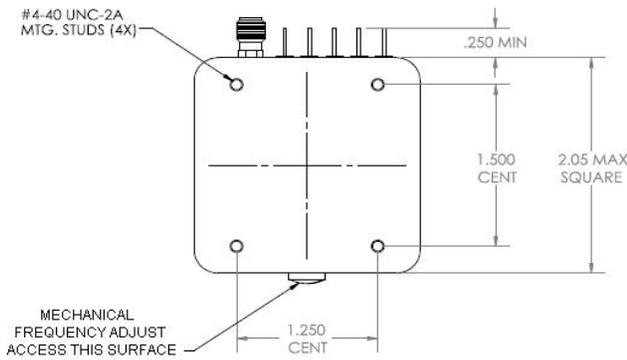
Parameter	Min	Typ	Max	Units	Condition
<b>Additional Parameters<sup>1</sup></b>					
Weight			150	g	
<b>Absolute Maximum Ratings</b>					
Supply voltage (Vs)			28	V	
Output Load	25		open	ohm	
Operable Temperature Range	-55		+85	°C	
<b>Environmental Specifications</b>					
Shock (Operating)	MIL-STD-202, 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

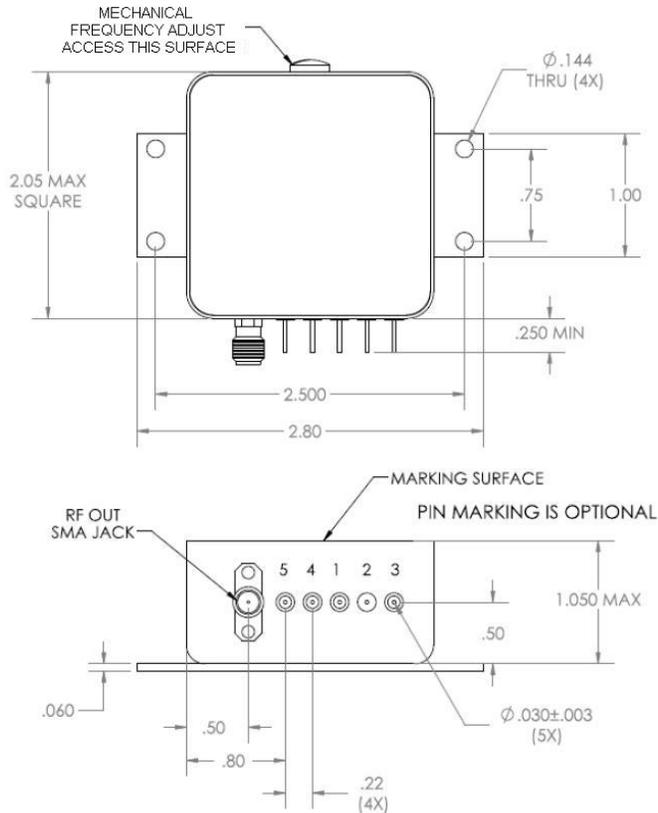


Dimensions in inches

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



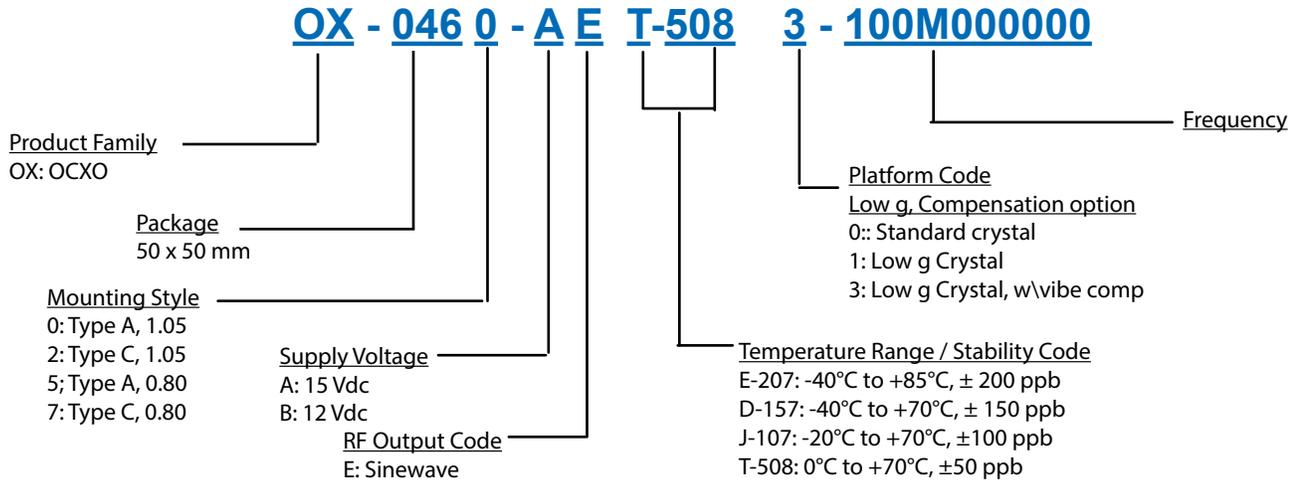
Pin Connections	
1	Electronic Frequency Control (EFC)
2	Ground (Case)
3	Supply Voltage
4	Microsemi Internal Use Only / NC
5	Microsemi Internal Use Only / NC



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<sup>4</sup>



## 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-sensitivity. These modifications require a custom dash number - please contact the factory for additional information.

## Design Tools

Microsemi stocks the following items for small orders and prototype development:
OX-0467-AEE-2073-100M00000
Microsemi stocks the following evaluation board for this product:
None
Application Notes:
None

### 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.



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