

Helping Customers Innovate, Improve & Grow



OX-043

Features

- Ultra Low g-Sensitivity
- Low Phase Noise
- High Stability
- Frequency Range: 8 MHz to 15 MHz
- Standard Frequency 10 MHz
- Vibration Compensation

Applications

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

Performance Specifications

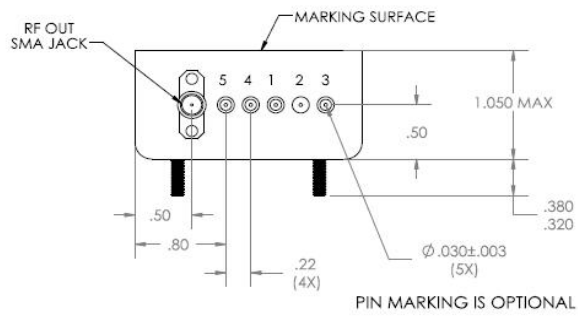
Parameter	Min	Typ	Max	Units	Condition
Available Frequencies					
Frequency Range	8		15	MHz	
G-Sensitivity Performance					
Standard crystal			1	ppb/g	
G Sensitivity w\ Low g-Crystal			0.2	ppb/g	
G Sensitivity w\ Low g-Crystal & Vibration compensation			0.02	ppb/g	Degrades to 0.2 ppb/g above 250 Hz
(No mechanical resonances out to 2KHz)					G sensitivity specified per axis
For oscillators with 0.1 ppb/g out to 2 KHz contact factory.					
Frequency Stabilities ¹ (Stabilities listed for 10 MHz. For Stabilities above 10 MHz values may degrade. Please contact factory.)					
vs. Operating Temperature Range (referenced to +25°C)	-30 -20 -10 -5		+30 +20 +10 +5	ppb ppb ppb ppb	-40... +85°C -40... +70°C -20... +70°C 0... +70°C
Initial Tolerance	-50		+50	ppb	at time of shipment, nominal EFC
vs. Supply Voltage Change	-2.0		+2.0	ppb	Vs ± 5%
vs. Load Change	-2.0		+2.0	ppb	Load ± 5%
vs. Aging / Daily	-0.5		+0.5	ppb	after 72 hours of operation
vs. Aging / 1 st Year	-40		+40	ppb	after 72 hours of operation
vs. Aging / Year (following years)	-30		+30	ppb	
Retrace ²	-20		+20	ppb	
Warm-up Time			5	minutes	to ± 10ppb of final frequency (1 hour reading) @ +25°C

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Supply Voltage (Vs)					
Supply voltage	14.25	15.0	15.75	VDC	18 & 24 VDC options available
	11.4	12.0	12.6	VDC	18 & 24 VDC options available
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
RF Output					
Start Time		1	2	s	time required to achieve 90% of amplitude
Signal	Sinewave				
Load		50		Ohm	
Output Power	+6.0	+7.0	+8.0	dBm	
Harmonics			-30	dBc	
Frequency Tuning (EFC)					
Tuning Range	±0.5	±0.8	±2.0	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	
Mechanical Trim (Internal)					
Tuning Range	±0.75	±1.0	±2.0	ppm	Internal Mechanical
Phase Noise					
Phase Noise ³ standard(@ 10 MHZ) (under static conditions - no vibration)		-100	-95	dBc/Hz	1 Hz
		-130	-127	dBc/Hz	10 Hz
		-155	-152	dBc/Hz	100 Hz
		-166	-163	dBc/Hz	1 KHz
		-168	-165	dBc/Hz	10 KHz
Phase Noise ³ Low Noise option (@ 10 MHZ) (under static conditions - no vibration)			-105	dBc/Hz	1 Hz
			-135	dBc/Hz	10 Hz
			-157	dBc/Hz	100 Hz
			-167	dBc/Hz	1 KHz
			-170	dBc/Hz	10 KHz

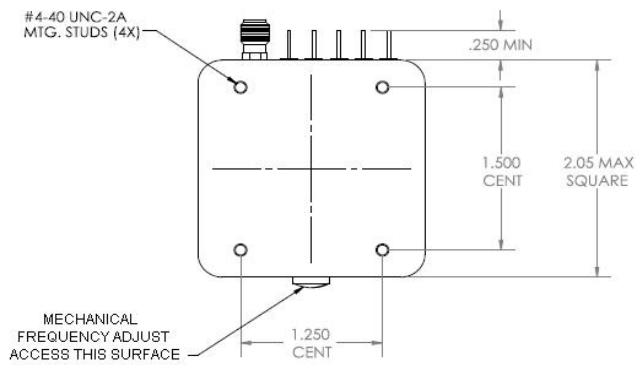
Parameter	Min	Typ	Max	Units	Condition
Additional Parameters¹					
Weight			150	g	
Absolute Maximum Ratings					
Supply voltage (Vs)			28	V	
Output Load	25		open	ohm	
Operable Temperature Range	-55		+85	°C	
Environmental Specifications					
Shock (Operating)	MIL-STD-202, Method 213, Condition J, 30G, 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

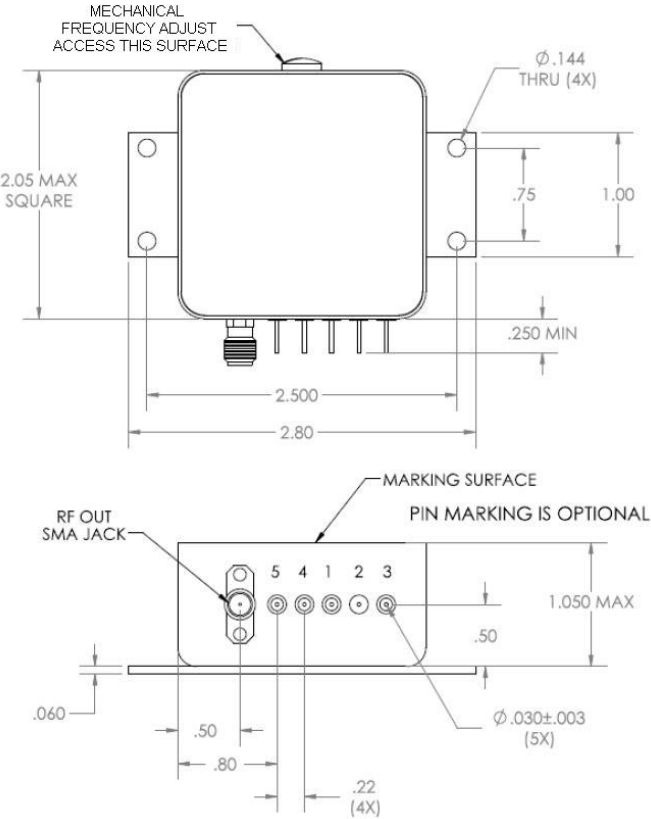
Package configuration A		
ordering code	Height "H"	
5	0.80	
0	1.05	



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

Outline Drawing / Enclosure

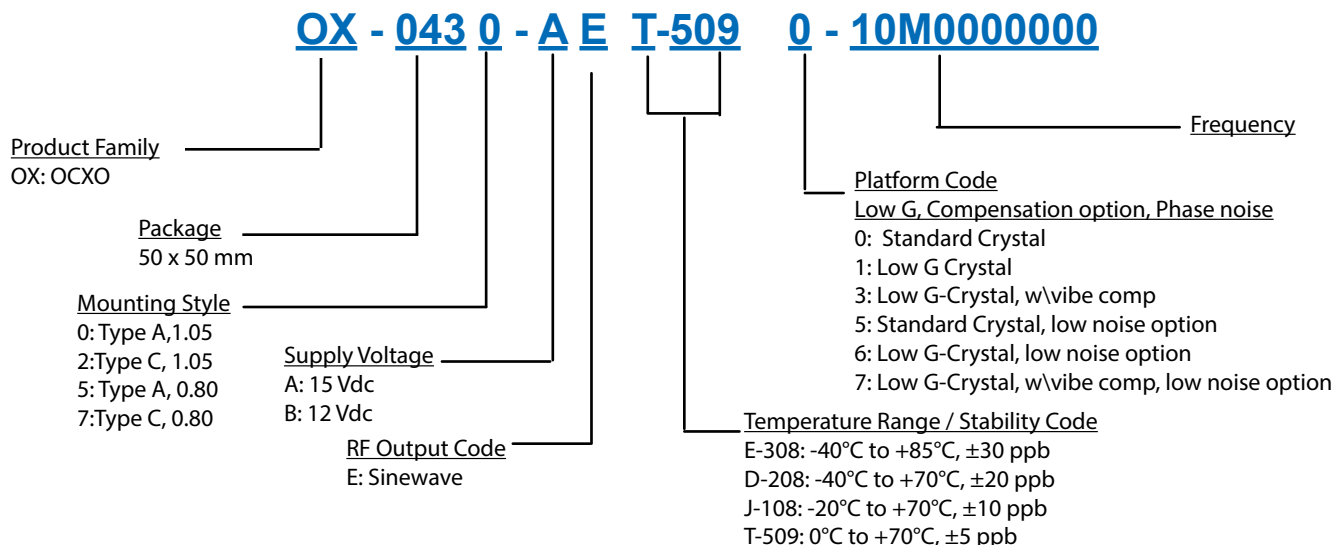
Dimensions in inches



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 Information⁴



Additional Ordering Options

Additional ordering options available include custom temperature ranges, custom temperature stabilities, custom phase noise requirements, custom height, 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-0437-AEE-3087-10M000000
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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