

# Poseidon 2 – G-Compensated OCXO



## FEATURES

- ✓ 0.02 PPB/G acceleration sensitivity
- ✓ -130 dBc/Hz phase noise @ 10Hz
- ✓  $\pm 0.25$  PPM 20 year aging
- ✓ ruggedized packaging

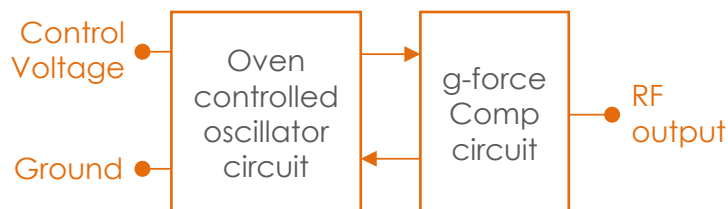
## G-Compensated OCXO

#blileytakesyoufurther

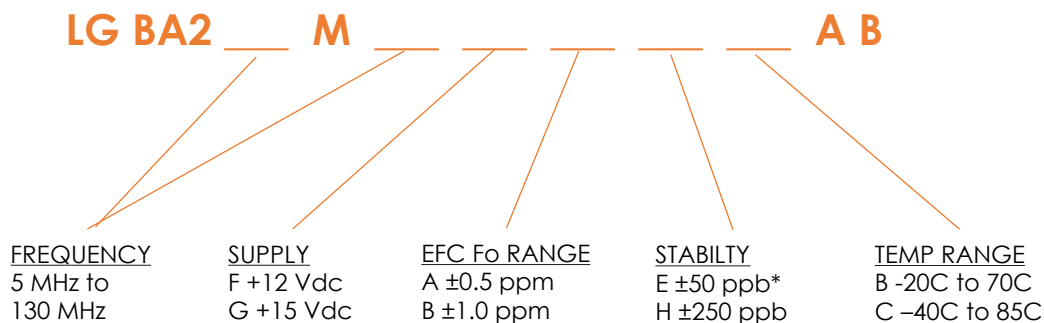
## Description

The Poseidon Series is specifically designed for high vibration environments where dynamic phase noise performance is paramount. The active compensation and passive isolation provide up to 100x improvement in acceleration sensitivity over standard oscillators.

## Block Diagram



## Part Number Configuration



### NOTE

\* Frequency < 50 MHz

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REV 2.2 2017

## Performance Specifications

Parameter	Conditions	Values			Unit
Input Characteristics		MIN	TYP	MAX	
Supply Voltage	Option F	11.4	12	12.6	Vdc
	Option G	14.25	15	15.75	Vdc
Power Dissipation					
Warm-up	Tested at 25°C		7.0		W
Steady-state	Tested at 25°C		3.0		W
Electronic Frequency Control					
Voltage Range		0		+5	Vdc
Center Voltage			+2.5		V
Frequency Range	Option A			±0.5	PPM
Slope			negative		
Input Impedance			100		kΩ
Linearity			10		%
Output Characteristics (Sinusoidal)		MIN	TYP	MAX	
Frequency Range	Initial accuracy (±0.25 PPB)	5	10	130	MHz
Output Level			13.0		dBm
Load Impedance		45	50	55	Ω
VSWR	Into 50 Ω		2:1		
Harmonics				-30	dBc
Acceleration Sensitivity		0.007	0.02		PPB/g

Note(s):

1. Typical of 10MHz output frequency unless otherwise noted

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## Performance Specifications

Parameter	Conditions	Values			Unit
Frequency Stability		MIN	TYP	MAX	
Warmup	Within 5 minutes			±0.1	PPB
Frequency vs. _____					
Temperature	Tested at 25°C				PPB
	Option A			±50	PPB
	Option B			±250	PPB
Load	Tested at 25°C		±5		PPB
Voltage	Tested at 25°C		±5		PPB
Allan Deviation (short term stability)	@ 1 second		5x10e <sup>-12</sup>		
Aging(1 <sup>st</sup> year)	MIL-PRF-55310		±0.050		PPM
Aging (20 years)	MIL-PRF-55310		±0.250		PPM

### Note(s):

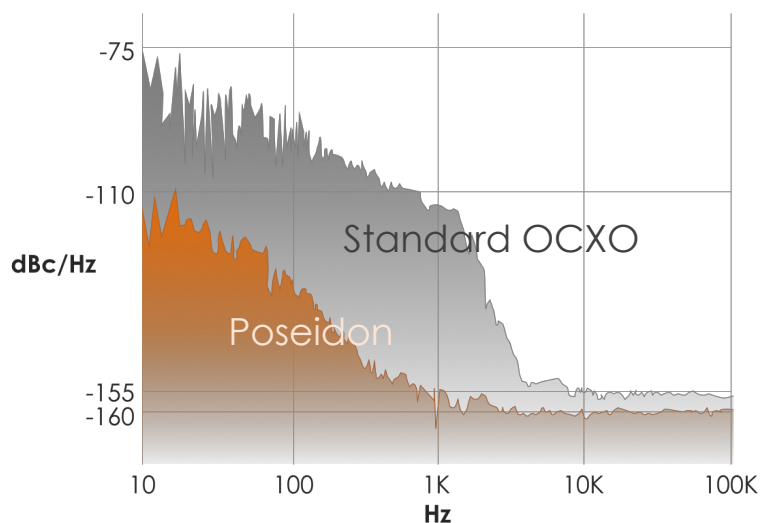
1. Typical of 10MHz output frequency unless otherwise noted
2. Frequency accuracy requirement applies over the full temp range of -40°C to +85°C.

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## Performance Specifications

Parameter	Conditions	Values	Unit
Phase Noise		Max	
Phase Noise (10MHz output)	Tested at 25C		
	10Hz	-130	dBc/Hz
	100Hz	-152	dBc/Hz
	1000Hz	-160	dBc/Hz
	10kHz	-165	dBc/Hz
	100kHz	-165	dBc/Hz
Phase Noise (100MHz output)	Tested at 25C		
	10Hz	-95	dBc/Hz
	100Hz	-125	dBc/Hz
	1000Hz	-152	dBc/Hz
	10kHz	-170	dBc/Hz
	100kHz	-170	dBc/Hz

### Measured phase noise performance



Vibration profile:  
0.001G<sup>2</sup>/Hz 10Hz to 2kHz

## Environmental Compliance

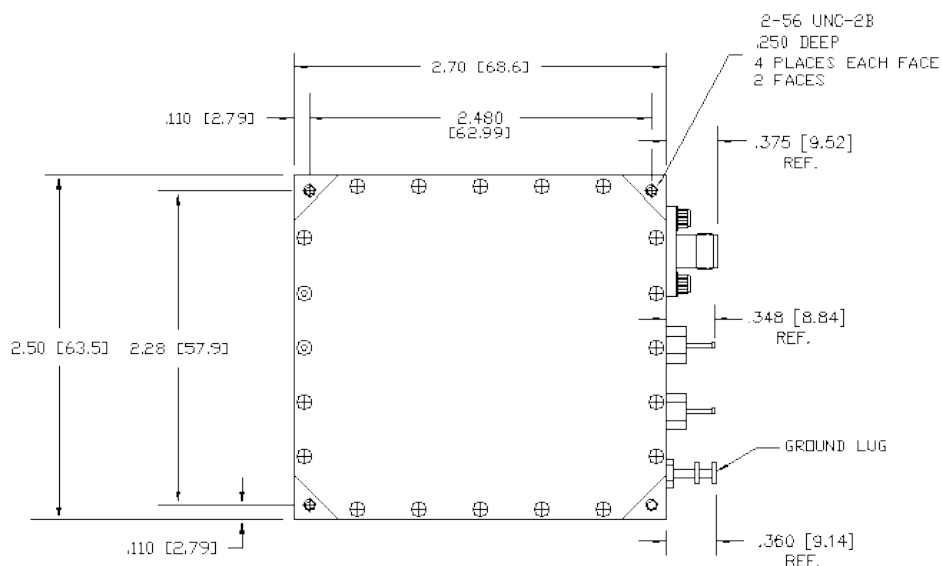
Parameter	Conditions	Values			Unit
Environmental & Reliability		MIN	TYP	MAX	
Operating Temperature		-40°C		+85	°C
Storage Temperature		-55°C		+95	°C
Shock	MIL-STD-202 Method 213, Test Condition A	Survive			
Sinusoidal Vibration	MIL-STD-202 Method 204, Test Condition B	Survive			
Random Vibration	RTCA DO-160	Survive			
MTTF	Calculated using MIL-HDBK-217	153,300			Hrs
Acceleration Compensation 3 axis Performance	10MHz output Vibration profile: 0.001G <sup>2</sup> /Hz 10Hz to 2kHz	0.007	0.02		PPB/g

Note(s):

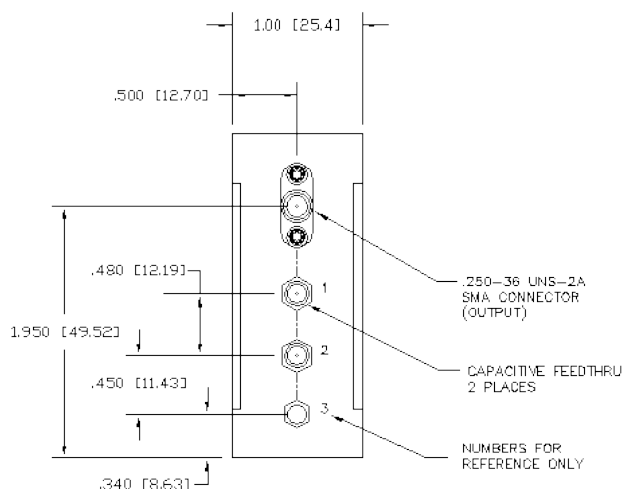
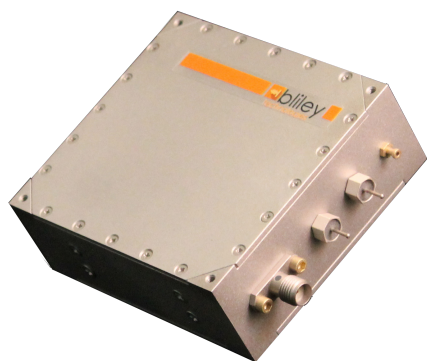
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## Physical Specifications



PIN	FUNCTION
SMA	RF Output
1	EFC
2	+Vdc
3	RF & Case Ground



Tolerances (mm) .X =  $\pm 0.5$ , .XX =  $\pm 0.2$  unless otherwise specified



Sunburst Electronics

Notes:  
• None

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