



LEO Orbit TCVCXO

## FEATURES

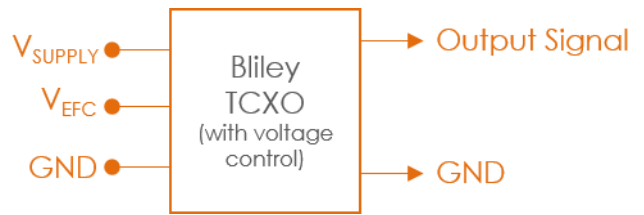
- ✓ Low Phase Noise Performance
- ✓ Analog Temperature Compensation
- ✓ 14-pin DIP Package
- ✓ Hermetically Sealed
- ✓ Swept Quartz

#blileytakesyoufurther

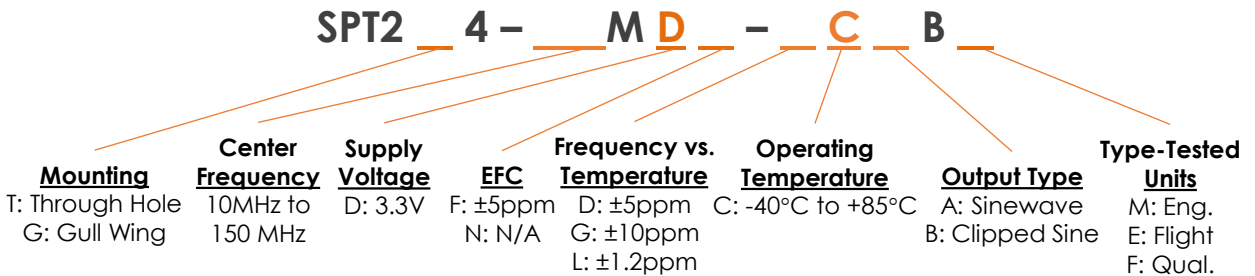
## Description

Bliley TCVCXOs are capable of meeting Frequency vs. Temperature stabilities which rival traditional “Ovenized Oscillator” Technology. This coupled with design topologies meeting the harshest Mil-Standards makes Bliley TCXOs the choice of many system designers for mobile equipment.

## Block Diagram



## Part Number Configuration



\*Not all combinations of options may be possible  
 \*\*Other options may be available

## Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Frequency Range	Swept Quartz**	10		150	MHz
Initial Tolerance	+25°C			±1.5	ppm
Frequency Stability					
vs. Temperature	Option L			±1.2	ppm
vs. Load	5% Change			±0.2	ppm
vs. Supply Voltage	5% Change			±0.2	ppm
Perturbation	Per °C		±0.5		ppm
Aging	1 <sup>st</sup> Year			±1	ppm
	5 Years			±3	ppm
Supply Voltage		3.13	3	3.47	Vdc
Current Consumption	50MHz			12	mA
	100MHz			17	mA
Electronic Frequency Control					
Voltage Range		0.3		2.7	Vdc
Center Voltage			1.5		
Frequency Range		±5			ppm
Slope			positive		
Input Impedance		1			MΩ
Linearity			10		%

\*Values typical of 10MHz units unless otherwise specified

\*\*Non-Swept quartz available upon request

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## Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Output Characteristics (Sinusoid)					
Output Level		0	3	6	dBm
Load		47.5	50	52.5	$\Omega$
Harmonics				-30	dBc
Output Characteristics (Clipped-Sine)					
Output Level		0.8			Vpp
Load	$\pm 10\%$		10 k $\Omega$ //10 pf		

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Phase Noise					
Phase Noise (60MHz @ +25°C)	10Hz		-85	-80	dBc/Hz
	100Hz		-115	-110	dBc/Hz
	1kHz		-140	-135	dBc/Hz
	10kHz		-155	-150	dBc/Hz
	100kHz		-160	-155	dBc/Hz
	1MHz		-160	-155	dBc/Hz
Phase Noise (120MHz @ +25°C)	10Hz		-75	-70	dBc/Hz
	100Hz		-105	-100	dBc/Hz
	1kHz		-130	-125	dBc/Hz
	10kHz		-150	-145	dBc/Hz
	100kHz		-155	-150	dBc/Hz
	1MHz		-155	-150	dBc/Hz

## Environmental Compliance

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Operating Temperature	Option C	-40		+85	°C
Storage Temperature		-55		+125	°C
Solderability	MIL-STD-202 Method 208				
Solvent Resistance	MIL-STD-202 Method 215				
Shock	MIL-STD-202 Method 213 Test Condition I				
Vibration	MIL-STD-202 Method 204 Test Condition C				
Thermal Shock	MIL-STD-202 Method 107 Test Condition B-1				
Seal	MIL-STD-202 Method 112 Test Condition D				
Radiation Tolerance		MIN			Unit
Total Ionizing Dose (TID)	Radiation tolerant up to total dosage	37**			krad

\*\*Aether is built using AEC qualified (or higher) passives and active components. The active components in the BOM that are subject to radiation degradation have been previously up-screened to the radiation levels listed above; however, due to the potential for lot-to-lot variation, actual radiation tolerance may vary. Radiation Lot Acceptance Testing will be offered as an additional test charge if required by the customer's radiation environment.

## Type Unit Tested

Bliley Part Number	Description	Group Testing Performed		
SPT2x4xxMDFLCxBM	Engineering Unit	I		
SPT2x4xxMDFLCxBE	Flight Unit	I	II	
SPT2x4xxMDFLCxBF	Qualification Unit	I	II	III

### Group I – Tests

Test	Method
Electrical Testing	Per Bliley Datasheet

### Group II – Tests

Test	Method
Thermal Shock	MIL-STD-202 Method 107, Condition A
Burn In	MIL-STD-883 Method 1015 Condition B 160 Hrs.
Electrical Testing	Per Bliley Datasheet

### Group III – Tests

Test	Method
Sinusoidal Vibration	MIL-STD-202G Method 204, Condition A
Shock	MIL-STD-202G Method 213 Condition C
Thermal Shock	MIL-STD-202 Method 214 Condition C Profile 1
Storage Temperature	24 Hrs. Soak at -40°C and +85°C
Resist to Soldering Heat	MIL-STD-202 Method 210 Condition A-D
Terminal Strength	MIL-STD-202 Method 211A Condition A-E
Solderability	MIL-STD-202 Method 208
Electrical Testing	Per Bliley Datasheet

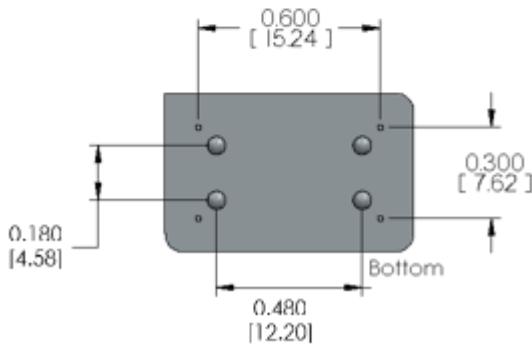
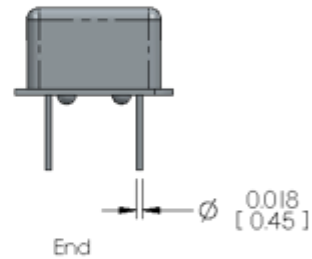
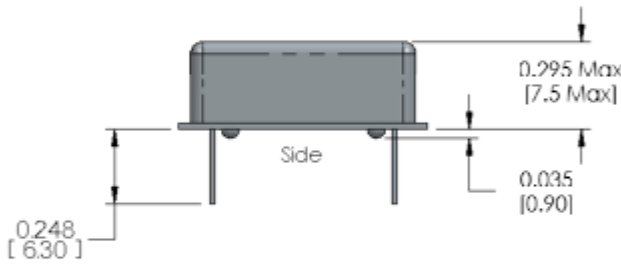
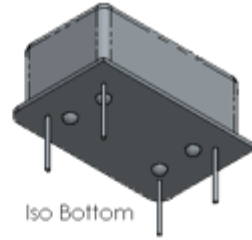
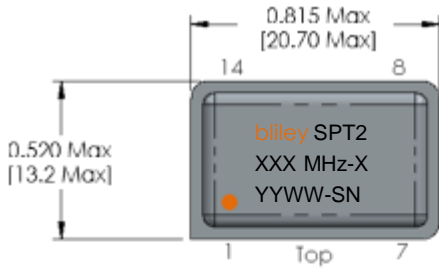
**Additional testing can be performed at an additional charge upon request**

Note(s):

- Traceability documentation will be available upon request.
- Upon request Bliley will provide a copy of the DPL, DCL and DML.

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Physical Specifications – Through Hole



PIN	FUNCTION
1	EFC/N.C.
7	Ground
8	RF Output
14	Supply Voltage

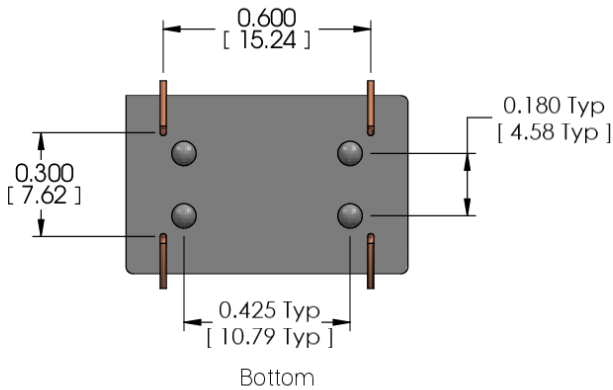
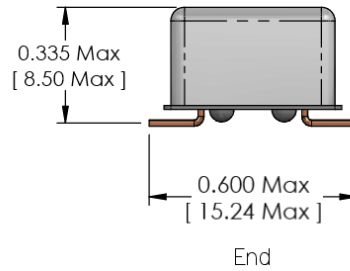
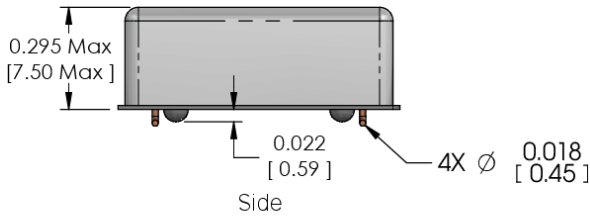
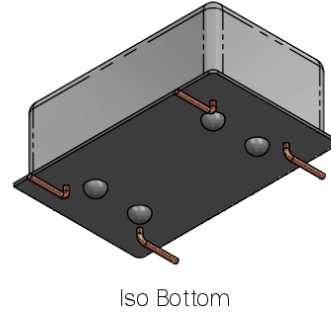
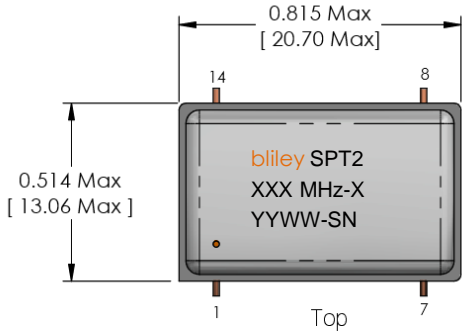
Tolerances (mm) .X = ± 0.5, .XX = ±0.2 unless otherwise specified



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Physical Specifications – Gull Wing



PIN	FUNCTION
1	EFC/N.C.
7	Ground
8	RF Output
14	Supply Voltage

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