Aether Series – TCVCXO for LEO Orbits

bliley technologies

LEO Orbit TCVCXO

FEATURES

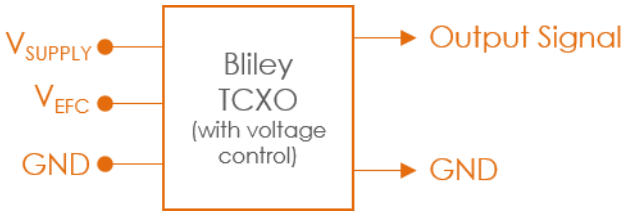
- ✓ Low Phase Noise Performance
- ✓ Analog Temperature Compensation
- ✓ 14-pin DIP Package
- ✓ Hermetically Sealed
- ✓ Swept Quartz

#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

SPT2 __ 4 – ___ M D __ – ___ B __

Mounting	Center Frequency	Supply Voltage	EFC	Frequency vs. Temperature	Operating Temperature	Output Type	Type-Tested Units
T: Through Hole G: Gull Wing	10MHz to 150 MHz	D: 3.3V	F: ±5ppm N: N/A	D: ±5ppm G: ±10ppm J: ±2ppm L: ±1.2ppm	C: -40°C to +85°C T: -30°C to +80°C	A: Sinewave B: Clipped Sine	M: Eng. E: Flight F: Qual.

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

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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	1st Year			±1	ppm
	5 Years			±3	ppm
Supply Voltage		3.13	3.3	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

Performance Specifications

Parameter	Conditions	Values			Unit
Output Characteristics (Sinusoid)		MIN	TYP	MAX	
Output Level		0	3	10	dBm
Load		47.5	50	52.5	Ω
Harmonics		-20	-25		dBc
Output Characteristics (Clipped-Sine)		MIN	TYP	MAX	
Output Level		0.8			Vpp
Load	±10%		10 kΩ//10 pf		

Parameter	Conditions	Values			Unit
Phase Noise		MIN	TYP	MAX	
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
	Option T	-30		+80	°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 very. 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		
SPT2x4xxMDFLCxB**M**	Engineering Unit	I		
SPT2x4xxMDFLCxB**E**	Flight Unit	I	II	
SPT2x4xxMDFLCxB**F**	Qualification Unit	I	II	III

Group I – Tests	
Test	Method
Electrical Testing	Per Bliley Datasheet

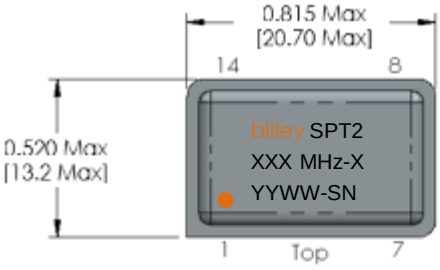
Group II – Tests	
Test	Method
Thermal Shock	MIL-STD-202 Method 107, Condition A
Burn In	MIL-STD-883 Method 1015 Condition B 160 Hrs.
Electrical Testing	Per Bliley Datasheet

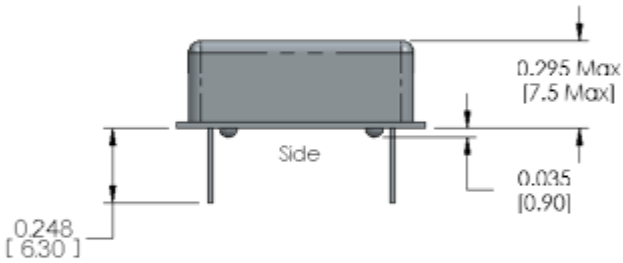
Group III – Tests	
Test	Method
Sinusoidal Vibration	MIL-STD-202G Method 204, Condition A
Shock	MIL-STD-202G Method 213 Condition C
Thermal Shock	MIL-STD-202 Method 214 Condition C Profile 1
Storage Temperature	24 Hrs. Soak at -40°C and +85°C
Resist to Soldering Heat	MIL-STD-202 Method 210 Condition A-D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

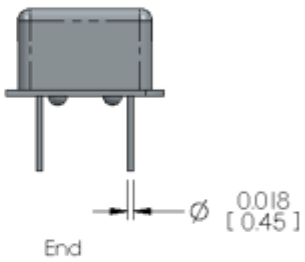
Additional testing can be performed at an additional charge upon request

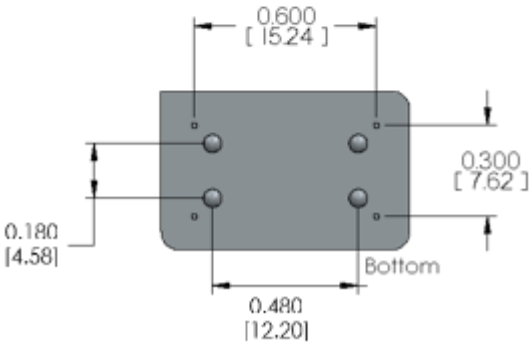
Note(s):
1. Traceability documentation will be available upon request.
2. Upon request Bliley will provide a copy of the DPL, DCL and DML.

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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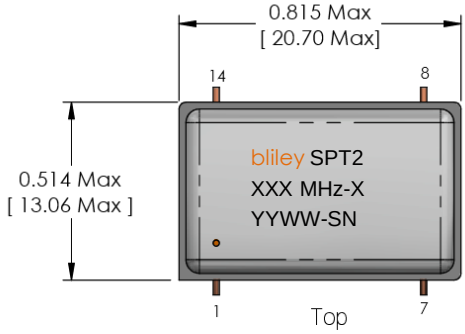
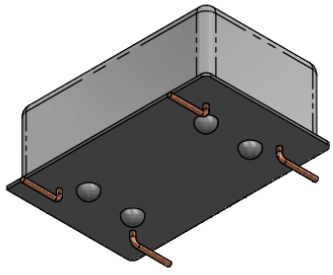
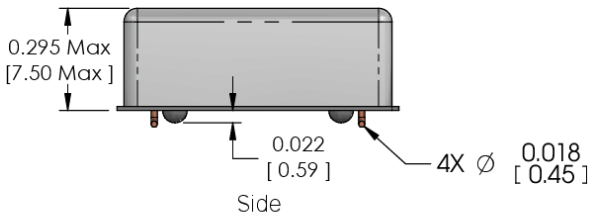
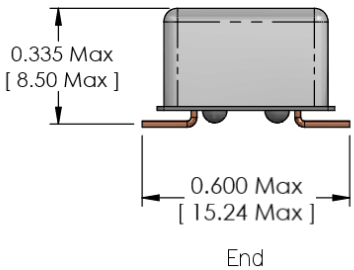
Notes:

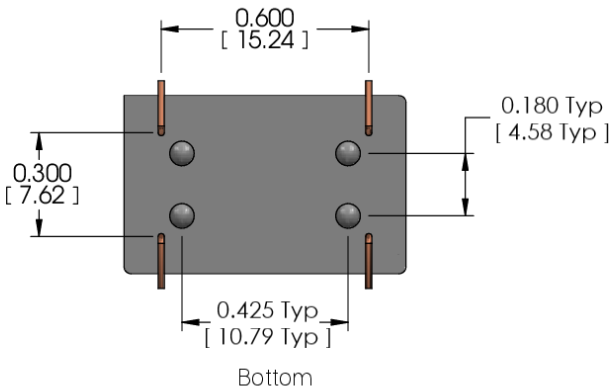
Physical Specifications – Gull Wing











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