



FEATURES

- ✓ Ultra Low Phase Noise
- ✓ Excellent Frequency Stability Over Temperature Range
- ✓ Standard Frequency 100 MHz
- ✓ Excellent long-term aging
- ✓ 25x25mm Package

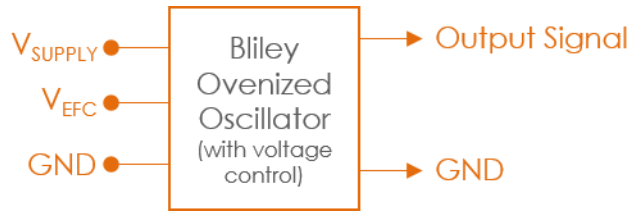
#blileytakesyoufurther

Oven Controlled Oscillator

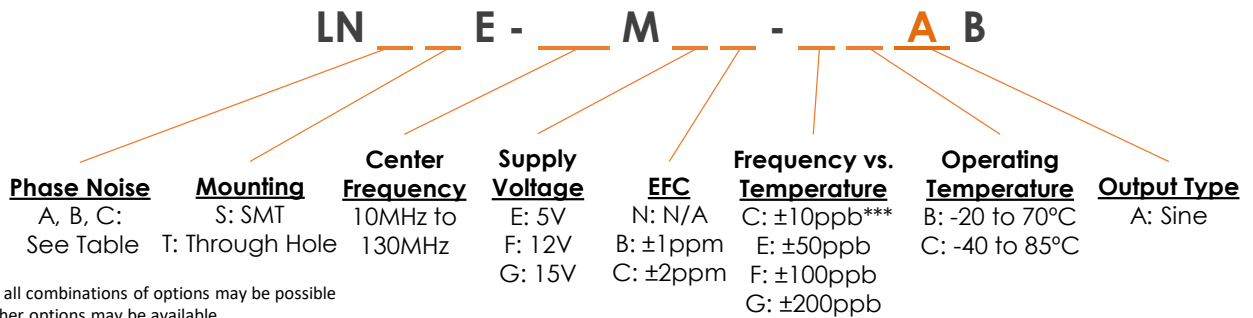
Description

Apollo high performance, miniature OCVCXO spans a wide frequency range and is specifically designed for applications requiring superior noise performance out to a 100kHz offset. It is ideal for phase-locked microwave signal sources such as DROs, low noise test equipment, microwave com-systems, and radar applications.

Block Diagram



Part Number Configuration



*Not all combinations of options may be possible
 **Other options may be available
 ***High stability available at lower frequencies upon request

Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Input					
Frequency Range		10		130	MHz
Initial Tolerance	@ +25°C±1°C			±0.25	ppm
Warm Up Time	To initial tolerance			5	Min
Frequency Stability					
vs. Temperature	See Options (Max) Referenced to +25°C	±10 ^{***} , ±50, ±100, ±200			ppb
vs. Load	± 10% Δ in Load	±5.0			ppb
vs. Supply Voltage	± 5% Δ in supply	±5.0			ppb
ADEV (Short Term Stability)	T = 1 second	5E-12			
Aging (after 30 days operation)	Per Day			±5.0	ppb
	1 st Year			±0.5	ppm
	10 Years			±1.0	ppm
	15 Years			±1.5	ppm
Supply Voltage (Vdd)	Option E	4.75	5	5.25	Vdc
	Option F	11.4	12	12.6	Vdc
	Option G	14.25	15	15.75	Vdc
Power Dissipation					
Start Up	@ Minimum ambient temp			4.8	W
Steady State	@ +25°C		1.5		W
Electronic Frequency Control					
Voltage Range		0		Vdd	Vdc
Center Voltage			Vdd/2		Vdc
Frequency Range	See Options (Min)		±1.0, ±2.0		ppm
Slope			positive		
Input Impedance			100		kΩ
Linearity			10		%

Values listed above are typical performance of 100MHz ^{***}High stability available at lower frequencies upon request

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Performance Specifications

Parameter	Conditions	Values			Unit
Output Characteristics (Sinusoid)		MIN	TYP	MAX	
Output Level			10		dBm
VSWR	Into 50 Ω		2:1		
Spurious				-80	dBc
Harmonics				-30	dBc
Load		45	50	55	Ω

Parameter	Conditions	Values		Unit
Phase Noise		A*	B	
Phase Noise (10 MHz)	Tested at +25°C			
	1Hz	-100	-95	dBc/Hz
	10Hz	-130	-125	dBc/Hz
	100Hz	-152	-152	dBc/Hz
	1kHz	-160	-160	dBc/Hz
	10kHz	-170	-165	dBc/Hz
	100kHz	-170	-165	dBc/Hz

Parameter	Conditions	Values			Unit
Phase Noise		A*	B	C	
Phase Noise (100 MHz)	Tested at +25°C				
	10Hz	-103	-100	-95	dBc/Hz
	100Hz	-133	-130	-125	dBc/Hz
	1kHz	-157	-155	-145	dBc/Hz
	10kHz	-172	-168	-160	dBc/Hz
	100kHz	-175	-172	-170	dBc/Hz

Note: *Specified phase noise performance is subject to Export Control restrictions

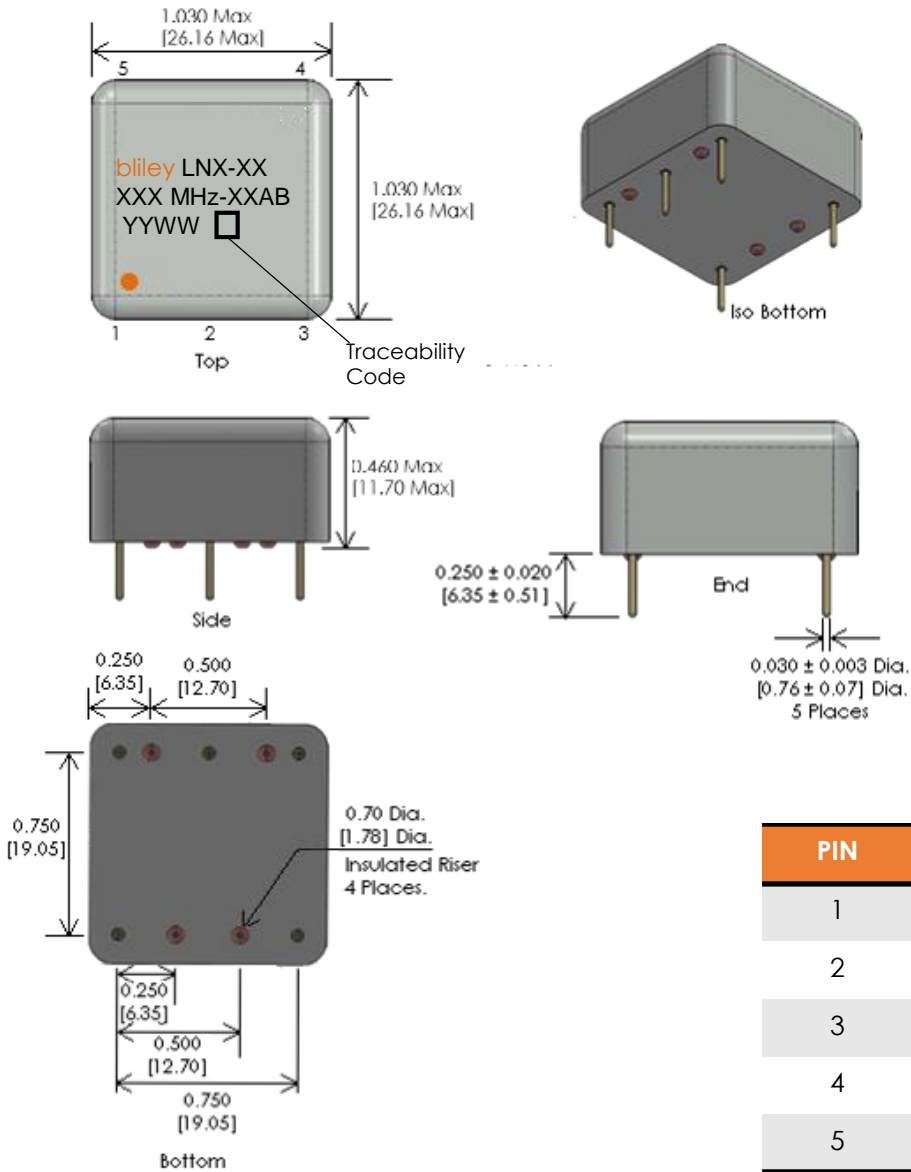
* "A" level phase noise subject to availability

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Environmental Compliance

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Operational Temperature	Option B	-20		+70	°C
	Option C	-40		+85	°C
Storage Temperature		-55		+95	°C
Seal	MIL-STD-202 Method 112 Test Condition D				
Shock	MIL-STD-202G Method 213 Test Condition C				
Random Vibration	MIL-STD-810G Method 514 Test Procedure I				
Sinusoidal Vibration	MIL-STD-202G Method 204 Test Condition A				
MTTF	Calculated using MIL-HDBK-217		153,300		Hours
Acceleration Sensitivity	Typical of 100MHz		1		ppb/g

Physical Specifications – Through Hole



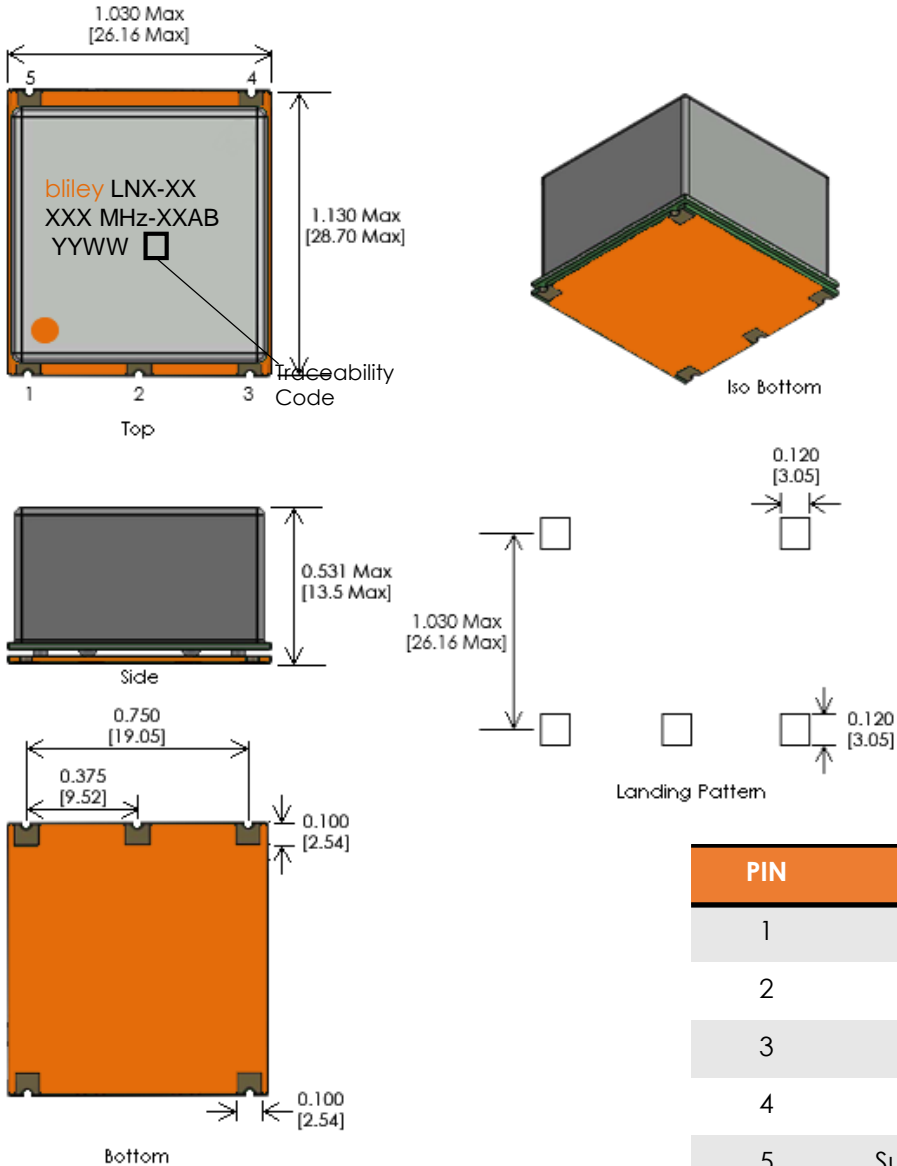
Tolerances (mm) .X = ± 0.5, .XX = ± 0.2 unless otherwise specified



Notes:

- Non-RoHS available upon request

Physical Specifications – Surface Mount



PIN	FUNCTION
1	RF Output
2	Ground
3	EFC/N.C.
4	N.C.
5	Supply Voltage

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

Notes:
 • Non-RoHS available upon request

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