

LNXXXE – Apollo Low Noise OCXO



FEATURES

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

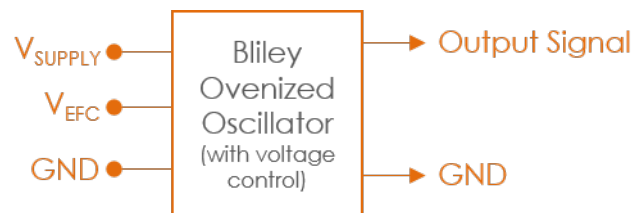
#blileytakesyoufurther

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 communication systems, and radar applications.

Block Diagram



Part Number Configuration

LN - E - M - A B								
Phase Noise	Acceleration Sensitivity	Mounting	Center Frequency	Supply Voltage	EFC	Frequency vs. Temperature	Operating Temperature	Output Type
A, B, C: See Table	N: 1.0ppb/g G: 0.3ppb/g	T: Through Hole S: SMT	10MHz to 120MHz	E: 5V F: 12V	N: N/A A: ±0.5ppm B: ±1ppm	C: ±10ppb D: ±20ppb E: ±50ppb F: ±100ppb	A: 0 to 70°C B: -20 to 70°C C: -40 to 85°C	A: Sine

10-40MHz @ 5V
40-120MHz @ 12V

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

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Performance Specifications

Parameter	Conditions	Values			Unit
General		MIN	TYP	MAX	
Frequency Range		10		120	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, ±20, ±50, ±100			ppb
vs. Load	± 5% 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	Per Day			±1.0	ppb
operation)	1 st Year			±100	ppb
Supply Voltage (Vdd)	Option E	4.75	5	5.25	Vdc
	Option F	11.4	12	12.6	Vdc
Power Dissipation					
Start Up	@ +25°C			5.2	W
Steady State	@ +25°C		1.5		W
Electronic Frequency Control*					
Voltage Range		0	2.5	5	Vdc
Frequency Range	See Options (Min)	±0.5, ±1			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
 *0-10V EFC available on 12V units

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Performance Specifications

Parameter	Conditions	Values			Unit
Output Characteristics (Sinusoid)		MIN	TYP	MAX	
Output Level		10		16	dBm
Spurious				-80	dBc
Harmonics				-30	dBc
Load		47.5	50	52.5	Ω

Parameter	Conditions	Values			Unit
Phase Noise		A*	B*	C	
Phase Noise (10 MHz)	Tested at +25°C				
	10Hz	-130	-125	-120	dBc/Hz
	100Hz	-155	-152	-140	dBc/Hz
	1kHz	-166	-160	-145	dBc/Hz
	10kHz	-173	-170	-155	dBc/Hz
	100kHz	-175	-170	-155	dBc/Hz
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

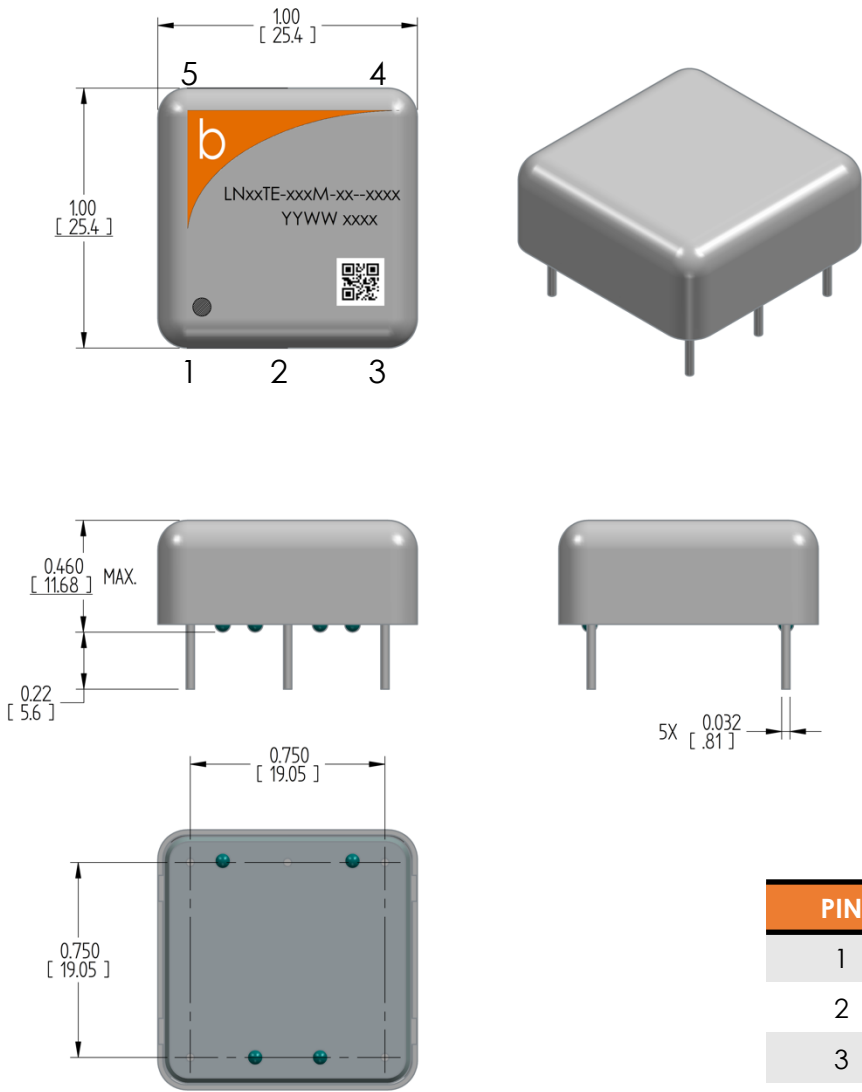
Note: *Specified phase noise performance is subject to Export Control restrictions

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Environmental Compliance

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Operational Temperature	Option A	0		+70	°C
	Option B	-20		+70	°C
	Option C	-40		+85	°C
Storage Temperature		-55		+100	°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	10MHz output Vibration profile: 0.001G ² /Hz 10Hz to 2kHz		1.0		ppb/g
	"G" Option			0.3	ppb/g

Physical Specifications – Through Hole



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

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

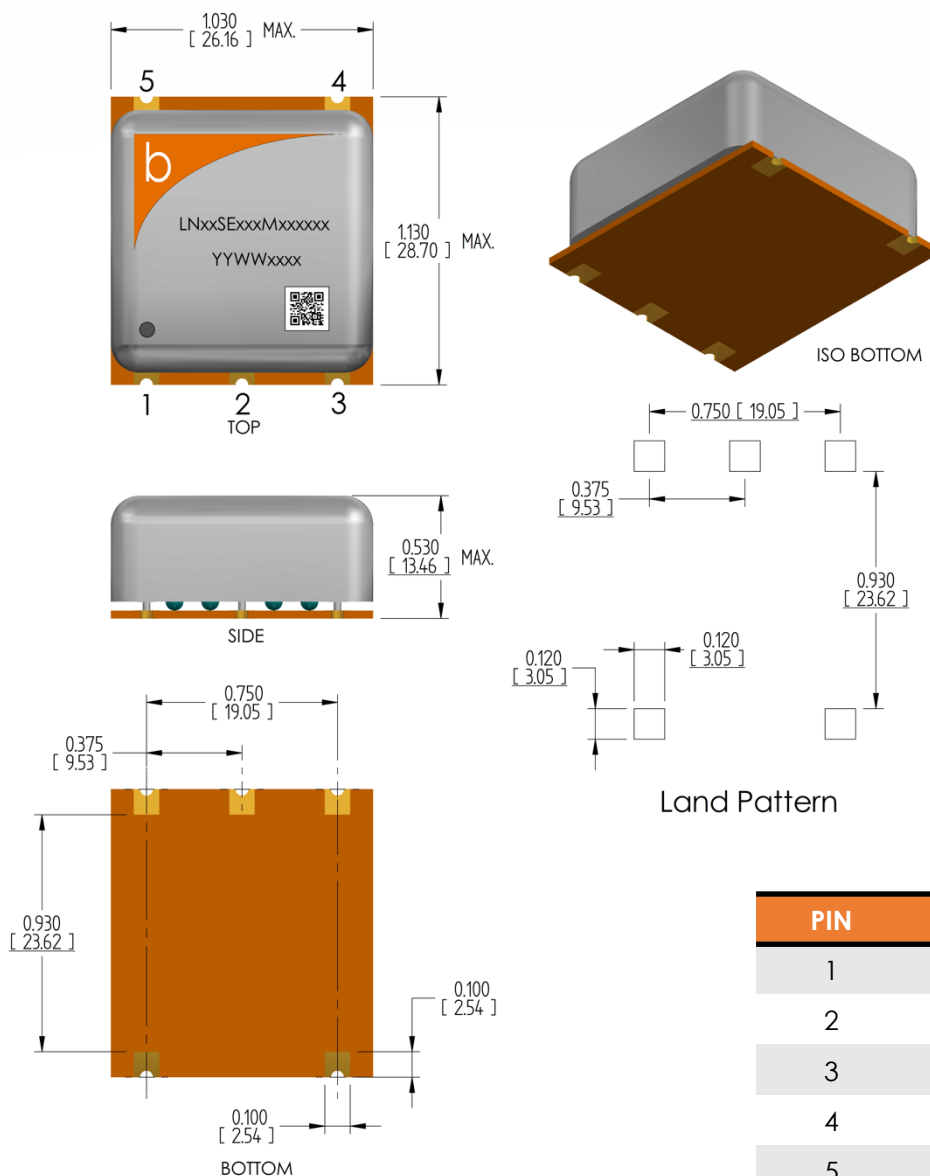


Notes:

- Non-RoHS available upon request

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Physical Specifications – Surface Mount



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

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



Notes:

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