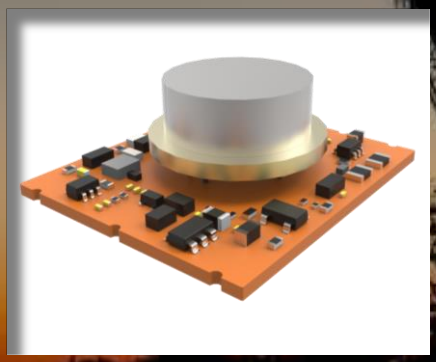
LPXSG-XXMXX-XXSB - Low Power Dual Output 22x25 OCXO

bliley technologies



FEATURES

- ✓ 200mW steady state power
- ✓ <500mW start-up power
- ✓ -125dBc/Hz @ 10Hz phase noise
- ✓ CMOS and Sinewave Outputs
- ✓ 0.5ppb/g acceleration sensitivity

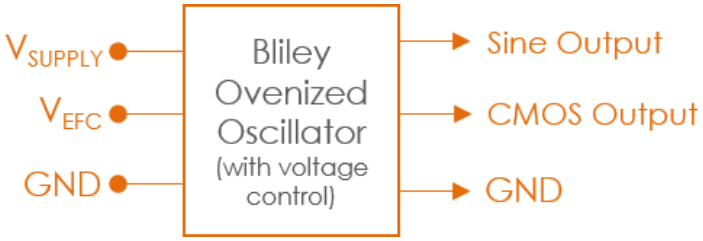
Low Power Oscillator

#blileytakesyoufurther

Description

Bliley's Dual Output Low Power Crystal Oscillator Series offers both CMOS and Sinewave outputs in a compact package for applications where size and power are a concern.
The LP series achieves low startup power while maintaining a fast warm up of less than one minute.

Block Diagram



Part Number Configuration

LP__SG-___M___-___SB

Phase Noise	Center Frequency	Supply Voltage	EFC	Frequency vs. Temperature	Operating Range
A and B (table below)	10 MHz to 60 MHz	D: +3.3 Vdc E: +5.0 Vdc	N: N/A A: ±0.5ppm	E: ±50ppb*** F: ±100ppb	B: -20C to 70C C: -40C to 85C

*Not all combinations of options may be possible
**Other options may be available
***(E) Stability only available on Operating Range (B)

MADE IN AMERICA

Bliley Technologies, Inc. • 2545 W. Grandview Blvd, Erie, PA 16506 • 1-814-838-3571 • bliley.com • info@bliley.com

Performance Specifications

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Frequency Range		10		60	MHz
Initial Tolerance	@ +25°C±1°C			±100	ppb
Warm Up Time	To initial tolerance			1	Min
Frequency Stability					
vs. Temperature	See Options (Max) Referenced to +25°C		±50***, ±100		ppb
vs. Load	± 5% Δ in Load		±25		ppb
vs. Supply Voltage	± 5% Δ in supply		±25		ppb
ADEV (Short Term Stability)	T = 1 second (10MHz)		8E-12		
Aging	After 30 Days Operation				
1st Year				±100	ppb
20 Years				±500	ppb
Supply Voltage (Vdd)	Option D	3.13	3.3	3.47	Vdc
	Option E	4.75	5	5.25	Vdc
Power Dissipation					
Start Up	@ +25°C			500	mW
Steady State	@ +25°C, 3.3Vdc		200		mW
Steady State	@ +25°C, 5Vdc		325		mW
Electronic Frequency Control					
Voltage Range		0		Vdd	Vdc
Center Voltage			Vdd/2		Vdc
Frequency Range	See Options (Min)	±0.5			ppm
Slope			positive		
Input Impedance			100		kΩ
Linearity			10		%

***Stability only available from -20 to 70C

Performance Specifications

Parameter	Conditions	Values			Unit
Output Characteristics (CMOS)		MIN	TYP	MAX	
High Output Level	Logic "1"	90% Vdd			Vdc
Low Output Level	Logic "0"			10% Vdd	Vdc
Rise/Fall Time				10	nSec
Duty Cycle		45	50	55	%
Load			15		pF
Output Characteristics (Sinusoid)		MIN	TYP	MAX	
Output Level			6.0		dBm
VSWR	Into 50 Ω		1.5:1		
Harmonics				-30	dBc
Load		45	50	55	Ω

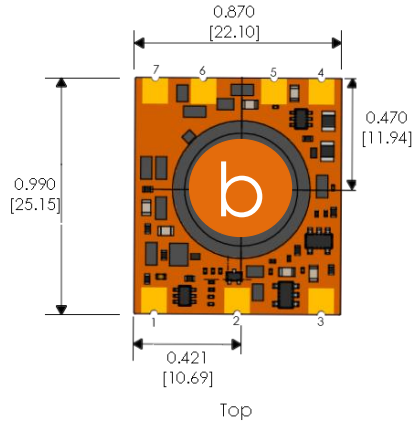
Performance Specifications

Parameter	Conditions		Values		Unit
Phase Noise (Sinusoid)			TYP	TYP	
Phase Noise (10 MHz)	Tested at +25°C	Option	A	B	
	10Hz		-125	-120	dBc/Hz
	100Hz		-152	-150	dBc/Hz
	1kHz		-162	-158	dBc/Hz
	10kHz		-165	-162	dBc/Hz
	100kHz		-168	-165	dBc/Hz
Phase Noise (60 MHz)	Tested at +25°C	Option	A	B	
	10Hz		-95	-90	dBc/Hz
	100Hz		-125	-120	dBc/Hz
	1kHz		-152	-150	dBc/Hz
	10kHz		-162	-158	dBc/Hz
	100kHz		-165	-162	dBc/Hz
Phase Noise (CMOS)			TYP	TYP	
Phase Noise (10 MHz)	Tested at +25°C	Option	A	B	
	10Hz		-125	-120	dBc/Hz
	100Hz		-148	-145	dBc/Hz
	1kHz		-152	-150	dBc/Hz
	10kHz		-155	-150	dBc/Hz
	100kHz		-160	-155	dBc/Hz
Phase Noise (60 MHz)	Tested at +25°C	Option	A	B	
	10Hz		-95	-90	dBc/Hz
	100Hz		-125	-120	dBc/Hz
	1kHz		-148	-145	dBc/Hz
	10kHz		-152	-150	dBc/Hz
	100kHz		-155	-150	dBc/Hz

Environmental Compliance

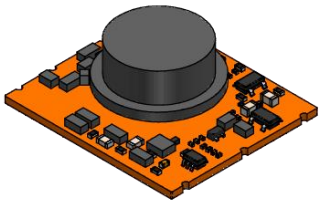
Parameter	Conditions	Values			Unit
Environmental & Reliability		MIN	TYP	MAX	
Operating Temperature	Option B	-20		+70	°C
	Option C	-40		+85	°C
Storage Temperature		-55		+95	°C
Shock	MIL-STD-202 Method 213, Test Condition C	Survive			
Sinusoidal Vibration	MIL-STD-202 Method 204, Test Condition A	Survive			
Random Vibration	MIL-STD-202 Method 214, Test Condition 1B, 15min	Survive			
MTTF	Calculated using MIL-HDBK-217	153,300			Hrs
Acceleration Sensitivity	10MHz output Vibration profile: $0.001G^2/Hz$ 10Hz to 2kHz		0.5		ppb/g

Physical Specifications



Top

Full part number marked around side of crystal:
LPXSG-XXMXX-XXSB YYWW-SN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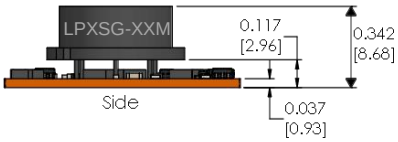
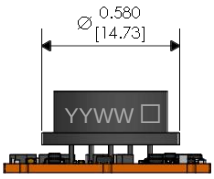
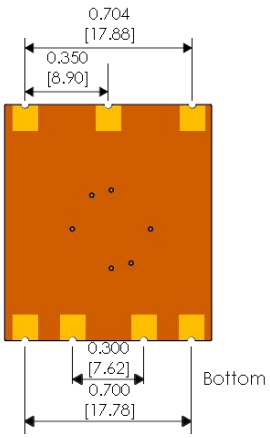


Side



End



Bottom

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

PIN	FUNCTION
1	EFC/N.C.
2	N.C.
3	Supply Voltage
4	CMOS Output
5	N.C.
6	Sine Output
7	Ground

Notes:
- Non-RoHS available upon request