

LFXO OSCILLATOR

32.768 kHz

Fast Start-up/High Precision Miniature Surface Mount Crystal Oscillator

DESCRIPTION

Statek's 32.768 kHz, surface mount LFXO oscillators, designed especially for applications requiring fast start-up and high precision, consist of a Statek miniature AT quartz crystal and a CMOS/TTL compatible hybrid circuit in a ceramic package. Each crystal is pre-qualified before assembly into the oscillator through electrical tests and characterization over temperature.

For harsh environment applications, Statek provides a high shock version of the LFXO crystal oscillator.

FEATURES

- High precision (±10 ppm)
- Fast start-up (0.8ms typ.)
- High shock resistance
- Tight frequency-temperature stability
- Low acceleration sensitivity (HG version)
- CMOS output
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Full military testing per MIL-PRF-55310
- Low jitter

APPLICATIONS

Military & Aerospace

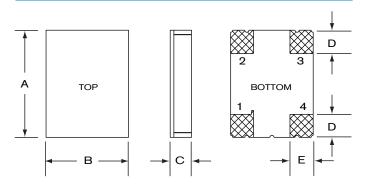
- Smart Munitions
- Cockpit Systems
- Navigation

Industrial. Computer & Communications

- Industrial Controls
- Instrumentation
- Down-hole Drilling

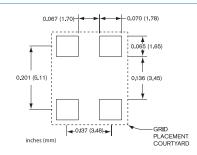


DIMENSIONS



	TYF	PICAL	MAX	KIMUM
DIM	inches	mm	inches	mm
Α	0.256	6.50	0.263	6.68
В	0.197	5.00	0.204	5.18
C (SM1) C (SM3/SM5)	0.063 0.067	1.60 1.70	0.065 0.073	1.65 1.85
D	0.055	1.40	0.065	1.65
Е	0.060	1.52	0.070	1.78

SUGGESTED LAND PATTERN



PIN CONNECTIONS

- 1. Not connected (N) or Enable (E)
- 2. Ground
- 3. Output
- 4. V_{DD}

10191 Rev A





SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications available (contact factory).

 $3.3 \text{ V} \pm 10\%$ (2.5 V also available) Supply Voltage¹

Calibration Tolerance² ± 10 ppm and up

Frequency Stability ±10 to ±50 ppm for Commercial

Over Temperature³ ± 20 to ± 100 ppm for Industrial

 ± 30 to ± 100 ppm for Military

Output Load (CMOS) 15 pF

Aging, first year 3 ppm MAX

Shock⁴ Std: 5,000 g, 0.3 ms, ½ sine

HG: 20,000 g, 0.3 ms, ½ sine

Vibration⁵ 20 g, 10-2,000 Hz swept sine

-10°C to 70°C (Commercial) Operating Temp. Range

> -40°C to 85°C (Industrial) -55°C to 125°C (Military)

ELECTRICAL CHARACTERISTICS⁶

SYMBO	PARAMETER	MIN	TYP	MAX	UNIT
V _{OH}	Output Voltage High	$0.9V_{DD}$			V
V _{OL}	Output Voltage Low			0.1V _{DD}	V
t _{startup}	Start-up Time		0.8		ms
t _r	Rise Time (10%-90%)	85	1000	ns
t _f	Fall Time (10%-90%)		45	1000	ns
	Duty Cycle	45	50	55	%
I_{DD}	Supply Current		500		μΑ

- 1. Other supply voltages available. Contact factory for ordering information.
- 2. Other tolerances available.
- 3. Does not include calibration tolerance. Tighter tolerances available.
- 4. Higher shock available. Contact factory.
- 5. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
- 6. Measurements done at $V_{\rm DD} = 3.3 V$

Note: All parameters are measured at ambient temperature with a 10 M Ω , 15 pF load.

ABSOLUTE MAXIMUM RATINGS

-0.3 V to 5.0 V Supply Voltage VDD -55°C to 125°C Storage Temperature Maximum Process Temperature 260°C for 20 sec.

ENABLE/DISABLE OPTIONS (E/N)

For the 32.768 kHz fast start-up LFXO, Statek offers two enable/disable options: E and N. The E-version has a Tri-State output and stops oscillating internally when the output is put into the high Z state. The N-version does not have PIN 1 connected internally and so has no enable/disable capability. The following table summarizes the Enable/Disable option E.

ENABLE/DISABLE OPTION E SUMMARY

	Enable (Pin 1 High*)	Disable (Pin 1 Low)		
Output	Frequency Output	High Z State		
Oscillator	Oscillates	Stops		
Current	500 μΑ	3.2 µA		

^{*}When PIN 1 is allowed to float, it is held high by an internal pull-up resistor.

PACKAGING OPTIONS

LFXO - Tray Pack

> - 16 mm tape, 7" or 13" reels Per EIA 481 (see Tape and Reel datasheet #10109)

HOW TO ORDER 32.768 kHz LFXO OSCILLATORS/ FAST START-UP

