



CXO OSCILLATOR

300 kHz to 170 MHz
Low Profile Miniature Surface Mount
Crystal Oscillator

DESCRIPTION

Statek's surface-mount CXO oscillators consist of a Statek miniature quartz crystal and a CMOS/TTL compatible hybrid circuit in a low-profile ceramic package with a small footprint. In addition to the conventional solder or epoxy electrical connection techniques, bond pads on the topside of the CXO allow it to be connected electrically in a hybrid assembly using wire bonds.

FEATURES

- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques
- CMOS and TTL compatible
- Low power consumption
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- High shock resistance
- Full military testing available
- Hermetically sealed ceramic package
- Wire bond pads for hybrids

APPLICATIONS

Military & Aerospace

- Smart munitions
- Cockpit systems
- Navigation

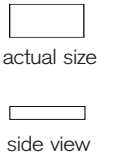
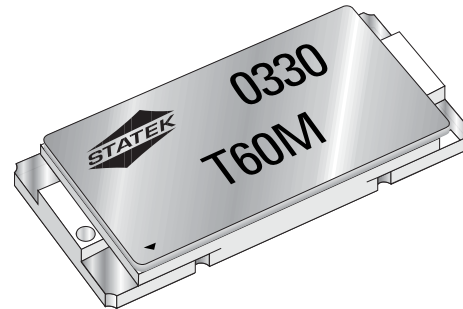
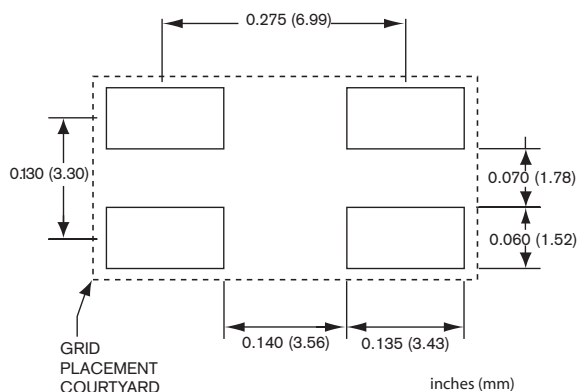
Industrial, Computer & Communications

- Industrial controls
- Instrumentation
- Microprocessor clocks

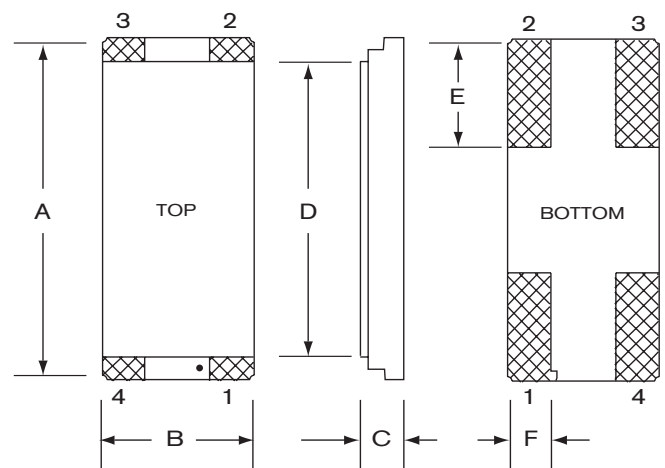
Medical

- Infusion pumps

SUGGESTED LAND PATTERN



PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.400	10.16	0.405	10.29
B	0.180	4.57	0.190	4.83
C (SM1)	0.051	1.30	0.055	1.40
C (SM3/SM5)	0.055	1.40	0.063	1.60
D	0.340	8.64	0.350	8.89
E	0.125	3.18	0.135	3.43
F	0.050	1.27	0.060	1.52

PIN CONNECTIONS

1. Enable/Disable (E or T) or not connected (N)
2. Ground
3. Output
4. V_{DD}

10106 Rev F



SPECIFICATIONS

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

Supply Voltage¹

300 kHz to 120 MHz ²	5.0 V ± 10%
300 kHz to 170 MHz ²	3.3 V ± 10%

Calibration Tolerance³ ± 100 ppm

Frequency Stability ± 50 ppm for Commercial

Over Temperature⁴ ± 100 ppm for Industrial
± 100 ppm for Military

Supply Current (Typical)		3.3 V	5.0 V
	10 MHz	2 mA	4 mA
	24 MHz	4 mA	8 mA
	30 MHz	6 mA	10 mA
	40 MHz	8 mA	12 mA
	50 MHz	10 mA	14 mA

CMOS⁵ 15 pF

Start-up Time 5 ms MAX

Rise/Fall Time 6 ns MAX

Duty Cycle 40% MIN, 60% MAX

Aging, first year 10 ppm MAX

Shock, survival⁶ 3,000 g, 0.3 ms, 1/2 sine

Vibration, survival⁷ 20 g, 10-2000 Hz swept sine

Operating Temp. Range -10°C to +70°C (Commercial)
-40°C to +85°C (Industrial)
-55°C to +125°C (Military)

- Other voltages available. Contact factory.
 - Not all frequencies available at all voltage/enable combinations.
 - Other tolerances available.
 - Does not include calibration tolerance. Other tolerances available.
 - Higher CMOS loads and TTL loads available. Contact factory.
 - Higher shock version available. Contact factory about CXOHG.
 - Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
- Note: All parameters are measured at ambient temperature with a 10M Ω, 15 pF load.

PACKAGING OPTIONS

CXO - Tray Pack
- 16 mm tape, 7" or 13" reels
Per EIA 418 (see Tape and Reel data sheet 10109)

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V _{DD}	-0.5 V to 7.0 V
Storage Temperature	-55°C to +125°C
Maximum Process Temperature	260°C for 20 seconds

ENABLE/DISABLE OPTIONS (E/T/N)

Statek offers three enable/disable options: E, T, and N. Both the E-version and T-version have Tri-State outputs and differ in whether the oscillator continues to run internally when the output is put into the high Z state: it stops in the E-version and continues to run in the T-version. So, the E-version offers very low current consumption when the oscillator is disabled and the T-version offers very fast output recovery when the oscillator is re-enabled. The N-version does not have PIN 1 connected internally and so has no enable/disable capability. The following table summarizes the three options.

COMPARISON OF ENABLE/DISABLE OPTIONS E AND T

	E	T
When enabled (PIN 1 is high*)		
Output	Freq. output	Freq. output
Oscillator	Oscillates	Oscillates
Current consumption	Normal	Normal
When disabled (PIN 1 is low)		
Output	High Z state	High Z state
Oscillator	Stops	Oscillates
Current consumption	Very low	Lower than normal
When re-enabled (PIN 1 changes from low to high)		
Output recovery	Delayed	Immediate

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

HOW TO ORDER CXO SURFACE MOUNT CRYSTAL OSCILLATORS

