



# 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

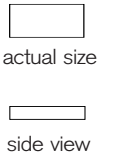
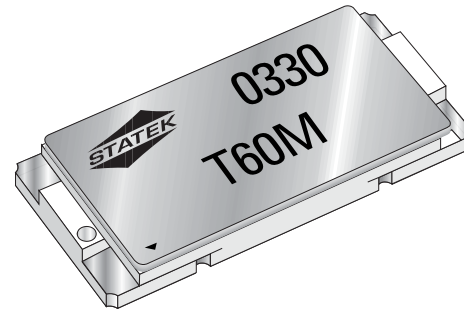
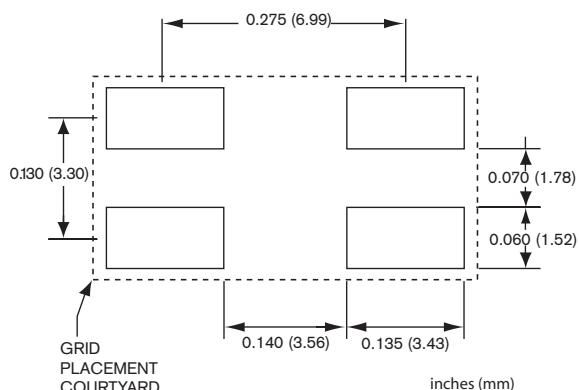
### Industrial, Computer & Communications

- Industrial controls
- Instrumentation
- Microprocessor clocks

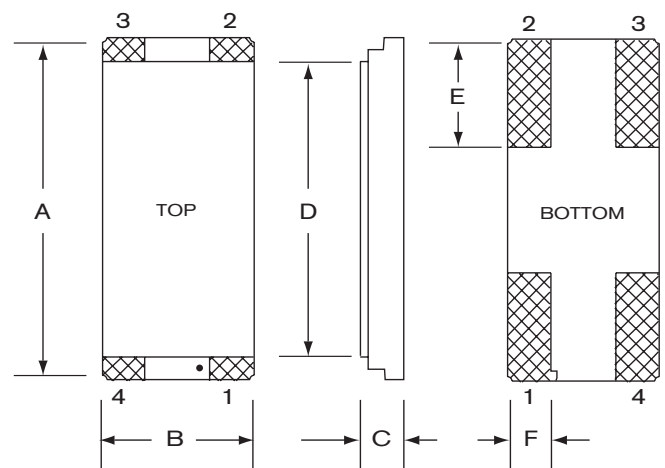
### Medical

- 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<sub>DD</sub>

## Distribution:

RSG Electronic Components GmbH ■ Spredlinger Landstr. 115 ■ D-63069 Offenbach/Germany  
Tel. +49 69 984047-0 ■ Fax +49 69 984047-77 ■ info@rsg-electronic.de ■ www.rsg-electronic.de

Änderungen vorbehalten / subject to change without notice

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 Voltage<sup>1</sup>

300 kHz to 120 MHz <sup>2</sup>	5.0 V ± 10%
300 kHz to 170 MHz <sup>2</sup>	3.3 V ± 10%

Calibration Tolerance<sup>3</sup> ± 100 ppm

Frequency Stability ± 50 ppm for Commercial

Over Temperature<sup>4</sup> ± 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

CMOS<sup>5</sup> 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, survival<sup>6</sup> 3,000 g, 0.3 ms, 1/2 sine

Vibration, survival<sup>7</sup> 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.

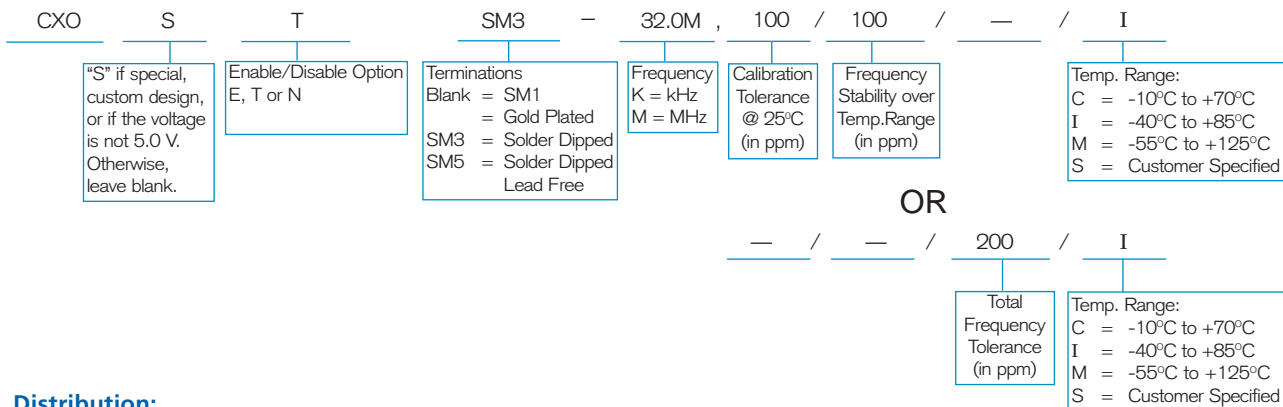
## PACKAGING OPTIONS

CXO - Tray Pack

- 16 mm tape, 7" or 13" reels

Per EIA 418 (see Tape and Reel data sheet 10109)

## HOW TO ORDER CXO SURFACE MOUNT CRYSTAL OSCILLATORS



## ABSOLUTE MAXIMUM RATINGS

Supply Voltage V <sub>DD</sub>	-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.

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