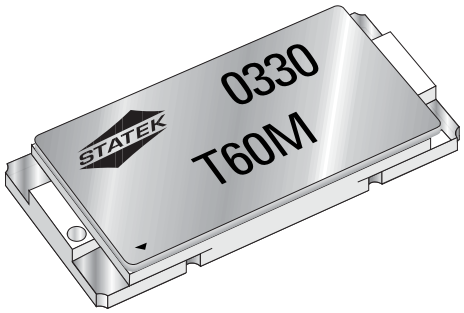
CXO OSCILLATOR

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.



actual size

side view

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

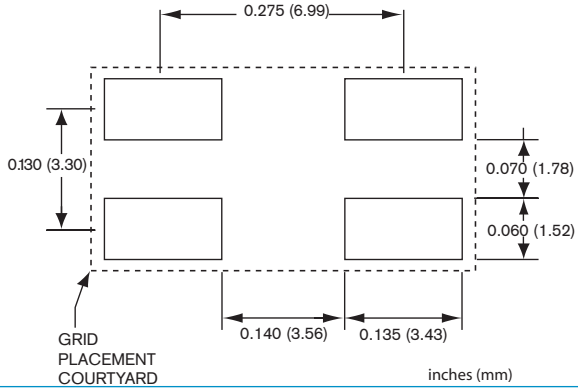
Industrial, Computer & Communications

- Industrial controls
- Instrumentation
- Microprocessor clocks

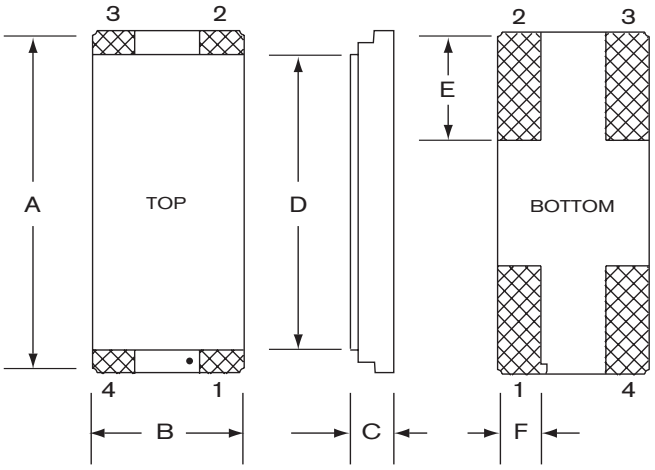
Medical

- Infusion pumps

SUGGESTED LAND PATTERN



PACKAGE DIMENSIONS



	TYPICAL		MAXIMUM	
DIM	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

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**

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[1]			
300 kHz to 120 MHz[2]	5.0 V ± 10%		
300 kHz to 170 MHz[2]	3.3 V ± 10%		
Calibration Tolerance[3]	± 100 ppm		
Frequency Stability	± 50 ppm for Commercial		
Over Temperature[4]	± 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[5]	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[6]	3,000 g, 0.3 ms, 1/2 sine		
Vibration, survival[7]	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)		

1. Other voltages available. Contact factory.
2. Not all frequencies available at all voltage/enable combinations.
3. Other tolerances available.
4. Does not include calibration tolerance. Other tolerances available.
5. Higher CMOS loads and TTL loads available. Contact factory.
6. Higher shock version available. Contact factory about CXOHG.
7. 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

CXO S T SM3 – 32.0M , 100 / 100 / — / I

- S: "S" if special, custom design, or if the voltage is not 5.0 V. Otherwise, leave blank.
- T: Enable/Disable Option E, T or N
- SM3: Terminations Blank = SM1; = Gold Plated; SM3 = Solder Dipped; SM5 = Solder Dipped Lead Free
- 32.0M: Frequency K = kHz, M = MHz
- 100: Calibration Tolerance @ 25°C (in ppm)
- 100: Frequency Stability over Temp.Range (in ppm)
- —: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified
- I: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

OR

— / — / 200 / I

- 200: Total Frequency Tolerance (in ppm)
- —: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified
- I: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

10106 Rev F