



## CXOMHG OSCILLATOR

200 kHz to 160 MHz

High Shock, Low Profile, Miniature  
Surface Mount Crystal Oscillator

### DESCRIPTION

Intended for applications requiring shock survivability to 10,000 g (and higher), Statek's surface-mount CXOMHG oscillators are high-shock versions of the CXOM oscillators. These oscillators consist of a Statek miniature quartz crystal and a CMOS/TTL compatible hybrid circuit in a low-profile ceramic package with an extremely small footprint.

### FEATURES

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

### APPLICATIONS

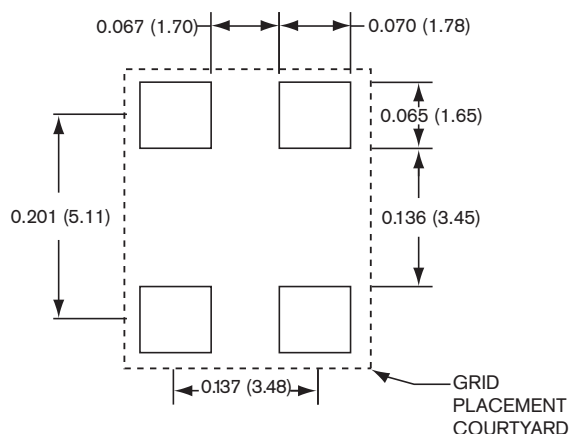
#### Military & Aerospace

- Smart munitions
- Projectile electronics

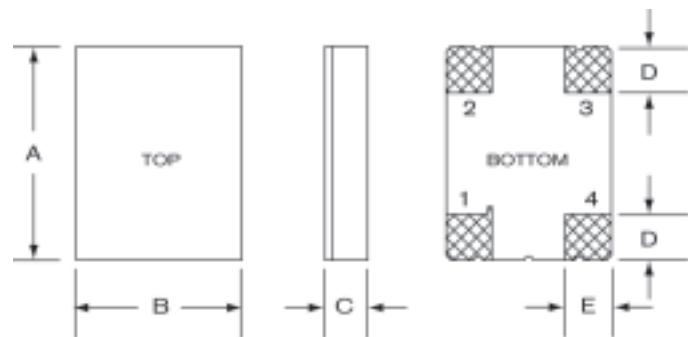
#### Industrial

- Engine control
- Down-hole drilling

### SUGGESTED LAND PATTERN



### PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.256	6.50	0.263	6.68
B	0.197	5.00	0.204	5.18
C (SM1)	0.051	1.30	0.055	1.40
C (SM3/SM5)	0.055	1.40	0.063	1.60
D	0.055	1.40	0.065	1.65
E	0.060	1.52	0.070	1.78

### PIN CONNECTIONS

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

10160 Rev B



## 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>	5.0 V
Calibration Tolerance <sup>2</sup>	± 100 ppm
Frequency Stability	± 50 ppm for Commercial
Over Temperature <sup>3</sup>	± 100 ppm for Industrial ± 100 ppm for Military
Supply Current (Typical)	10 MHz 4 mA 24 MHz 8 mA 30 MHz 10 mA 40 MHz 12 mA 50 MHz 14 mA
Output Load (CMOS) <sup>4</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>5</sup>	10,000 g, 0.3 ms, 1/2 sine
Vibration, survival <sup>6</sup>	20 g, 10-2,000 Hz swept sine
Operating Temp Ranges	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)

- Other voltages available. For 3.3 V, see CXO3MHG data sheet. For others, contact factory.
  - 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 for requirements above 10,000 g.
  - Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
- Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.

## PACKAGING OPTIONS

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

## ABSOLUTE MAXIMUM RATINGS

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

## ENABLE/DISABLE OPTIONS (E/T/N)

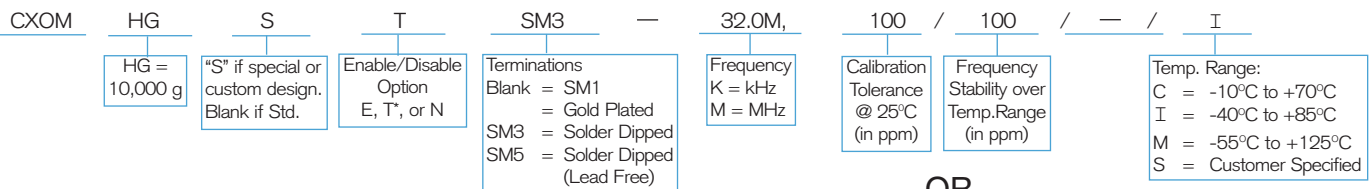
Statek offers three enable/disable options: E, T, and N. Both the E-version and T-version have Tri-State outputs and differ in whether the oscillator continues to run internally when the output is put into the high Z state: it stops in the E-version and continues to run in the T-version. So, the E-version 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 compares the E and T versions.

### COMPARISON OF ENABLE/DISABLE OPTIONS E AND T

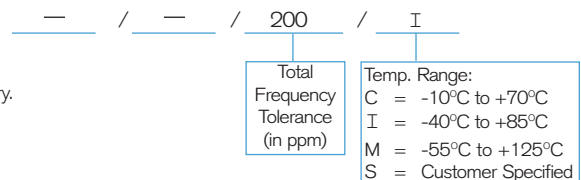
	E	T
<i>When enabled (PIN 1 is high*)</i>		
Output	Freq. output	Freq. output
Oscillator	Oscillates	Oscillates
Current consumption	Normal	Normal
<i>When disabled (PIN 1 is low)</i>		
Output	High Z state	High Z state
Oscillator	Stops	Oscillates
Current consumption	Very low	Lower than normal
<i>When re-enabled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

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

## HOW TO ORDER CXOMHG SURFACE MOUNT CRYSTAL OSCILLATORS



OR



\*The T-version is not available in all frequencies. Contact factory.

