



# CXO3MHG OSCILLATOR

300 kHz to 170 MHz

High Shock, Low-Profile Miniature Surface-Mount 3.3 V Crystal Oscillator

## DESCRIPTION

Intended for applications requiring shock survivability to 10,000 g (and higher), Statek's surface-mount CXO3MHG oscillators are high-shock versions of the CXO3M 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
- 3.3 V operation
- 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
- Full military testing available

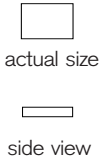
## APPLICATIONS

### Military & Aerospace

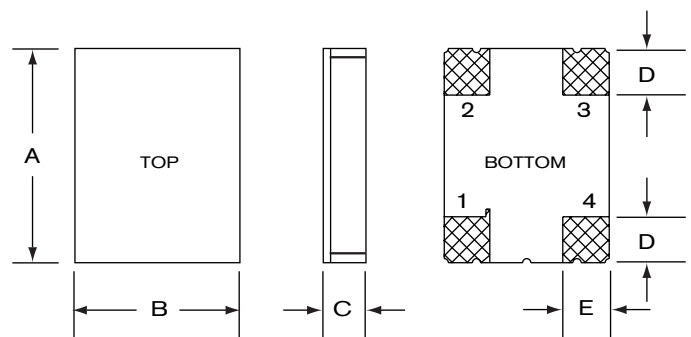
- Smart munitions
- Projectile electronics

### Industrial

- Engine control
- Down-hole drilling

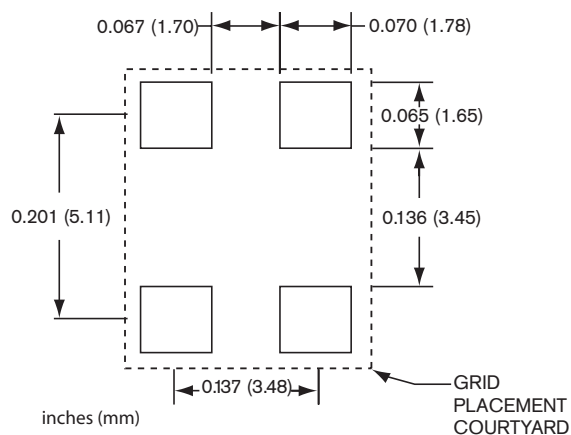


## DIMENSIONS



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

## SUGGESTED LAND PATTERN



## PIN CONNECTIONS

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

10172 Rev. A



## SPECIFICATIONS

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

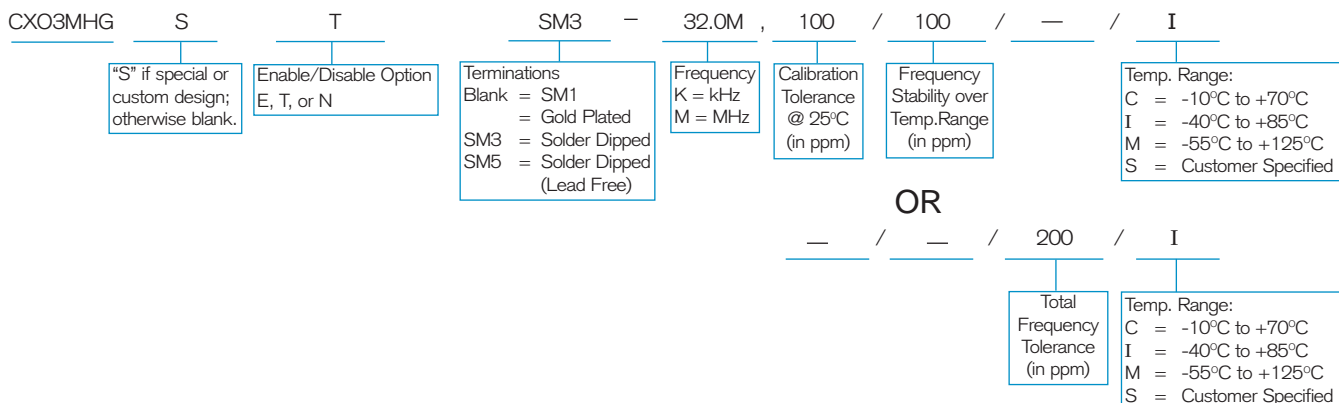
Supply Voltage <sup>1</sup>	3.3 V ± 10%
Calibration Tolerance <sup>2</sup>	± 100 ppm
Frequency Stability	± 50 ppm for Commercial
Over Temperature <sup>3</sup>	± 100 ppm for Industrial ± 100 ppm for Military
Supply Current (Typical)	10 MHz 2 mA 24 MHz 4 mA 30 MHz 6 mA 40 MHz 8 mA 50 MHz 10 mA
Output Load (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 5.0 V, see CXOMHG 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

CXO3MHG - Tray Pack  
 - 16 mm tape, 7" or 13" reels  
 Per EIA 418 (see Tape and Reel data sheet 10109)

## HOW TO ORDER CXO3MHG 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.