



# CXOMK/CXOMKHG OSCILLATOR

200 kHz to 200 MHz  
High Stability, High Shock Crystal Oscillator

## DESCRIPTION

Statek's CXOMK/CXOMKHG series oscillators consist of a Statek miniature quartz crystal and a CMOS/TTL compatible hybrid circuit in a ceramic package. Utilizing the latest advancements in production technology, the CXOMK/CXOMKHG oscillators are capable of achieving tight frequency calibration tolerance and high stability over wide temperature ranges.

## FEATURES

- High shock resistance (HG version)
- CMOS and TTL compatible
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Full military testing available
- Hermetically sealed ceramic package

## APPLICATIONS

### Military & Aerospace

- Smart Munitions
- Cockpit Systems
- Navigation

### Industrial, Computer & Communications

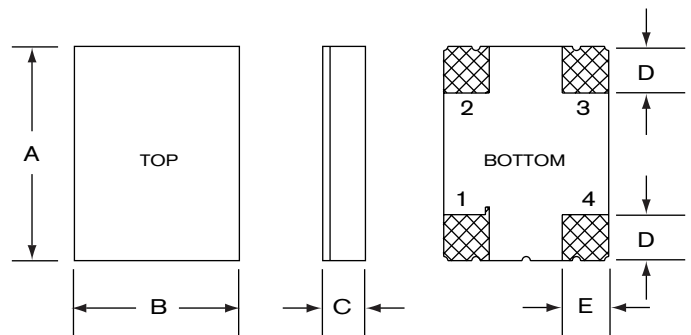
- Industrial Controls
- Instrumentation
- Microprocessor Clocks

### Medical

- Infusion Pumps

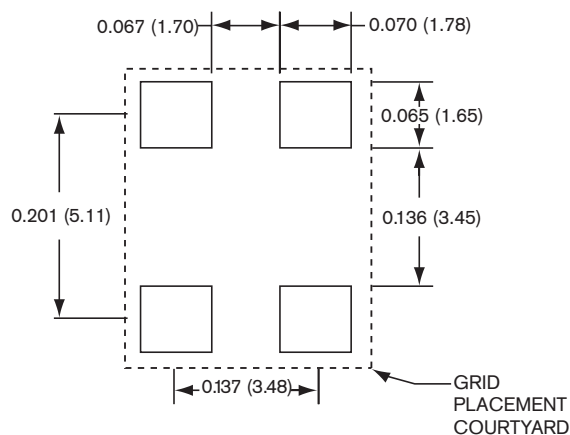


## DIMENSIONS



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)	0.055	1.34	0.060	1.52
C (SM3/SM5)	0.060	1.52	0.065	1.65
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.  $V_{DD}$

10210 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>	0.9 V to 5.0 V ±10%
Calibration Tolerance <sup>2</sup>	±30 ppm
Frequency Stability	±50 ppm to ±15 (Commercial)
Over Temperature <sup>3</sup>	±100 ppm to ±30 (Industrial)
	±100 ppm to ±40 (Military)

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

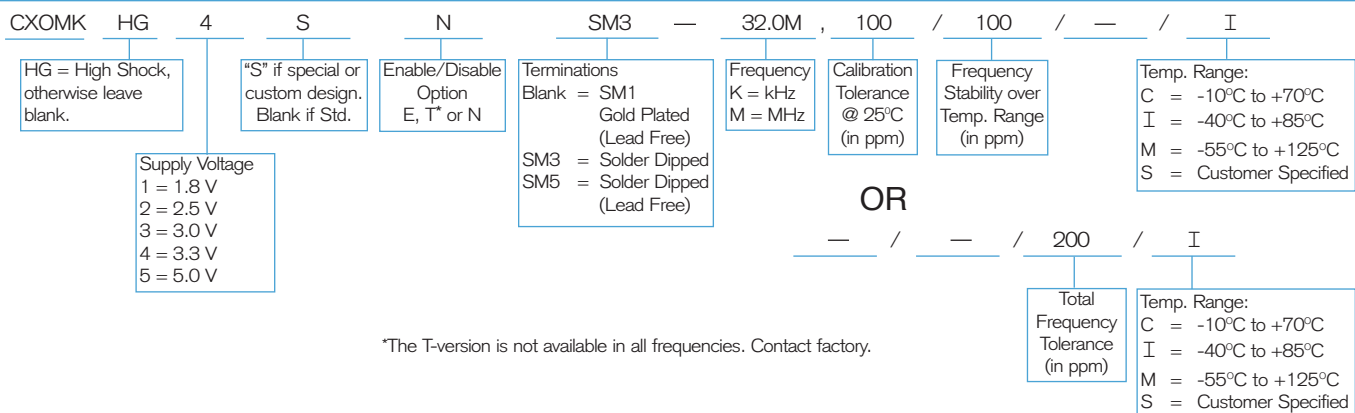
Output Load (CMOS) <sup>4</sup>	15 pF
Start-up Time	5 ms MAX
Rise/Fall Time	6 ns MAX
Duty Cycle	40% MIN, 60% MAX
Aging, first year	10 ppm MAX
Shock, survival	STD.: 5,000 g, 0.3 ms, 1/2 sine HG: 10,000 g, 0.3 ms, 1/2 sine
Vibration, survival <sup>5</sup>	20 g, 10-2,000 Hz swept sine
Operating Temp Ranges	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)

1. Voltages available: 0.9 V, 1.8 V, 2.5 V, 3.0 V, 3.3 V and 5.0 V.  
For others, contact factory. Not all voltages are available for all frequencies.
  2. Tighter tolerances available.
  3. Does not include calibration tolerance. Tighter tolerances may be available.
  4. Higher CMOS loads and TTL loads available. Contact factory.
  5. 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

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

## HOW TO ORDER CXOMK/CXOMKHG SURFACE MOUNT CRYSTAL OSCILLATORS



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

## 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

\*The supply voltage range is -0.5 V to +4.0 V for some products. Contact Factory.

## 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
<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.