

# 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

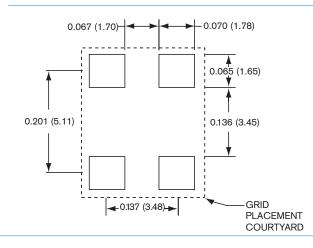
# Industrial, Computer & Communications

- Industrial Controls
- Instrumentation
- Microprocessor Clocks

### Medical

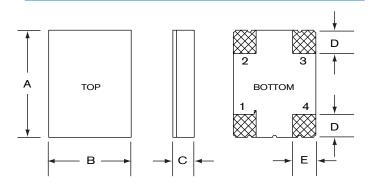
Infusion Pumps

#### SUGGESTED LAND PATTERN





### **DIMENSIONS**



	TYPICAL		MAXIMUM	
DIM	inches	mm	inches	mm
Α	0.256	6.50	0.263	6.68
В	0.197	5.00	0.204	5.18
C (SM1) C (SM3/SM5)	0.055 0.060	1.34 1.52	0.060 0.065	1.52 1.65
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.  $V_{DD}$

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  $\pm 10\%$ 

Calibration Tolerance<sup>2</sup> ±30 ppm

Frequency Stability  $\pm 50$  ppm to  $\pm 15$  (Commercial) Over Temperature<sup>3</sup>  $\pm 100$  ppm to  $\pm 30$  (Industrial)

 $\pm 100$  ppm to  $\pm 40$  (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.:  $5,000 \text{ g}, 0.3 \text{ ms}, \frac{1}{2} \text{ sine}$ 

HG:  $10,000 \text{ g}, 0.3 \text{ ms}, \frac{1}{2} \text{ sine}$ 

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)

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 M $\Omega$ , 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)

#### **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)**

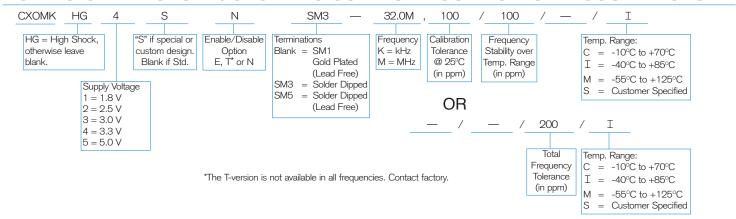
Statek offers three enable/disable options: E, T, and N. Both the E-version and T-version have Tri-State outputs and differ in whether the oscillator continues to run internally when the output is put into the high Z state: it stops in the E-version and continues to run in the T-version. So, the E-version 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	Т			
When enabled (PIN 1 is h	igh*)				
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			

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

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



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