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

<table>
<thead>
<tr>
<th>DIM</th>
<th>TYPICAL</th>
<th>MAXIMUM</th>
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<tbody>
<tr>
<td>A</td>
<td>0.256</td>
<td>0.263</td>
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<td>6.50</td>
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<td>B</td>
<td>0.197</td>
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<td>5.00</td>
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<td>C (SM1)</td>
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<td>1.34</td>
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<td>C (SM3/SM5)</td>
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<td>0.065</td>
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<td>1.40</td>
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<td>E</td>
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<td>0.070</td>
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<td>1.52</td>
<td>1.78</td>
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SUGGESTED LAND PATTERN

PIN CONNECTIONS

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

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

Supply Voltage¹ 0.9 V to 5.0 V ±10%
Calibration Tolerance² ±30 ppm
Frequency Stability ±50 ppm to ±15 (Commercial)
Over Temperature³ ±100 ppm to ±30 (Industrial)
±100 ppm to ±40 (Military)

Supply Voltage (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)⁴ 15 pF
Start-up Time 5 ms MAX
Rise/Fall Time 6 ns MAX
Duty Cycle 40% MIN, 60% MAX
Aging, first year 3 ppm MAX

Shock, survival⁵ STD.: 5,000 g, 0.3 ms, 1/2 sine
HG: 10,000 g, 0.3 ms, 1/2 sine
Vibration, survival⁶ 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.
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. For higher shock survival, please contact factory.

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

<table>
<thead>
<tr>
<th>CXOMK</th>
<th>HG</th>
<th>4</th>
<th>S</th>
<th>N</th>
<th>SM3</th>
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<th>32.0M</th>
<th>100</th>
<th>100</th>
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<td>HG = High Shock, otherwise leave blank.</td>
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<td>S* if special or custom design. Blank if Std.</td>
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<td>Enable/Disable Option E, T* or N</td>
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<td>Terminations SM1 = Gold Plated (Lead Free)</td>
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<td>SM5 = Solder Dipped (Lead Free)</td>
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<td>Frequency Stability over Temp. Range (in ppm)</td>
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Temp. Range:

C = -10°C to +70°C
I = -40°C to +85°C
M = -55°C to +125°C
S = Customer Specified

Total Frequency Tolerance (in ppm)

10210 Rev C

Comparison of Enable/Disable Options E and 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.

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.

Absolute Maximum Ratings

Supply Voltage VDD -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.