



## 250°C HTXO OSCILLATOR

1.5 MHz to 50 MHz  
High Temperature Crystal Oscillator

### DESCRIPTION

Statek's HTXO crystal oscillator is a 250°C high temperature, rugged surface-mount oscillator. The design consists of a high-shock crystal and a high temperature CMOS integrated circuit housed in a 5.0 mm x 7.5 mm surface-mount ceramic package.

### FEATURES

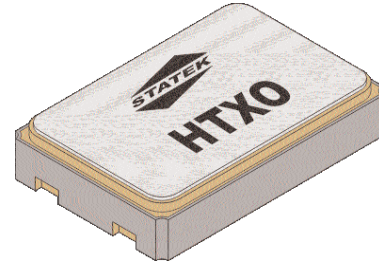
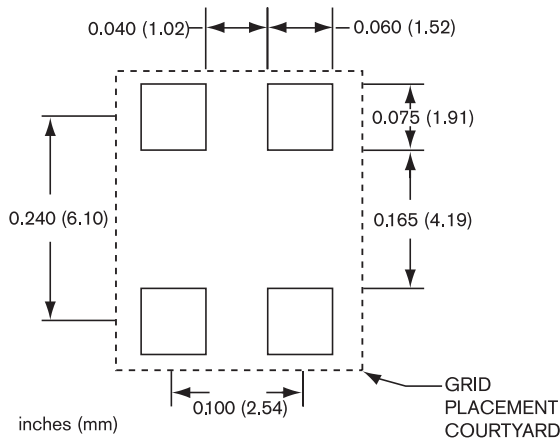
- Manufactured in the U.S.A.
- 3.3 V and 5.0 V operation
- High temperature operation up to 250°C
- Excellent stability over temperature
- Fast start-up
- High shock and vibration resistance
- CMOS output
- Optional output Enable/Disable
- Low EMI emission
- Hermetically sealed ceramic package

### APPLICATIONS

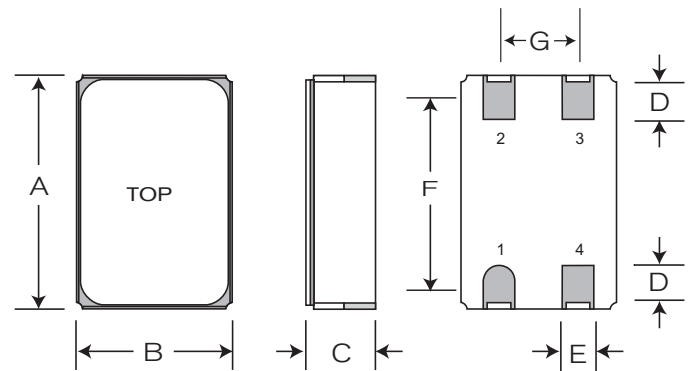
#### Industrial

- Oil & gas downhole instrumentation
- Rotary shaft sensors
- Underground boring tools
- Avionics applications

### SUGGESTED LAND PATTERN



### PACKAGE DIMENSIONS



| DIM | TYPICAL |      | MAXIMUM |      |
|-----|---------|------|---------|------|
|     | inches  | mm   | inches  | mm   |
| A   | 0.295   | 7.50 | 0.302   | 7.68 |
| B   | 0.197   | 5.00 | 0.204   | 5.18 |
| C*  | 0.059   | 1.50 | 0.065   | 1.65 |
| D   | 0.055   | 1.40 | -       | -    |
| E   | 0.040   | 1.02 | -       | -    |
| F   | 0.240   | 6.10 | -       | -    |
| G   | 0.100   | 2.54 | -       | -    |

\*SM1 (Termination material is Au over Ni over W).

### PIN CONNECTIONS

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

Note: A bypass capacitor 0.1  $\mu$ F needs to be connected as close to the  $V_{DD}$  and ground pins as possible.

## 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 ±5%<br>5.0 V ±10%        |
| Total Tolerance <sup>2</sup>      | ± 500 ppm for 25°C to 250°C    |
| Output Load (CMOS)                | 15 pF                          |
| Start-up Time                     | 5 ms MAX                       |
| Rise/Fall Time                    | 10 ns MAX                      |
| Duty Cycle <sup>3</sup>           | 40% MIN, 60% MAX               |
| Shock survival <sup>4</sup>       | Up to 30,000 g, 0.5 ms, ½ sine |
| Vibration, survival <sup>5</sup>  | 20 g, 10-2000 Hz, swept sine   |
| Operating Temp Range <sup>6</sup> | -55°C up to 250°C              |

1. 30 MHz maximum @ 3.3 V ±5%.
2. Frequency over temperature relative to nominal frequency.
3. 45% MIN, 55% MAX available. Check with factory.
4. 25°C
5. Per MIL-STD-202G, Method 204D, Condition D, Random vibration testing also available.
6. Expected life at 250°C is a minimum of 1000 hours.

## PACKAGING OPTIONS

HTXO - Tray Pack  
 - Tape and Reel  
 - 16 mm tape, 7" or 13" reels  
 Per EIA 481 (see Tape and Reel data sheet # 10109)

## ABSOLUTE MAXIMUM RATINGS

|                         |                                |
|-------------------------|--------------------------------|
| Supply Voltage $V_{DD}$ | -0.5 V to 6.0 V (5V $V_{DD}$ ) |
| Storage Temperature     | -55°C to +125°C                |

## ENABLE/DISABLE OPTIONS (T/N)

Statek offers two enable/disable options: T and N. The T-version has a Tri-State output and oscillates internally when the output is put into the high Z state. The N-version does not have PIN 1 connected internally and has no enable/disable capability. The following table describes the Enable/Disable option T.

## COMPARISON OF ENABLE/DISABLE OPTIONS T AND N

|                                      | T                 | N            |
|--------------------------------------|-------------------|--------------|
| <i>When enabled (PIN 1 is low)</i>   |                   |              |
| Output                               | Freq. output      | Freq. output |
| Oscillator                           | Oscillates        | Oscillates   |
| Current consumption                  | Normal            | Normal       |
| <i>When disabled (PIN 1 is high)</i> |                   |              |
| Output                               | High Z state      | N/C          |
| Oscillator                           | Oscillates        | N/C          |
| Current consumption                  | Lower than normal | N/C          |

## HOW TO ORDER HTXO SURFACE MOUNT CRYSTAL OSCILLATORS

