



# HGXO OSCILLATOR

460 kHz to 50 MHz  
High Shock Surface Mount Crystal Oscillator

## DESCRIPTION

Statek's HGXO crystal oscillator is an ultra-miniature, surface-mount oscillator that can survive extremely high shocks – up to 100,000 g. The design consists of a hermetically-sealed high-shock crystal and a CMOS compatible integrated circuit housed in a 5.0 mm x 7.5 mm surface-mount ceramic package.

## FEATURES

- Mechanical shock survivability up to 100,000 g
- CMOS output, TTL on request
- Optional Output Enable/Disable with Tri-State
- Low EMI emission
- Surface mount
- Full military testing to MIL-PRF-55310 available
- Hermetically sealed ceramic package
- Low acceleration sensitivity available
- SM1 and SM5 versions are Pb free

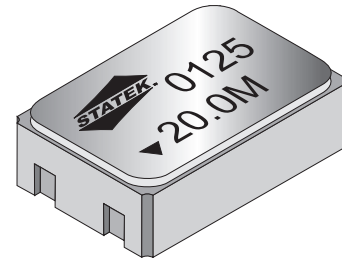
## APPLICATIONS

### Industrial

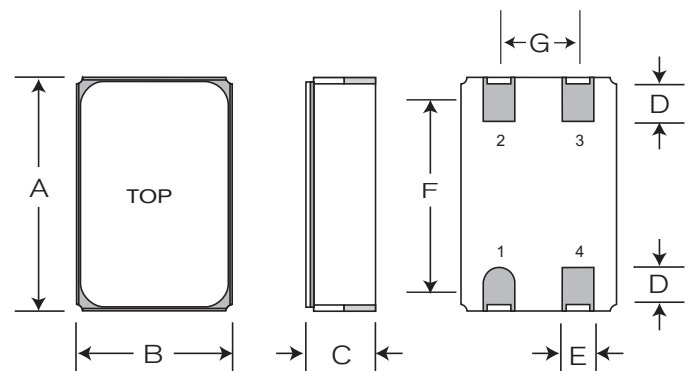
- Transmitter reference oscillator
- Clock oscillator

### Military & Aerospace

- Smart Munitions
- Projectile Electronics



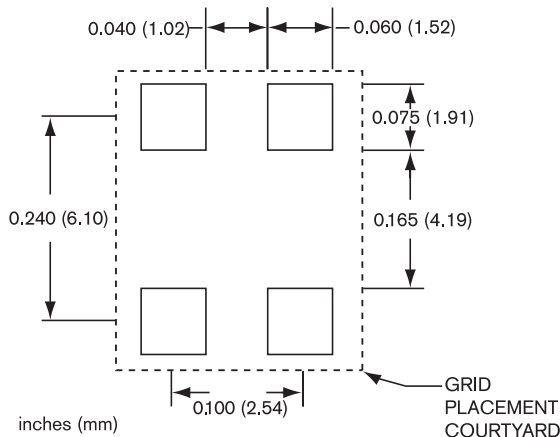
## PACKAGE DIMENSIONS



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*	0.089	2.25	0.098	2.50
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). Solder dip (SM3 and SM5) also available.

## 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.

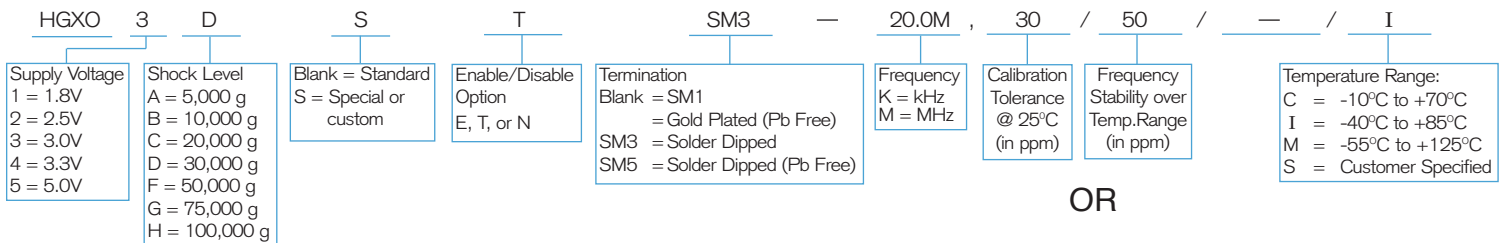
Supply Voltage	1.8 V to 5 V, as required
Calibration Tolerance	±10 ppm and up
Frequency Stability	±10 ppm and up for Commercial
Over Temperature <sup>1</sup>	±20 ppm and up for Industrial ±40 ppm and up for Military
Total Frequency	±15 ppm and up for Commercial
Tolerance <sup>2</sup>	±20 ppm and up for Industrial ±50 ppm and up for Military
Output Load (CMOS) <sup>3</sup>	15 pF
Start-up Time	5 ms MAX
Rise/Fall Time	6 ns MAX
Duty Cycle	40% MIN, 60% MAX
Shock survival	Up to 100,000 g, 0.5 ms, ½ sine
Vibration, survival <sup>4</sup>	20 g, 10-2000 Hz, swept sine
Standard Operating	-10°C to +70°C (Commercial)
Temperature Ranges	-40°C to +85°C (Industrial) -55°C to +125°C (Military)

- Does not include calibration tolerance.
- Frequency over temperature relative to nominal frequency.
- TTL loads and higher CMOS loads available. Contact factory.
- Per MIL-STD-202G, Method 204D, Condition D, Random vibration testing also available.

## PACKAGING OPTIONS

HGXO - Tray Pack  
- Tape and Reel  
(Reference tape and reel data sheet 10109)

## HOW TO ORDER HGXO SURFACE MOUNT CRYSTAL OSCILLATORS



Note: The HGXO oscillator with SM1 or SM5 termination is Pb free. The HGXO oscillator with SM3 termination contains Pb.

## 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 s

## 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 compares the E and T versions.

### 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.

