



HGXO OSCILLATOR

32.768 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

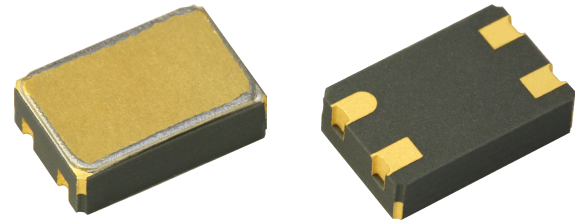
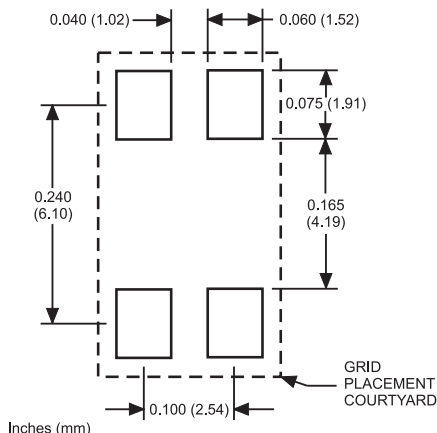
Industrial

- Transmitter reference oscillator
- Clock oscillator

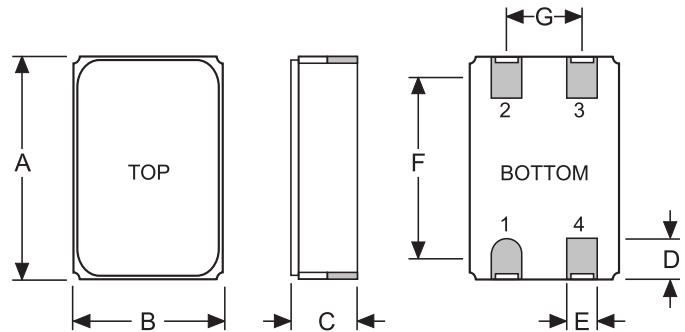
Military & Aerospace

- Smart Munitions
- Projectile Electronics

SUGGESTED LAND PATTERN



PACKAGE DIMENSIONS



DIM	TERMINATION	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*	SM1	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.

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.

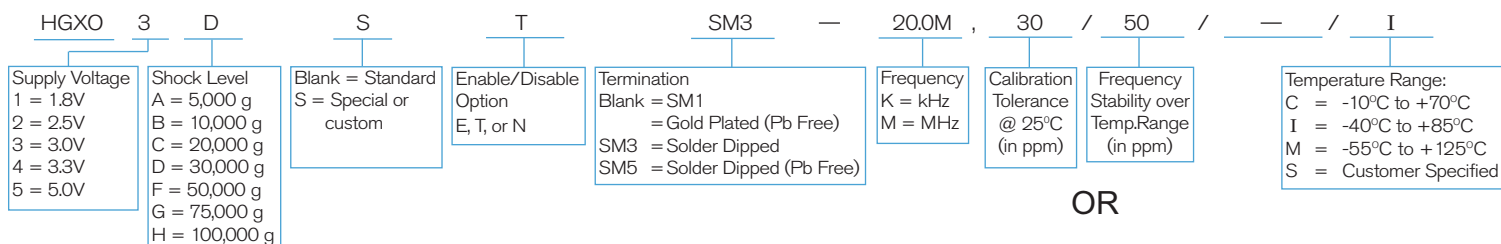
Supply Voltage	1.8 V to 5 V, as required
Calibration Tolerance	±10 ppm and up
Frequency Stability Over Temperature ¹	±10 ppm and up for Commercial ±20 ppm and up for Industrial ±40 ppm and up for Military
Total Frequency Tolerance ²	±15 ppm and up for Commercial ±20 ppm and up for Industrial ±50 ppm and up for Military
Output Load (CMOS) ³	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, 1/2 sine
Vibration, survival ⁴	20 g, 10-2000 Hz, swept sine
Standard Operating Temperature Ranges	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)
Moisture Sensitivity Level (MSL)	This product is hermetically sealed and is not moisture sensitive

- 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.

