HGXOHT OSCILLATOR

460 kHz to 50 MHz

High Shock, High Temperature Crystal Oscillator

DESCRIPTION

Statek's HGXOHT crystal oscillator is a high temperature, 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

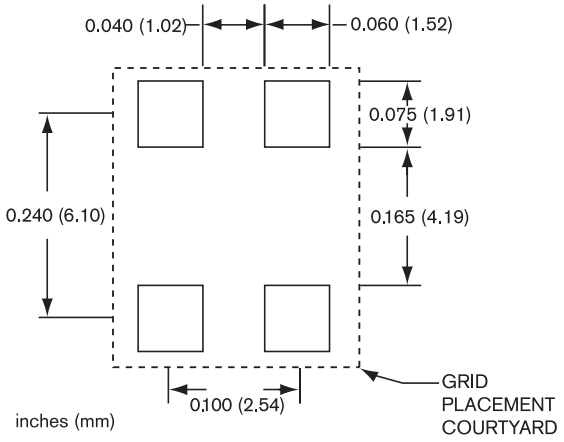
- Mechanical shock survivability up to 100,000 g
- High temperature operation up to 200°C
- Excellent stability over temperature
- Fast start-up
- High shock resistance
- Designed for surface mount applications
- CMOS and TTL compatible
- Optional output Enable/Disable
- Low EMI emission
- Hermetically sealed ceramic package

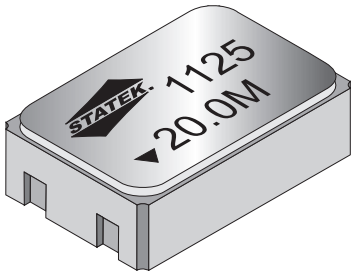
APPLICATIONS

Industrial

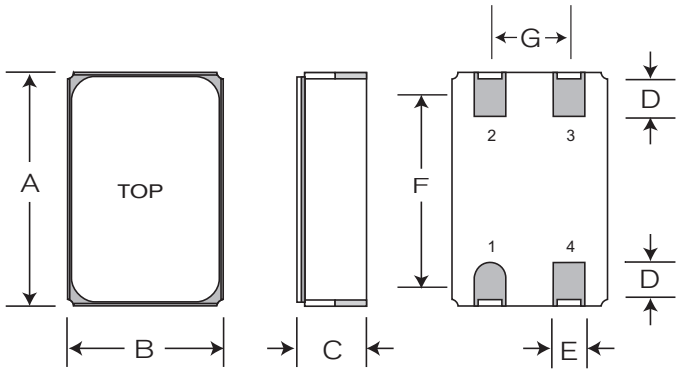
- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools
- Avionics applications

SUGGESTED LAND PATTERN





PACKAGE DIMENSIONS



	TYPICAL		MAXIMUM	
DIM	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.

PIN CONNECTIONS

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

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**

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	3.3 V ±10% 5.0 V ±10%
Calibration Tolerance	± 50 ppm, or tighter as required
Frequency Stability Over Temperature[1]	± 100 ppm for 25°C to 150°C ± 150 ppm for 25°C to 175°C ± 175 ppm for 25°C to 200°C
Total Tolerance[2]	± 200 ppm for 25°C to 200°C
Output Load (CMOS)[3]	15 pF
Start-up Time	5 ms MAX
Rise/Fall Time	10 ns MAX
Duty Cycle	40% MIN, 60% MAX
Shock survival[4]	Up to 100,000 g, 0.5 ms, ½ sine
Vibration, survival[5]	20 g, 10-2000 Hz, swept sine
Operating Temp Range[6]	-55°C up to 200°C

1. Does not include calibration tolerance.
2. Frequency over temperature relative to nominal frequency.
3. Higher CMOS loads available. Contact factory.
4. Shock survival applies at -55°C to +125°C.
5. Per MIL-STD-202G, Method 204D, Condition D, Random vibration testing also available.
6. Expected life at 200°C is in excess of 1,500 hours.

PACKAGING OPTIONS

HGXOHT - 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 4.0 V (3.3V V_{DD}) -0.5 V to 7.0 V (5V V_{DD})
Storage Temperature	-55°C to +125°C
Maximum Process Temperature	260°C for 20 s

ENABLE/DISABLE OPTIONS (E/N)

Statek offers two enable/disable options: E and N. The E-version has a Tri-State output and stops oscillating 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 E.

COMPARISON OF ENABLE/DISABLE OPTIONS E AND N

	E	N
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	N/C
Oscillator	Stops	N/C
Current consumption	Very low	N/C

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

N/C Pin 1 not connected, output frequency.

HOW TO ORDER HGXOHT SURFACE MOUNT CRYSTAL OSCILLATORS

HGXOHT 4 D S N SM3 — 20.0M , — / — / 200 / H

- 4: Supply Voltage — 4 = 3.3V, 5 = 5.0V
- D: Shock Level — A = 5,000 g, B = 10,000 g, C = 20,000 g, D = 30,000 g, F = 50,000 g, G = 75,000 g, H = 100,000 g
- S: Blank = Standard, S = Special or custom
- N: Enable/Disable Option — E or N
- SM3: Termination — Blank = SM1, = Gold Plated (Pb Free), SM3 = Solder Dipped, SM5 = Solder Dipped (Pb Free)
- 20.0M: Frequency — K = kHz, M = MHz
- First —: Calibration Tolerance @ 25°C (in ppm)
- Second —: Frequency Stability over Temp. Range (in ppm)
- 200: Total Frequency Tolerance (in ppm)
- H: Temp. Range — H = 25°C to 200°C, S = Customer Specified Temp. Range

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

OR

50 / 175 / — / H

- 50: Calibration Tolerance @ 25°C (in ppm)
- 175: Frequency Stability over Temp. Range (in ppm)
- —: Total Frequency Tolerance (in ppm)
- H: Temp. Range — H = 25°C to 200°C, S = Customer Specified Temp. Range

10208 Rev B