



## 250°C HTO57 OSCILLATOR

32.768 kHz, 1.5 MHz to 50 MHz

High Temperature Crystal Oscillator

### DESCRIPTION

Statek's HTO57 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 7.0 mm surface-mount ceramic package.

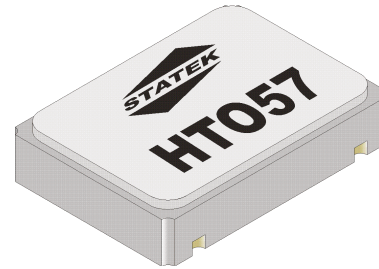
### FEATURES

- 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

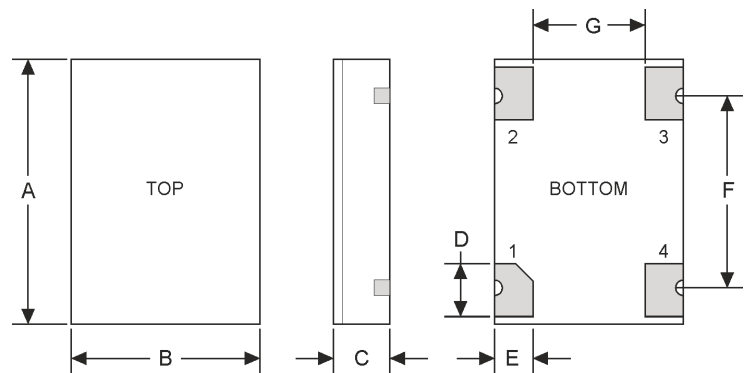
### APPLICATIONS

Industrial

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



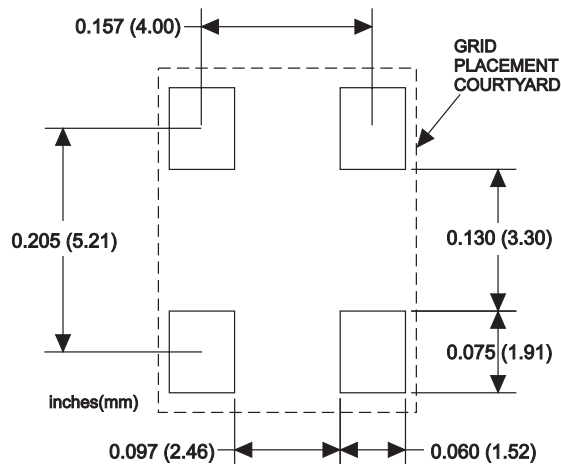
### PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.276	7.00	0.283	7.18
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	1.00		
F	0.200	5.08		
G	0.117	2.97		

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

### SUGGESTED LAND PATTERN



### 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.

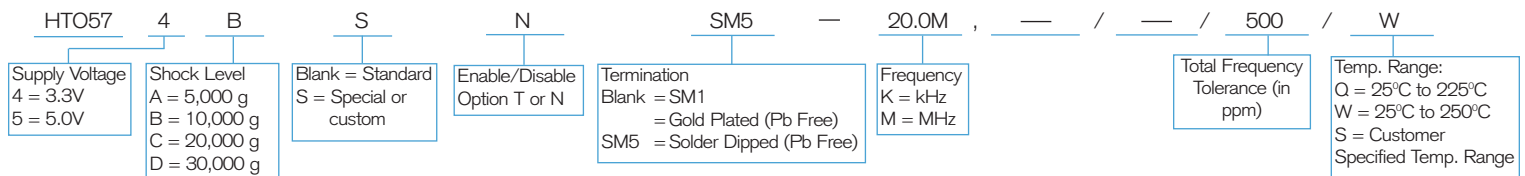
Supply Voltage	3.3 V ±10% (32.768 kHz, and 1.5 MHz - 30 MHz) 5.0 V ±10% (1.5 MHz - 50 MHz)
Total Tolerance <sup>1</sup>	± 500 ppm for 25°C to 250°C
Output Load (CMOS)	15 pF
Start-up Time	5 ms MAX
Rise/Fall Time	10 ns MAX
Duty Cycle <sup>2</sup>	40% MIN, 60% MAX
Shock survival <sup>3</sup>	Up to 30,000 g, 0.5 ms, ½ sine
Vibration, survival <sup>4</sup>	20 g, 10-2000 Hz, swept sine
Operating Temp Range <sup>5</sup>	-55°C up to 250°C

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

## PACKAGING OPTIONS

- HTO57 - Tray Pack  
 - Tape and Reel  
 - 16 mm tape, 7" or 13" reels  
 Per EIA 481 (see Tape and Reel data sheet # 10109)

## HOW TO ORDER HTXO SURFACE MOUNT CRYSTAL OSCILLATORS



## ABSOLUTE MAXIMUM RATINGS

Supply Voltage $V_{DD}$	-0.5 V to 6.0 V
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	Stops	N/C
Current consumption	Lower than normal	N/C