



CXOMHT OSCILLATOR

32.768 kHz

High Temperature/High Stability/Fast Start-up/High Shock

DESCRIPTION

For **high temperature**, high stability and fast start-up applications, Statek offers the AT crystal-based 32.768 kHz CXOMHT oscillator. This oscillator is designed to operate at temperatures up to 200°C with a total frequency stability of 200 parts-per-million, compared to about 1,000 ppm for a tuning fork-based 32.768 kHz oscillator. It is also offered in a high-shock version that features a 10,000 g shock survivability. Other features include fast start-up time (0.8 ms typical) and low current operation (500 μ A at 25°C.)

FEATURES

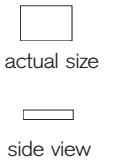
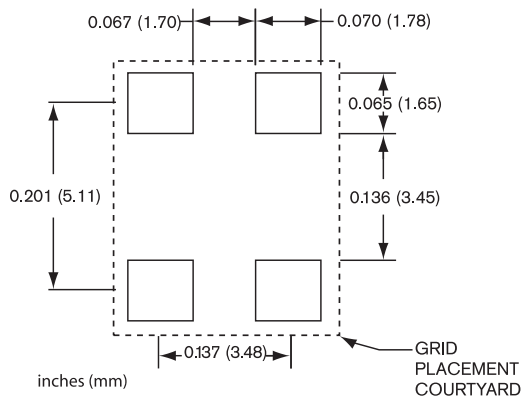
- High temperature operation up to 200°C
- Excellent stability over temperature
- Fast start-up
- High shock resistance
- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques
- CMOS and TTL compatible
- Optional output enable/disable
- Low EMI emission
- Hermetically sealed ceramic package
- Full military testing available

APPLICATIONS

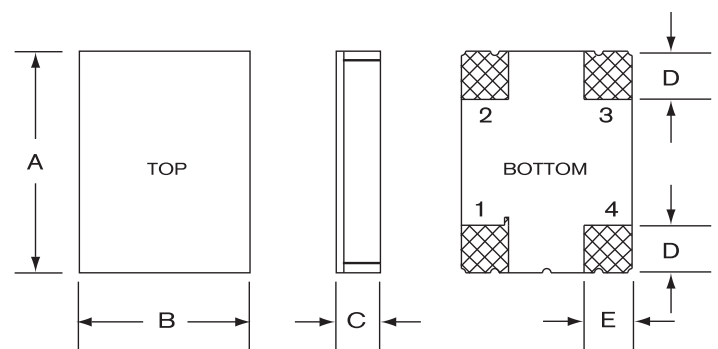
Industrial

- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools

SUGGESTED LAND PATTERN



PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.256	6.50	0.263	6.68
B	0.197	5.00	0.204	5.18
C (SM1)	0.051	1.30	0.055	1.40
C (SM3/SM5)	0.055	1.40	0.063	1.60
D	0.055	1.40	0.065	1.65
E	0.060	1.52	0.070	1.78

PIN CONNECTIONS

1. Enable/Disable (E) or No Connection (N)
2. Ground
3. Output
4. V_{DD}

10177 Rev A



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%
Calibration Tolerance	± 100 ppm, or tighter as required
Frequency Tolerance	± 100 ppm for 25°C to 150°C
Over Temperature	± 150 ppm for 25°C to 175°C
(Total Tolerance) ¹	± 200 ppm for 25°C to 200°C

Supply Current (Typical)	500 µA
Output Load (CMOS)	15 pF
Start-up Time	0.8 ms
Rise/Fall Time	85 ns/ 45 ns
Duty Cycle	40% MIN, 60% MAX
Aging, first year	10 ppm MAX at 25°C
Aging, 1,000 Hrs	100 ppm MAX at 200°C
Shock, survival	Std: 3,000 g, 0.3 ms, 1/2 sine HG: 10,000 g, 0.3 ms, 1/2 sine
Vibration, survival ²	20 g, 10-2,000 Hz swept sine
Operating Temp Range	-55°C up to 200°C

- Includes calibration tolerance. Other tolerances available.
 - Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing available.
- Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V _{DD}	-0.3 V to 5.0 V
Storage Temperature	-55°C to 125°C
Maximum Process Temperature	260°C, 20 seconds

ENABLE/DISABLE OPTIONS (E/N)

For the 32.768 kHz CXOMHT, 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 so has no enable/disable capability. The following table describes the Enable/Disable option E.

ENABLE/DISABLE OPTION E FUNCTION TABLE

	Enable (Pin 1 High*)	Disable (Pin 1 Low)
Output	Frequency output	High Z State
Oscillator	Oscillates	Stops
Current	500 µA at 25°C	3.2 µA at 25°C

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

PACKAGING OPTIONS

CXOMHT - Tray Pack

- 16 mm tape, 7" or 13" reels

Per EIA 481 (see Tape and Reel data sheet # 10109)

HOW TO ORDER 32.768 kHz CXOMHT OSCILLATORS

