



CXOMKHT/CXOXHT OSCILLATORS

High Temperature/High Shock
Surface Mount Quartz Crystal Oscillators

DESCRIPTION

Miniature, high performance quartz crystal oscillators designed and manufactured for high temperature applications.

FEATURES

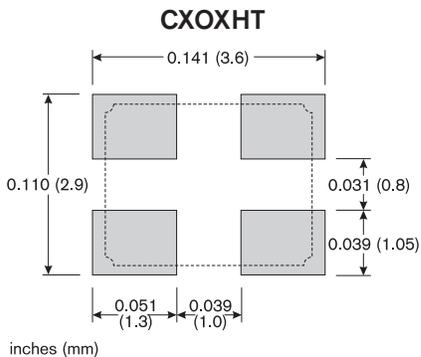
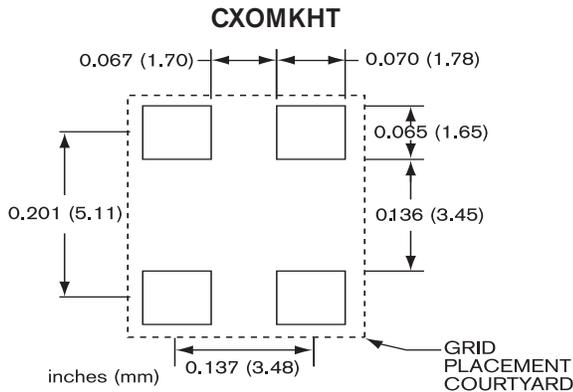
- High temperature operation up to 200°C
- Excellent frequency stability over temperature
- High shock resistance (HG version) up to 100,000 g
- Fast start-up
- Full military testing available
- IBIS model available
- Designed and manufactured in the USA

APPLICATIONS

High Temperature, Industrial & Avionics

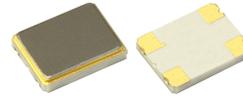
- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools

SUGGESTED LAND PATTERN



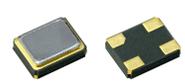
CXOMKHT

200 kHz to 50 MHz



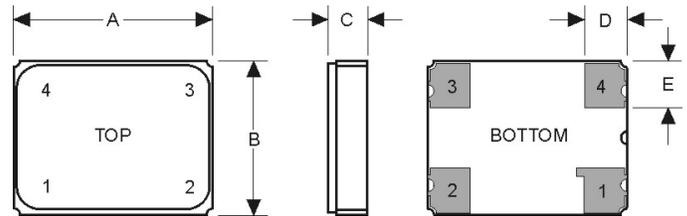
CXOXHT

1 MHz to 50 MHz

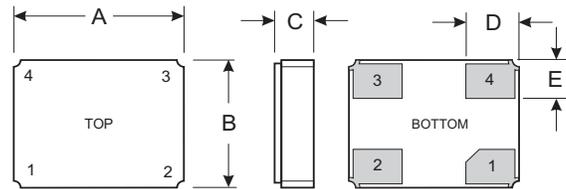


PACKAGE DIMENSIONS

CXOMKHT



CXOXHT



DIM	Termination	CXOMKHT		CXOXHT	
		TYP	MAX	TYP	MAX
		mm		mm	
A		6.50	6.68	3.20	3.40
B		5.00	5.18	2.50	2.70
C	SM1 SM3/SM5	1.34 1.52	1.52 1.65	1.00 1.12	1.09 1.21
D		1.40	1.65	1.00	1.10
E		1.52	1.78	0.75	0.85

PIN CONNECTIONS

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

10180 Rev H



SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications available.

Package	CXOMKHT		CXOXHT
Frequency Range ¹	200 kHz to 50 MHz		1 MHz to 50 MHz
Supply Voltage	3.3 V to 5.0 V ±10%		3.3 V to 5.0 V ±10%
Calibration Tolerance ²	±100 ppm to ±50 ppm		
Frequency-Temperature Stability ^{3,4}	±125 ppm to ±100 ppm (25°C to 150°C) ±175 ppm to ±150 ppm (25°C to 175°C) ±200 ppm to ±175 ppm (25°C to 200°C)		
Typical Supply Current (mA)	24 MHz 32 MHz 50 MHz	<u>3.3 V</u> 3.0 5.0 6.0	<u>5.0 V</u> 8.0 10.0 14.0
Output Load (CMOS) ⁵	15 pF		
Start-up Time (ms)	5 MAX		
Rise/Fall Time (ns)	10 MAX		
Duty Cycle	40% MIN 60% MAX		
Aging, First Year	5 ppm MAX at 25°C		
Aging	100 ppm MAX at 200°C		
Shock Survival	STD: 5,000 g, 0.3 ms, 1/2 sine HG: up to 100,000 g, 0.5 ms, 1/2 sine		
Vibration Survival ⁶	20 g, 10-2,000 Hz swept sine		
Operating Temperature Range ⁴	+25°C to +150°C +25°C to +175°C +25°C to +200°C		
Storage Temperature Range ⁴	-55°C to +125°C		
Max Process Temperature	260°C for 20 seconds		
Max Supply Voltage V_{DD} ⁷	-0.5 V to 7.0 V		
Moisture Sensitivity Level (MSL)	This product is hermetically sealed and is not moisture sensitive.		

1. Not all frequencies available at all voltages. Contact factory.
2. Tighter tolerances available.
3. Does not include calibration tolerance. Tighter tolerances available.
4. Broader temperature ranges available. Contact factory.
5. Higher CMOS loads and TTL loads available. Contact factory.
6. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.
7. The supply voltage is -0.5 V to 4.0 V for some frequencies. Contact factory.

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 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

E	
<i>When enabled (PIN 1 is high*)</i>	
Output	Frequency output
Oscillator	Oscillates
Current consumption	Normal
<i>When disabled (PIN 1 is low)</i>	
Output	High Z state
Oscillator	Stops
Current consumption	Very low
<i>When re-enabled (PIN 1 changes from low to high)</i>	
Output recovery	Delayed

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

PACKAGING OPTIONS

- Tray Pack
- Tape and Reel (per EIA 481). See Tape and Reel datasheet 10109.

HOW TO ORDER CXOMKHT, CXOXHT OSCILLATORS

