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
- Cumulative shock and vibration resistance (HG option)
- Fast start-up
- Full military testing available
- IBIS model available
- Designed and manufactured in the USA

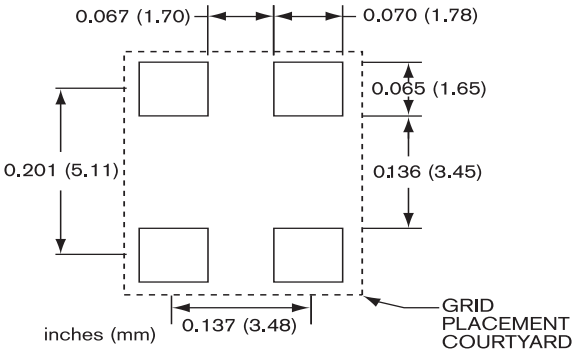
APPLICATIONS

High Temperature, Industrial & Avionics

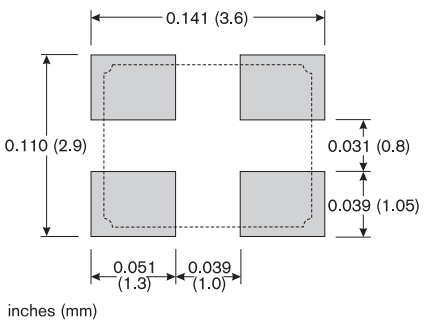
- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools

SUGGESTED LAND PATTERN

CXOMKHT

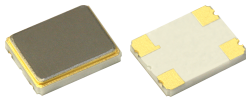


CXOXHT



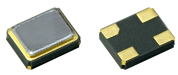
CXOMKHT

200 kHz to 50 MHz



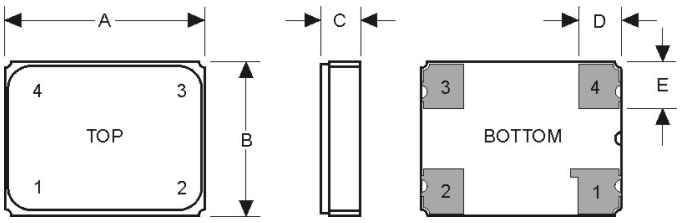
CXOXHT

1 MHz to 50 MHz

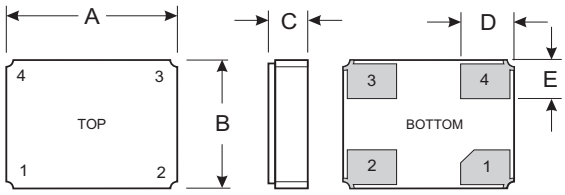


PACKAGE DIMENSIONS

CXOMKHT



CXOXHT



DIM	Termination	CXOMKHT TYP	CXOMKHT MAX	CXOXHT TYP	CXOXHT MAX
		mm		mm	
A		6.50	6.68	3.20	3.40
B		5.00	5.18	2.50	2.70
C	SM1	1.34	1.52	1.00	1.09
	SM3/SM5	1.52	1.65	1.12	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 I

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.

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) ±215 ppm to ±200 ppm (0°C to +200°C) ±225 ppm to ±200 ppm (-20°C to +200°C)	
Typical Supply Current (mA)	**24 MHz** **32 MHz** **50 MHz**	**3.3 V** 3.0 5.0 6.0 — **5.0 V** 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, ½ sine HG: up to 100,000 g, 0.5 ms, ½ 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 0°C to +200°C -20°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.

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

CXOXHT 4 HG B S N — 40.0M , 50 / 175 / — / H

Package
CXOMKHT
CXOXHT

Supply Voltage
4 = 3.3 V
5 = 5.0 V

High Shock
Blank = Standard
HG = High Shock

Shock Level Code
Blank = 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

Special
Blank = Standard
S = Special or Custom

Enable/Disable Option
E = Enable/Disable
N = No Connection

Terminations
Blank = Gold Plated (Lead Free)
SM3 = Solder (60/40 Sn-Pb)
SM5 = Solder (Lead Free)

Frequency
K = kHz
M = MHz

Calibration Tolerance @ 25°C (in ppm)

Frequency Stability over Temp. Range (in ppm)

Operating Temp. Range
F = +25°C to +150°C
G = +25°C to +175°C
H = +25°C to +200°C
J = 0°C to +200°C
K = -20°C to +200°C
S = Customer Specified

OR

— / — / 200 / H

Total Frequency Tolerance (in ppm)

Operating Temp. Range
F = +25°C to +150°C
G = +25°C to +175°C
H = +25°C to +200°C
J = 0°C to +200°C
K = -20°C to +200°C
S = Customer Specified

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