HIGH TEMPERATURE CRYSTALS

High Temperature/High Frequency 6 MHz to 250MHz

FEATURES

- **High temperature operation up to 200°C**
- **High schock resistance**
- **Hermetically sealed ceramic package**

CX1HT

8MHz ~ 250MHz

CX4HT

14MHz ~ 250MHz

CX9HT

14MHz ~ 250MHz

DESCRIPTION

The 'HT' range of crystals are designed for applications subjected to high operating temperatures. Designed and manufactured by Statek Inc. The CX1HT, CX4HT and CX9HT crystals operate up to 200°C and feature an expected life in excess of 1000 hours at these temperatures. The frequency range is:
CX1HT: 8.0MHz to 250MHz
CX4VHT: 14MHz to 250MHz
CX9VHT: 14MHz to 250MHz.

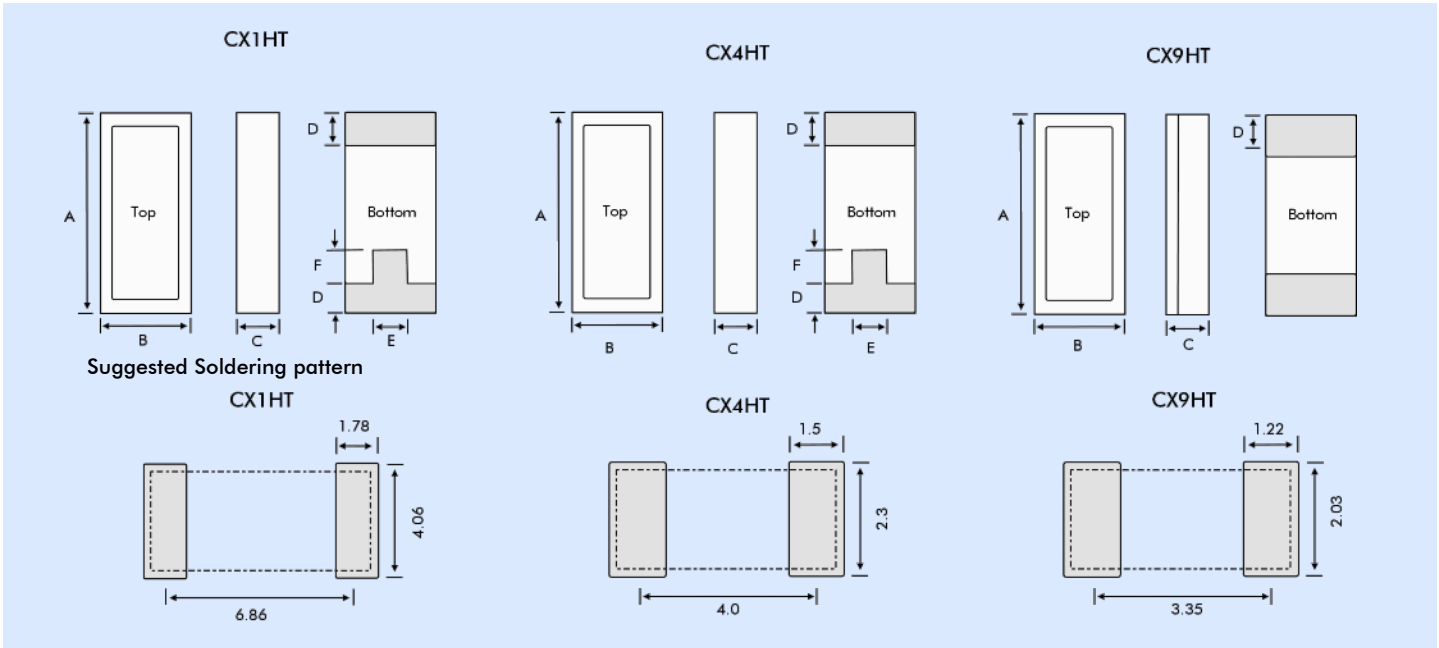
APPLICATIONS

- **Downhole instrumentation**
- **Rotary shaft sensors**
- **Underground boring tools**

DIMENSIONS

Dim.	CX1HT	CX4HT	CX9HT
A	8.38	5.33	4.32
B	3.94	2.16	1.73
C (SM1)	1.78	1.27	0.97
C (SM5)	1.90	1.35	1.02
D	1.40	1.16	0.97
E	1.78	0.51	
F	1.78	0.64	

OUTLINES & DIMENSIONS



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EUROQUARTZ — HIGH TEMPERATURE CRYSTALS

High Temperature/High Frequency — 6 MHz to 250MHz

SPECIFICATION

Specifications stated are typical at 25°C unless otherwise indicated.
Specifications may change without notice.

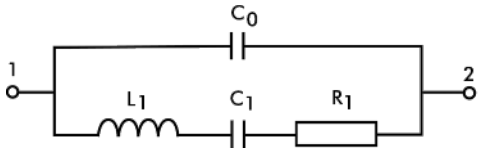
Frequency Range:	*See specifications table below*
Calibration Tolerance[1]:	±100ppm or tighter as required
Operating Temperature Range:	-55° to +200°C
Temperature Stability[2]:	±150ppm -55° to +150°C ±175ppm -55°C to +175°C ±200ppm -55° to +200°C
Ageing First Year:	±5ppm @25°C
Shock, Survival[3]:	
CX1HT:	1,000g, 1ms, ½ sine
CX4HT:	5,000g, 0.3ms, ½ sine
CX9HT:	5,000g, 0.3ms, ½ sine
Vibration, Survival[3]:	20g rms, 10~2000Hz

1. Tighter frequency calibration available. Contact Euroquartz sales.
2. Does not include calibration tolerance. The characteristics of frequency stability over temperature follow that of the thickness-shear mode.
3. Higher shock and vibration available.
Designed and manufactured by Statek Inc.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature:	-55° to +200°C
Maximum Process Temperature:	260°C for 20 seconds

CRYSTAL EQUIVALENT CIRCUIT

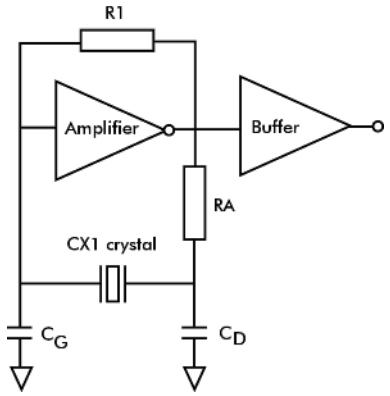


R1 Motional Resistance — L1 Motional Inductance
C1 Motional Capacitance — C0 Shunt Capacitance

PACKAGING OPTIONS

CX_HT crystals are available either tray packed (<250pcs) or tape and reel (>250 pieces).
16mm tape, 178mm or 330mm reels (EIA 418).

CONVENTIONAL CMOS PIERCE OSCILLATOR CIRCUIT



SPECIFICATIONS TABLE

	Frequency Range	Motional Resistance R1 @ 25°C	Motional Capacitance C1 @ 25°C	Shunt Capacitance C0 @ 25°C	Quality Factor Q @ 25°C	Load Capacitance CL	Drive Level
CX1HT	8.0MHz to 250MHz	30Ω @ 10MHz 25Ω @ 32MHz	5.5fF @ 10.0MHz 6.2fF @ 32.0MHz	2.2pF @ 10.0MHz 2.3pF @ 32.0MHz	100k @ 10.0MHz 30k @ 32.0MHz	20pF for f <50MHz 10pF for f >50MHz	500µW max. for f <50MHz 200µW max. for f >50MHz
CX4HT	14.0MHz to 250MHz	75Ω @ 10MHz 30Ω @ 32MHz	1.5fF @ 10.0MHz 2.5fF @ 32.0MHz	0.9pF @ 10.0MHz 1.1pF @ 32.0MHz	90k @ 10.0MHz 70k @ 32.0MHz	 10pF	200µW max. for f <50MHz 100µW max. for f >50MHz
CX9HT	14.0MHz to 250MHz	30Ω @ 10MHz 30Ω @ 32MHz	1.8fF @ 10.0MHz 2.1fF @ 32.0MHz	1.0pF @ 10.0MHz 1.0pF @ 32.0MHz	120k @ 10.0MHz 60k @ 32.0MHz	 10pF	200µW max. for f <50MHz 100µW max. for f >50MHz

HOW TO ORDER CX1HT, CX4HT and CX9HT CRYSTALS

CX4HT - S - SM1 - 20.0M – / – / 200 / H

CX4HT	S	SM1	20.0M	–	–	200	H
CX1HT CX4HT CX9HT	'S' if special, custom design. Otherwise leave blank	Terminations SM1 = Gold plated * SM2 = Solder plated SM3 = Solder dipped SM4 = Solder plated * SM5 = Solder dipped * * = Lead free	Frequency M = MHz	Calibration Tolerance @25°C (in ppm)	Frequency Stability over Temp. Range (in ppm)	Total Frequency Tolerance (in ppm)	Temp. Range H = 25° to 200°C S = Customer specified

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