

### FEATURES

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

### DESCRIPTION

The 'HT' range of crystals are designed for applications subjected to high operating temperatures. 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

CX4HT: 14MHz to 250MHz

CX9HT: 14MHz to 250MHz.

### CX1HT



8MHz ~ 250MHz

### CX4HT



14MHz ~ 250MHz

### CX9HT



14MHz ~ 250MHz

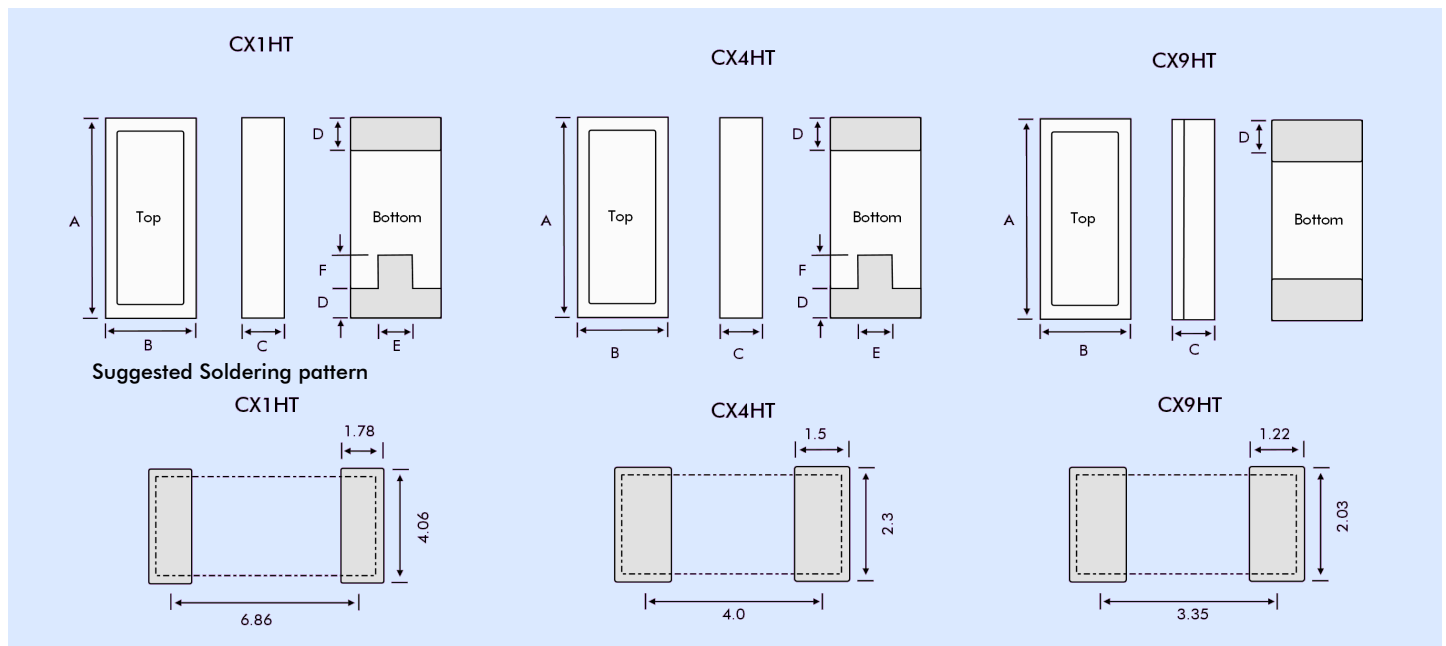
### APPLICATIONS

- 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



### SPECIFICATION

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

Frequency Range:	See specifications table below
Calibration Tolerance <sup>1</sup> :	±100ppm or tighter as required
Operating Temperature Range:	-55° to +200°C
Temperature Stability <sup>2</sup> :	±150ppm -55° to +150°C ±175ppm -55°C to +175°C ±200ppm -55° to +200°C
Ageing First Year:	±5ppm @25°C
Shock, Survival <sup>3</sup> :	
	CX1HT: 1,000g, 1ms, ½ sine
	CX4HT: 5,000g, 0.3ms, ½ sine
	CX9HT: 5,000g, 0.3ms, ½ sine
Vibration, Survival <sup>3</sup> :	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.

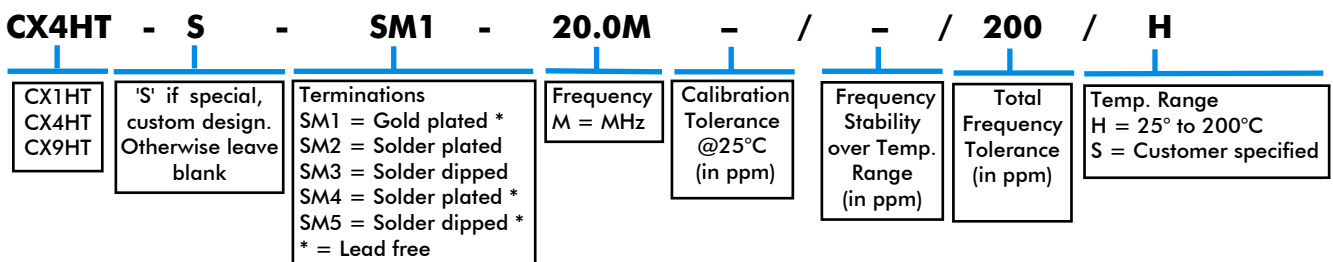
### ABSOLUTE MAXIMUM RATINGS

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

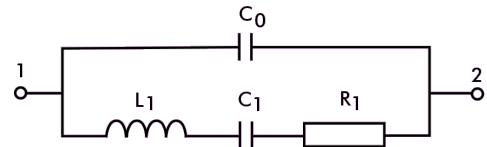
### SPECIFICATIONS TABLE

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



### 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

