

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

CX4VHT: 14MHz to 250MHz

CX9VHT: 14MHz to 250MHz.

CX1HT



8MHz ~ 250MHz

CX4HT



14MHz ~ 250MHz

CX9HT



14MHz ~ 250MHz

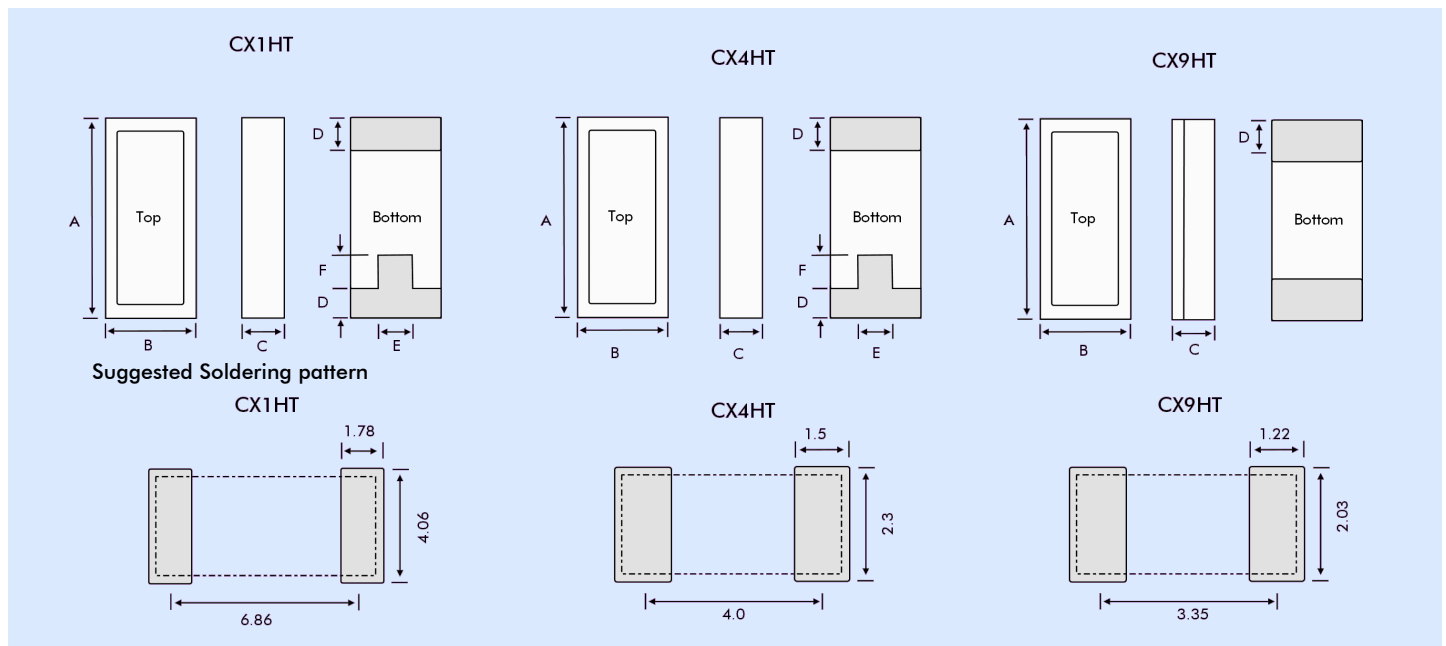
APPLICATIONS

- 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 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.

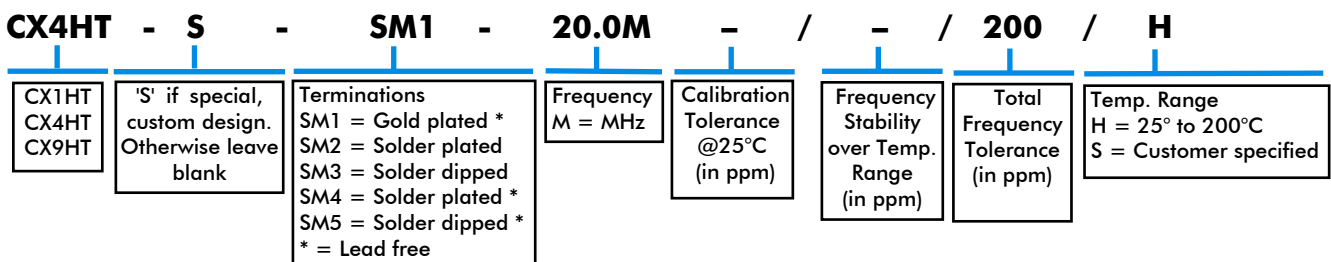
ABSOLUTE MAXIMUM RATINGS

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

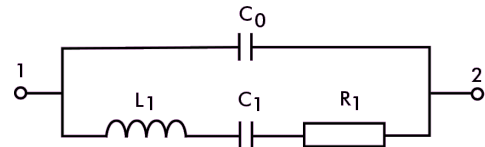
SPECIFICATIONS TABLE

| 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

