CX-2

9.6MHz to 160MHz

MINIATURE AT-CUT QUARTZ CRYSTAL

EUROQUARTZ

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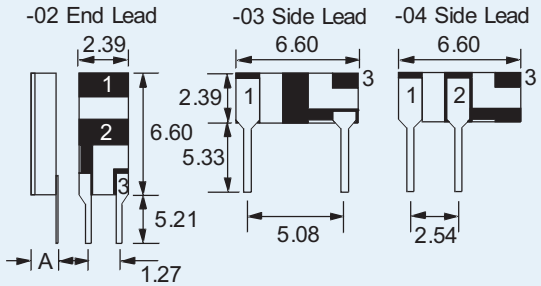
General Description

The CX-2 AT-cut quartz crystal is a high quality, miniature resonator, hermetically sealed in a rugged, miniature ceramic package, a quarter the size of an eight pin dual-in-line. The CX-2 crystal is manufactured utilizing a photo-lithographic process, ensuring consistency and repeatability of electrical characteristics.

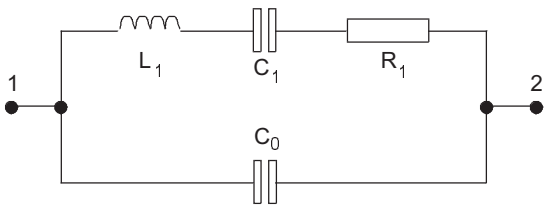
- Low-profile, hermetically sealed package
- Available with glass or ceramic lid
- High shock and vibration resistance
- Low ageing
- Custom designs available
- Full military environmental testing available



Outline and Dimensions

Notes:
1. Terminal 1 is electrically connected to terminal 3.
2. Lead Dimensions: width 0.33mm typical, thickness 0.18mm.
3. A = Glass Lid - 2.03mm max.
Ceramic Lid - 2.41mm max.

Equivalent Circuit



R_1 Motional Resistance L_1 Motional Inductance
C_1 Motional Capacitance C_0 Shunt Capacitance

Specification

Frequency Range:	9.6MHz to 70MHz Fund. 70MHz to 160MHz 3rd O/T
Motional Resistance (R_1):	see table.
Motional Capacitance (C_1):	see table
Quality Factor (Q):	see table
Shunt Capacitance (C_0):	see table
Calibration Tolerance*:	A ±0.01% (±100ppm) B ±0.1% C ±1.0%
Load Capacitance:	20pF (or other as specified)
Drive Level:	500µW max.
Temperature Stability:**	-10° to +70°C from ±10ppm -40° to +85°C from ±20ppm -55° to +125°C from ±30ppm
Ageing, first year:	±5ppm max.
Shock, survival*:**	3,000g 0.2ms, ½ sine
Vibration, survival:	20g rms 10 - 2,000Hz
Operating Temperature:	-10°~+70°C (commercial) -40°~+85°C (industrial) -55°~+125°C (military)
Storage Temperature:	-55°C~+125°C
Process Temperature:	Lead to Package temp. not to exceed 175°C Glass lid to package seal rim temp. not to exceed 210°C

Specifications are typical at 25°C unless otherwise indicated.
Note: temperature stability characteristics follow that of AT-cut thickness-shear mode.

* Closer calibration available, from ±5ppm
** Does not include calibration tolerance
*** Higher shock version available

CX-2 Motional Parameters, Q and C_0

Frequency	Motional Resistance R_1 (Ω)	Motional Capacitance C_1 (fF)	Quality Factor '000s	Shunt Capacitance C_0 (pF)
10.0MHz	60	2.8	95	1.4
32MHz	20	7.8	36	2.4
155MHz	50	0.5	41	3.2

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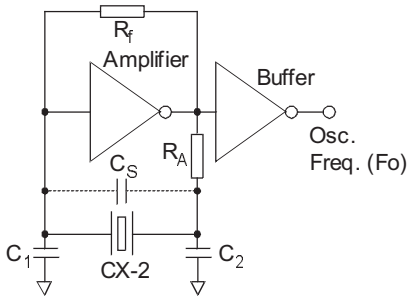
Package Handling

The CX crystal is hermetically sealed in a ceramic package. Normal handling and soldering precautions for small, low thermal mass parts are adequate when installing or testing CX crystals. The crystals may be wave soldered, taking proper precautions to avoid desoldering the leads. A slow machine rate or too high a pre-heat temperature or solder bath temperature can damage the crystals. Lead to package solder interface temperature should not exceed 175°C, and glass lid to package seal rim temperature should not exceed 210°C. Should the seal rim temperature exceed these limits the package may lose its hermeticity. Loss of hermeticity results in a decrease of frequency and increase in motional resistance.

Typical Application

Conventional HCMOS Pierce Oscillator Circuit



Packaging

CX-2-Leaded - Bulk Pack (Standard)
Tray Pack (Optional)

Order Code

CX-2 [ ] [ ] -03 32MHz (A / 25ppm / 50ppm / I)

- O.T.=3rd O.T. Mode, Blank = Fundamental
- "S" if special or custom design, Blank if standard
- C = Ceramic Lid, Blank = Glass Lid
- Side leads: -02, -03, -04
- Frequency
- Calibration Tolerance* @ 25°C: A, B, C
- Frequency Stability over Temperature Range
- Total Frequency Tolerance
- Temperature Range: C = Commercial, I = Industrial, M = Military, S = Specify

*For other calibration tolerances enter figure in ppm