

CX-6-SM

9.6MHz to 160MHz

ULTRA-LOW PROFILE

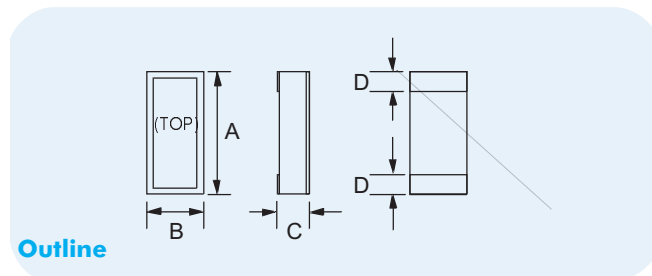
MINIATURE SMD CRYSTAL

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General Description

The CX-6-SM AT-cut quartz crystals are leadless devices designed for surface mounting on printed circuit boards or hybrid substrates. The crystals are intended for use in Pierce oscillators. Hermetically sealed in a miniature ceramic package, the crystals are produced utilizing a photo-lithographic process ensuring consistent high quality production units.



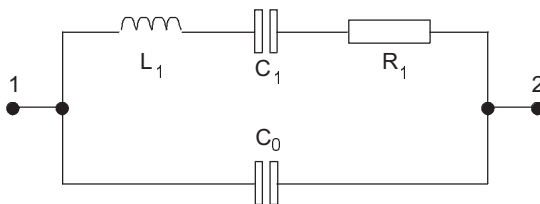
Outline

CX-6-SM Package Dimensions

Dimension	Typical (mm)	Maximum (mm)
A	6.73	7.11
B	2.62	2.90
C	-	see below
D	1.27	1.52

Dimension "C"	Glass Lid (mm max.)	Ceramic Lid (mm max.)
SM1	0.99	1.35
SM2	1.04	1.40
SM3	1.12	1.47

Equivalent Circuit



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

- Ultra-low profile (1mm)
- Ideal for use with microprocessors
- Designed for low power applications
- Compatible with hybrid or PCB packaging
- High shock and vibration resistance
- Low ageing
- Full military environmental testing available
- Custom designs available

Specification

Frequency Range:	9.6MHz to 70MHz Fundamental 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 $\pm 0.01\%$ (± 100 ppm) B $\pm 0.1\%$ C $\pm 1.0\%$
Load Capacitance:	20pF (or other as specified)
Drive Level:	500 μ W max.
Temperature Stability**:	-10° to +70°C from ± 10 ppm -40° to +85°C from ± 20 ppm -55° to +125°C from ± 30 ppm ± 5 ppm max.
Ageing, first year:	± 5 ppm max.
Shock, survival***:	3000g peak, 0.3ms, 1/2 sine
Vibration, survival:	20g rms 10-2,000Hz random
Operating Temperature:	-10°~+70°C (commercial) -40°~+85°C (industrial) -55°~+125°C (military)
Storage Temperature:	-55°C~+125°C
Process Temperature:	260°C for 20 sec.

Specifications are typical at 25°C unless otherwise indicated.

Note: the frequency stability characteristics follow that of AT-cut thickness-shear mode.

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

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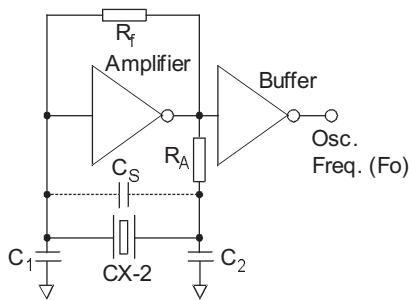
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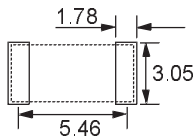
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Circuit Design

Conventional HCMOS Pierce Oscillator Circuit



Solder Pad Layout



Terminations

Designation	Termination
SM1	Gold Plated
SM2	Nickel, Solder Plated
SM3	Nickel, Solder Plated and Solder Dipped

Packaging

- CX-6-SM - Bulk Pack (Standard)
- 16mm tape, 178mm or 330mm reels (Optional) per EIA 481
- Tray Pack (Optional)

Order Code

