



# CX11 AT-CUT CRYSTAL

16 MHz to 250 MHz

Surface Mount Quartz Crystal

## DESCRIPTION

High performance AT-Cut quartz crystal resonator designed and manufactured for high-reliability applications.

## FEATURES

- 3.2 x 1.5 mm hermetically sealed ceramic package with ceramic lid
- Helium impermeable housing
- Excellent long term aging characteristics
- Broad operating temperature ranges
- Designed and manufactured in the USA

## APPLICATIONS

### Medical

- Medical Telemetry (MICS, BLE)
- Cardiac Rhythm Management
- Cochlear Implants
- Infusion Pumps

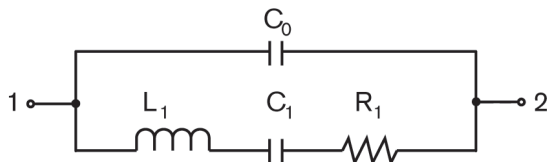
### Military & Aerospace

- Avionic Indicators and Instruments
- Cockpit Instrumentation Displays
- Data Communications
- Telemetry

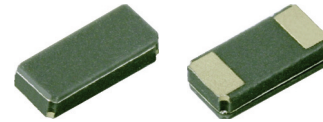
### Industrial, Computer & Communications

- Communications
- Transmitters
- Pulse Generators
- Tracking Beacons
- Wildlife Telemetry

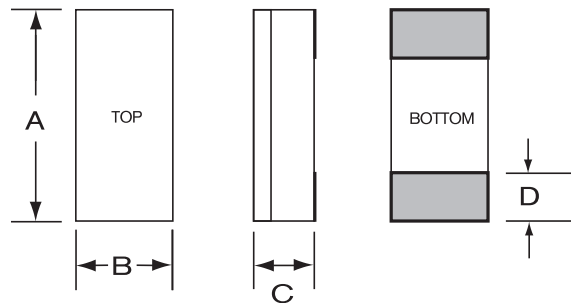
## EQUIVALENT CIRCUIT



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

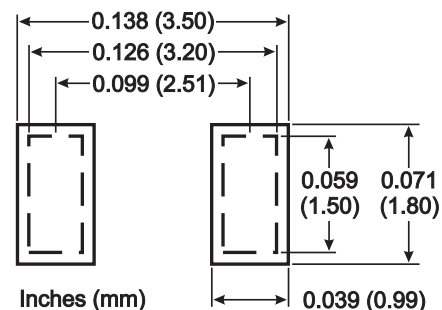


## PACKAGE DIMENSIONS



DIM	Termination	TYPICAL		MAXIMUM	
		inches	mm	inches	mm
A		0.127	3.20	0.135	3.43
B		0.060	1.50	0.068	1.73
C	SM1	0.030	0.77	0.035	0.90
	SM3/SM5	0.033	0.84	0.038	0.97
D		0.027	0.69	0.037	0.94

## SUGGESTED LAND PATTERN



## PACKAGING OPTIONS

- Tray Pack
- Tape and Reel (per EIA 481). See Tape and Reel data sheet 10109.

10179 Rev D



## SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications available.

<b>Fundamental Frequency</b>	16.0 MHz	24.0 MHz	155.52 MHz
<b>Motional Resistance R<sub>1</sub> (Ω)</b>	90	30	25
<b>Motional Capacitance C<sub>1</sub> (fF)</b>	1.5	1.6	2.8
<b>Quality Factor Q</b>	70,000	140,000	15,000
<b>Shunt Capacitance C<sub>0</sub> (pF)</b>	0.7	0.7	1.4
<b>Calibration Tolerance<sup>1</sup></b>	±50 ppm to ±10 ppm		
<b>Load Capacitance</b>	Customer specified (9 pF standard)		
<b>Drive Level</b>	200 μW MAX		
<b>Frequency-Temperature Stability<sup>1,2,3</sup></b>	±50 ppm to ±10 ppm (Commercial) ±50 ppm to ±20 ppm (Industrial) ±50 ppm to ±30 ppm (Military)		
<b>Aging, First Year<sup>4</sup></b>	3 ppm MAX		
<b>Shock Survival</b>	5,000 g, 0.3 ms, 1/2 sine		
<b>Vibration Survival<sup>5</sup></b>	20 g, 10-2,000 Hz swept sine		
<b>Operating Temperature Range<sup>3</sup></b>	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)		
<b>Storage Temperature Range</b>	-55°C to +125°C		
<b>Max Process Temperature</b>	260°C for 20 seconds		
<b>Moisture Sensitivity Level (MSL)</b>	This component is hermetically sealed and not moisture sensitive.		

1. Tighter tolerances available.
2. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
3. Broader temperature ranges available. Contact factory.
4. Better than 1 ppm aging available.
5. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

## HOW TO ORDER STATEK CX11 AT-CUT CRYSTALS

