



CX11L TELEMETRY CRYSTAL

16 MHz to 250 MHz

Telemetry, Ultra Low Profile, Ultra-Miniature
Surface Mount Quartz Crystal

DESCRIPTION

When miniaturization is paramount, Statek's low profile CX11L AT quartz crystal is an excellent choice. Available in frequencies from 16 MHz to 250 MHz, this crystal has a typical footprint of 3.2 mm x 1.5 mm, and a typical height of 0.5 mm. The resonator is manufactured using Statek's photolithographic and chemical milling processes and then sealed within a ceramic package for high stability and low aging. Available with tight calibration tolerances and high stability over temperature, this crystal is well suited for applications that have a space restraint and require a crystal with a low profile.

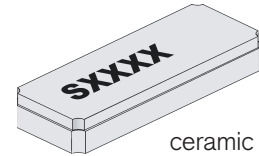
FEATURES

- Ultra-miniature, surface mount design
- Ultra-low profile
- Hermetically sealed ceramic package
- High shock and vibration survival
- Excellent aging characteristics
- Full military testing available
- Designed and manufactured in the USA

APPLICATIONS

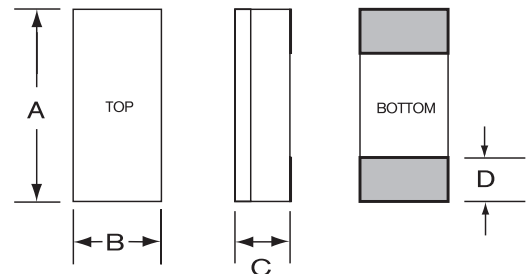
Medical

- Medical Telemetry
- Pacemakers
- Defibrillators
- Neurostimulators
- Infusion Pumps
- Cochlear Implants



ceramic lid

PACKAGE DIMENSIONS

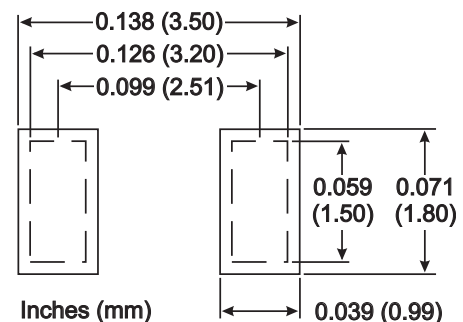


DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.127	3.20	0.135	3.43
B	0.060	1.50	0.068	1.73
C	-	-	see below	
D	0.028	0.71	0.037	0.94

THICKNESS (DIM C)

Lid	Termination	Typical		Maximum	
		inches	mm	inches	mm
Ceramic	SM1	0.020	0.51	0.023	0.59
	SM2/SM4	0.021	0.53	0.024	0.61
	SM3/SM5	0.022	0.56	0.025	0.64

SUGGESTED LAND PATTERN



SPECIFICATIONS

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

Fundamental Frequency	<u>16 MHz</u>	<u>24 MHz</u>	<u>26.5 MHz</u>
Motional Resistance $R_1(\Omega)$	90	30	30
Motional Capacitance C_1 (fF)	1.5	1.4	1.6
Quality Factor Q (k)	70	150	120
Shunt Capacitance C_0 (pF)	0.7	0.7	0.7
Calibration Tolerance ¹	±100 ppm, or tighter as required		
Load Capacitance	10 pF (unless specified otherwise)		
Drive Level	200 µW MAX		
Frequency-Temperature Stability ^{1,2}	±50 ppm to ±10 ppm (Commercial) ±100 ppm to ±20 ppm (Industrial) ±100 ppm to ±30 ppm (Military)		
Aging, first year	3 ppm MAX (better than 1 ppm available)		
Shock, survival	5,000 g, 0.3 ms, 1/2 sine		
Vibration, survival ³	20 g, 10-2,000 Hz swept sine		
Operating Temp. Range	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)		
Storage Temp. Range	-55°C to +125°C		
Max Process Temperature	260°C for 20 sec.		

1. Other tolerances available. Contact factory.

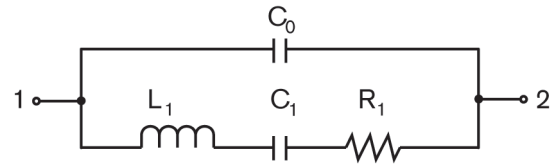
2. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.

3. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

TERMINATIONS

Designation	Termination
SM1	Gold Plated (Lead Free)
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

EQUIVALENT CIRCUIT



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

PACKAGING OPTIONS

- Tray Pack
- 12 mm tape, 7" or 13" reels
Per EIA 481 (see Tape and Reel data sheet 10109)

HOW TO ORDER LOW PROFILE CX11L AT CRYSTALS

CX11	L	S	C	SM1	—	24.0M	,	30	/	10	/	—	/	I	,	3 pF
L = Low Profile	Blank = Standard S = Special or custom	C = Ceramic Lid	SM1 = Gold Plated (Lead Free) SM2 = Solder Plated SM3 = Solder Dipped SM4 = Solder Plated (Lead Free) SM5 = Solder Dipped (Lead Free)	Frequency M = MHz	Calibration Tolerance @ 25°C (in ppm)	Frequency Stability over Temp. Range (in ppm)	Temp. Range: C = -10°C to +70°C I = -40°C to +85°C S = Customer Specified	Load Capacitance (Customer Specified)								