



# CX3SM AT CRYSTAL

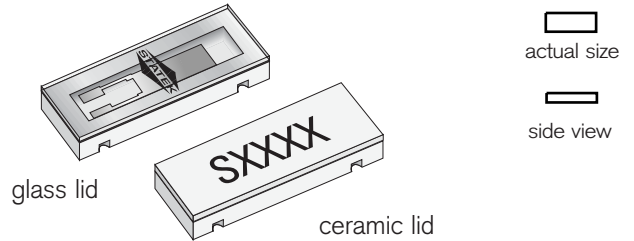
9.6 MHz to 250 MHz

Low Profile Miniature Surface Mount AT Quartz Crystal

Fundamental Mode: 9.6 MHz - 70 MHz  
Third Overtone Mode: 48 MHz - 250 MHz

## DESCRIPTION

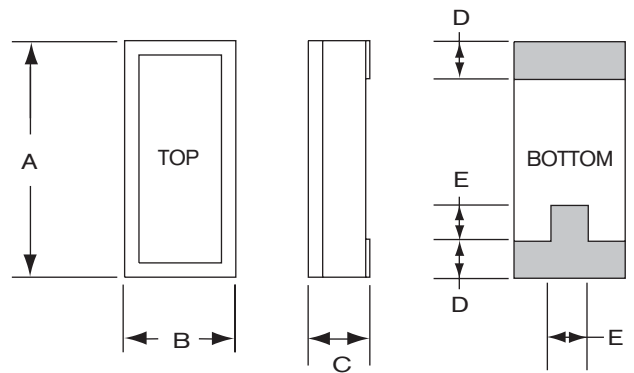
STATEK's miniature CX3SM AT crystals in leadless ceramic packages are designed for surface mounting on printed circuit boards or hybrid substrates. These crystals are low profile and have a small land pattern.



## FEATURES

- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques.
- Low profile (less than 1.5 mm available) hermetically sealed ceramic package
- Excellent aging characteristics
- Available with glass or ceramic lid
- High shock and vibration resistance
- Custom designs available
- Full military testing available
- Designed and manufactured in the USA

## PACKAGE DIMENSIONS



## APPLICATIONS

Medical

- Monitoring Equipment

Industrial, Computer & Communications

- Instrumentation
- Down-hole Data Recorder
- Engine Control
- Handheld Inventory Control
- Telemetry

Military & Aerospace

- Communications
- Smart Munitions
- Timing Devices
- Surveillance Devices

DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.263	6.68	0.270	6.86
B	0.097	2.46	0.104	2.64
C	-	-	see below	
D	0.052	1.32	0.058	1.47
E	0.030	0.76	0.035	0.89

## THICKNESS (DIM C) MAXIMUM

	GLASS LID		CERAMIC LID	
	inches	mm	inches	mm
SM1	0.053	1.35	0.067	1.70
SM2/SM4	0.055	1.40	0.069	1.75
SM3/SM5	0.058	1.47	0.072	1.83

10120 - Rev D



## SPECIFICATIONS

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

Fundamental Frequency	10 MHz	32 MHz	155.52 MHz
Motional Resistance $R_1$ ( $\Omega$ )	60	25	10
Motional Capacitance $C_1$ (fF)	2.8	6.2	4.0
Quality Factor Q (k)	95	30	30
Shunt Capacitance $C_0$ (pF)	1.4	2.3	2.3
Calibration Tolerances <sup>1</sup>	$\pm 100$ ppm, or tighter as required		
Load Capacitance <sup>2</sup>	20 pF for $f \leq 50$ MHz		
	10 pF for $f > 50$ MHz		
Drive Level	500 $\mu$ W MAX for $f \leq 50$ MHz		
	200 $\mu$ W MAX for $f > 50$ MHz		
Frequency-Temperature Stability <sup>1,3</sup>	$\pm 50$ ppm to $\pm 10$ ppm (Commercial)		
	$\pm 100$ ppm to $\pm 20$ ppm (Industrial)		
	$\pm 100$ ppm to $\pm 30$ ppm (Military)		
Aging, first year <sup>4</sup>	5 ppm MAX (less than 1 ppm available)		
Shock, survival <sup>5</sup>	3,000 g, 0.3 ms, 1/2 sine		
Vibration, survival <sup>6</sup>	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.		

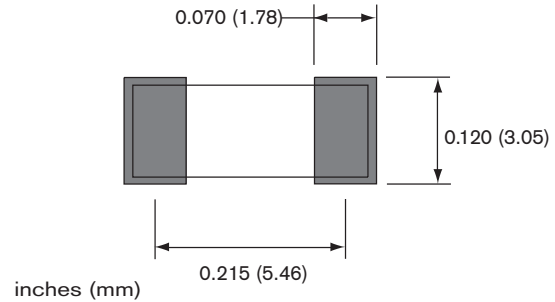
1. Other tolerances available. Contact factory.
2. Unless specified otherwise.
3. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
4. 10 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
5. Higher shock version available.
6. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

## TERMINATIONS

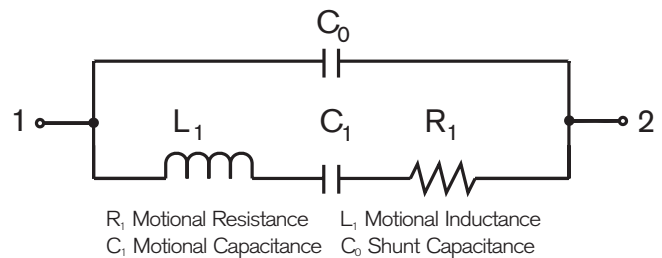
Designation	Termination
SM1	Gold Plated (Lead Free)
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

Max Process Temperature 260°C for 20 sec.

## SUGGESTED LAND PATTERN



## EQUIVALENT CIRCUIT



## PACKAGING OPTIONS

- Tray Pack
- 16mm tape, 7" or 13" reels  
Per EIA 481 (see Tape and Reel data sheet 10109)

## HOW TO ORDER CX3SM AT CRYSTALS

