

# **CX1SM AT CRYSTAL**

6 MHz to 250 MHz Miniature Surface Mount AT Quartz Crystal

Fundamental Mode: 6 MHz - 250 MHz

### **DESCRIPTION**

STATEK's miniature CX1SM AT crystals in leadless ceramic packages are designed for surface mounting on printed circuit boards or hybrid substrates. Due to its robust design, this product has gained wide acceptance in the industry.

#### **FEATURES**

- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques
- Low profile 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

## **APPLICATIONS**

## Medical

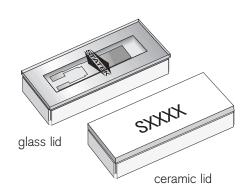
- Infusion Pumps
- Monitoring Equipment

Industrial, Computer & Communications

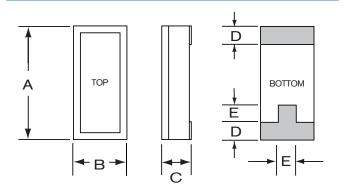
- Instrumentation
- Process Control
- Environmental Control
- Telemetry

Military & Aerospace

- Communications
- Satellite Command and Control
- Cockpit Electronics
- Smart Munitions
- Timing Devices (Fuzes)



### PACKAGE DIMENSIONS



	TYPICAL		MAXIMUM		
DIM	inches	mm	inches	mm	
Α	0.315	8.00	0.330	8.38	
В	0.140	3.56	0.155	3.94	
С	-	-	see below		
D	0.045	1.14	0.055	1.40	
Е	0.060	1.52	0.070	1.78	

### THICKNESS (DIM C) MAXIMUM

	GLASS LID		CERAMIC LID	
	inches	mm	inches	mm
SM1	0.065	1.65	0.070	1.78
SM2/SM4	0.067	1.70	0.072	1.83
SM3/SM5	0.070	1.78	0.075	1.90

10107 - Rev D



### **SPECIFICATIONS**

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

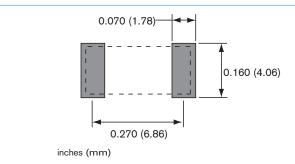
Specifications are subject to change without notice.				
Fundamental Frequency	<u>10 MHz</u>	<u>32 MHz</u>	<u>155.52 MHz</u>	
Motional Resistance $R_1(\Omega)$	30	25	15	,
Motional Capacitance C <sub>1</sub> (fF)	5.5	6.2	4.0	
Quality Factor Q (k)	100	30	30	•
Shunt Capacitance $C_0$ (pF)	2.2	2.3	2.3	
Calibration Tolerance <sup>1</sup>	± 100 pp	m, or tighte	er as required	•
Load Capacitance <sup>2</sup>	20 pF for f ≤ 50 MHz			
	10 pF for	f > 50 MH	Ηz	
Drive Level	500 μW I	MAX for f =	≤ 50 MHz	
	200 μW I	MAX for f	> 50 MHz	
Frequency-Temperature Stability <sup>1,3</sup>	± 100 pp	m to ± 20 p	opm (Commercia opm (Industrial) opm (Military)	.l)
Aging, first year4			an 1ppm available)	
Shock, survival <sup>5</sup>	3,000 g, 0	0.3 ms, 1/5	2 sine	
Vibration, survival <sup>6</sup>	20 g, 10-	2,000 Hz s	swept sine	
Operating Temp. Range	-40°C to -	+70°C (Cc +85°C (In +125°C (M	dustrial)	
Storage Temp. Range	-55°C to -	+125°C		

## **TERMINATIONS**

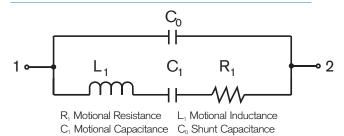
<u>Designation</u>	<u>Termination</u>
SM1	Gold Plated (Lead Free)
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

Max Process Temperature 260°C for 20 sec.

### SUGGESTED LAND PATTERN



## **EQUIVALENT CIRCUIT**



 $1. \ Other \ tolerances \ available. \ Contact \ factory.$ 

Max Process Temperature

- 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.

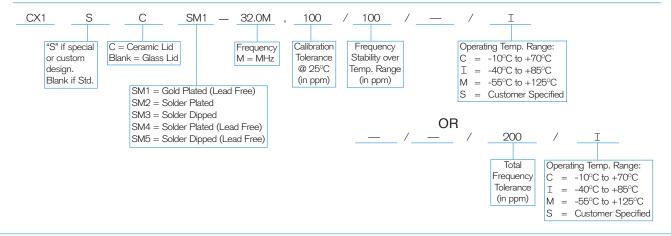
260°C for 20 sec.

- 5 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
- 5. Higher shock version available. Refer to data sheet model CX1HGSM AT (10108).
- 6. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

## PACKAGING OPTIONS

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

## HOW TO ORDER CX1SM AT CRYSTALS



10107 - Rev D

