



SWCX1 SWEPT QUARTZ CRYSTAL

6 MHz to 250 MHz
Radiation Resistant, Surface Mount

DESCRIPTION

For applications that require resistance to radiation, Statek offers swept quartz AT-cut resonators. Made with cultured quartz that is electrically “swept” at high temperature, these resonators are superior to those utilizing non-swept quartz in maintaining their frequency and other electrical characteristics under exposure to radiation levels of 100 krad (1 kGy) and greater. As Rad-Hard applications typically require various degrees of high-reliability components, Statek offers these resonators in three distinct screening options to meet mission critical program requirements from Engineering to Flight.

FEATURES

- Radiation tolerance up to 100 kRad total dose
- High shock resistance, three point mount*
- Ultra high reliability
- Custom designs available
- Military and space screening available
- Low aging
- Critical processes performed in class 10 cleanroom
- Designed, manufactured and tested in the USA

* Meets NASA EEE-INST-002

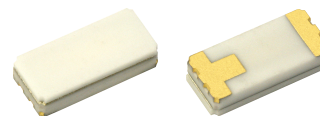
APPLICATIONS

Military & Aerospace

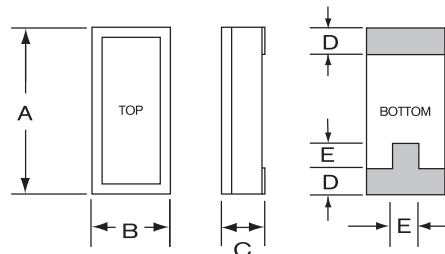
- Satellite
- Space exploration systems
- Deep space probes
- Telemetry

PACKAGING OPTIONS

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

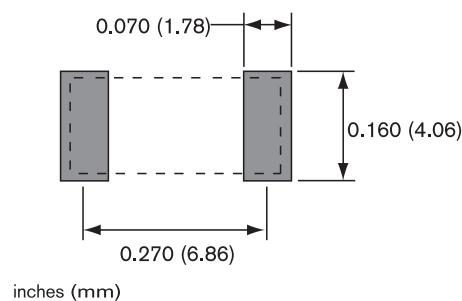


PACKAGE DIMENSIONS



DIM	Termination	TYPICAL		MAXIMUM	
		inches	mm	inches	mm
A		0.315	8.00	0.330	8.38
B		0.140	3.56	0.155	3.94
C	SM1	—	—	0.070	1.78
C	SM3	—	—	0.075	1.90
D		0.045	1.14	0.055	1.40
E		0.060	1.52	0.070	1.78

SUGGESTED LAND PATTERN



TERMINATIONS AVAILABLE SM

Designation	Termination
SM1	Gold Plated
SM3	Solder Dipped

10199 Rev E



ELECTRICAL SPECIFICATIONS TABLE¹ (Specifications shown are typical unless otherwise noted.)

SM	Frequency Range	Motional Resistance R1 @ 25°C	Motional Capacitance C1 @ 25°C	Shunt Capacitance C0 @ 25°C	Quality Factor (Q) @ 25°C	Load Capacitance CL	Drive Level
SWCX1 SWCX1	6.0 MHz to 250 MHz	25 Ω @ 32 MHz 15 Ω @ 155.2 MHz	6.2 fF @ 32 MHz 4.0 fF @ 155.2 MHz	2.3 pF @ 32 MHz 2.3 pF @ 155.2 MHz	30 k @ 32 MHz 30 k @ 155.2 MHz	20 pF, f ≤ 50 MHz 10 pF, f > 50 MHz	500 μW Max f ≤ 50 MHz 200 μW Max f > 50 MHz

GENERAL SPECIFICATIONS TABLE¹ (Specifications shown are typical unless otherwise noted.)

SM	Frequency Range	Calibration Tolerance @ 25°C	Frequency Temperature Stability	Aging, first year	Shock, survival ²	Vibration, survival	Standard CX data sheet
SWCX1 SWCX1	6.0 MHz to 250 MHz	±100 ppm, or tighter as required	Please refer to CX1 AT data sheet	2 ppm Max	3,000 g peak 0.3 ms, 1/2 sine	20 g, 10-2,000 Hz swept sine	10127 CX1 AT/ 10107 CX1 SM AT

1. For more detailed specifications on crystals, refer to standard crystal datasheets.

2. Higher shock available.

STANDARD TESTS & SCREENING OPTIONS

Code			Item	Method	Comments
S	M	E			
X	X	X	Made with swept quartz		
X	X		Internal visual (pre-seal)	Statek internal standard	
X			PIND testing	MIL-STD-883 Method 2020 Condition A	Performed in both the width and thickness directions.
X			Radiographic inspection	MIL-STD-202 Method 209	
X	X		Unwanted modes	MIL-PRF-3098	Spurious-mode ratio 2:1 or greater
X	X		Low temperature storage	MIL-PRF-3098	Resistance must meet specifications at this low temperature.
X	X		Frequency and resistance over operating temperature range	MIL-PRF-3098	Measure every 2.5°C or tighter over operating temperature range; frequency and resistance must meet specification.
X	X		Accelerated aging	105°C for 160 hours	Frequency and resistance must meet specification after aging; maximum allowed change in series frequency 5 ppm.
X	X	X	Seal test (fine leak)	MIL-STD-883 Method 1014 Condition A1	
X	X	X	Seal test (gross leak)	MIL-STD-883 Method 1014 Condition C	
X	X	X	Final electrical test	π-network measurement per IEC 60444	Measure F _S , R ₁ , C ₁ , C ₀ , Q and F _L
X	X	X	External visual (post seal)	Statek internal standard	

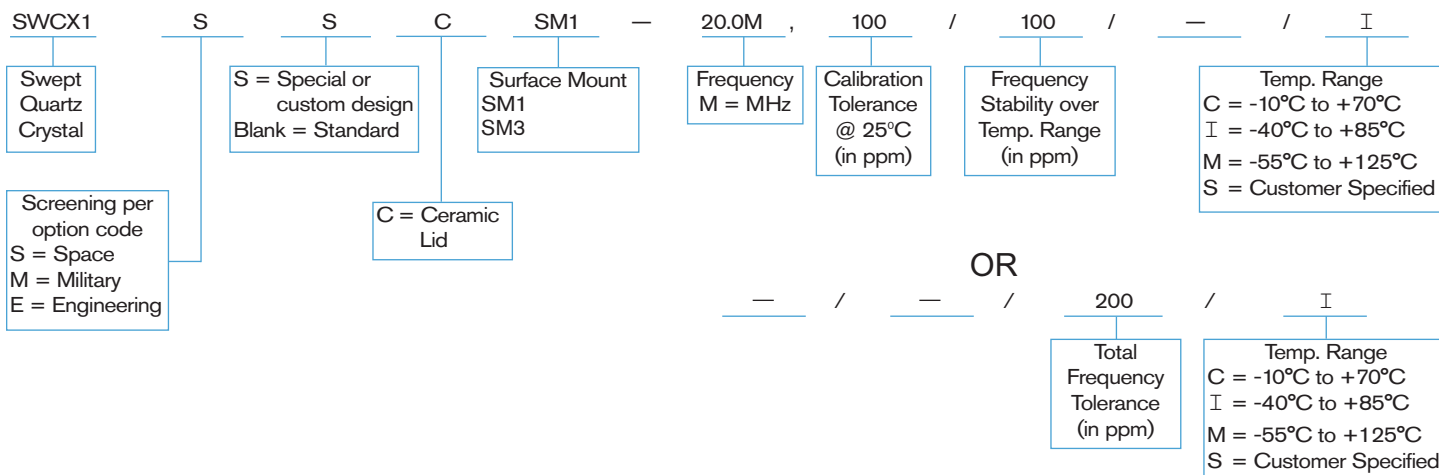
S: For space-based applications.

M: For military applications.

E: For engineering prototypes and applications not requiring the additional screening.

HOW TO ORDER SWCX1 SWEPT CRYSTALS

NOTE: Example only. For specific ordering requirements, call us at +1 714-639-7810



10199 Rev E