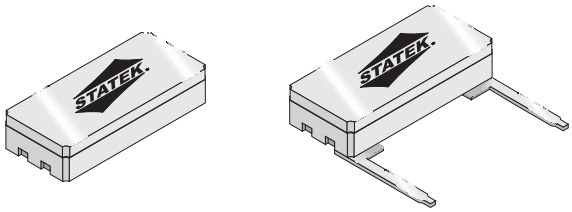
SWCX1 SWEPT QUARTZ CRYSTALS

6 MHz to 250 MHz

Radiation Resistant, Miniature Surface Mount and Leaded Quartz Crystals

DESCRIPTION

For applications that require resistance to radiation, Statek offers our swept quartz AT-cut resonators. Made with cultured quartz that is electrically "swept" at high temperature to remove interstitial impurities within the crystalline structure, 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 and vibration resistance
- Ultra high reliability
- Custom designs available
- Military and space screening available
- Low aging
- Designed, manufactured and tested in the USA
- Critical processes performed in class 10 cleanroom

APPLICATIONS

Military & Aerospace

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

PACKAGING OPTIONS

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

DIMENSIONS[1]

	Surface Mount		Leaded	
	TYPICAL		TYPICAL	
DIM	inches	mm	inches	mm
A	0.315	8.00	0.315	8.00
B	0.140	3.56	0.140	3.56
C (max)	0.070	1.78	0.070	1.78
D	0.045	1.14	0.310	7.87
E	0.060	1.52	0.020	1.02
F	-	-	0.150	3.81

03 Lead dimension
Width = .018" (.46 mm) typical
Thickness = .012" (.30 mm) typical

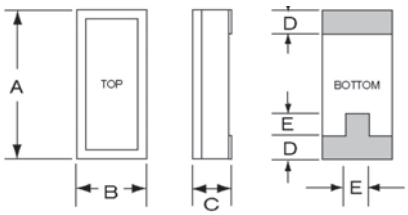
1. Other package options are available; contact factory

TERMINATIONS AVAILABLE SM / LEADED

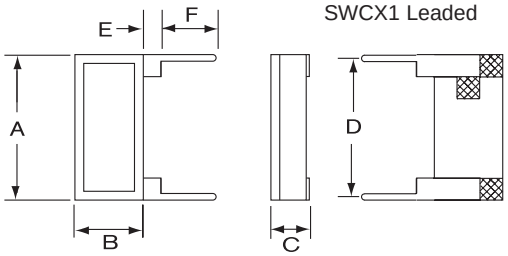
Designation	Termination

PACKAGE DIMENSIONS

SWCX1 SM



SWCX1 Leaded



ELECTRICAL SPECIFICATIONS TABLE[1] (Specifications shown are typical unless otherwise noted.)

SM or Leaded	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 (SM) SWCX1 (03)	6.0 MHz to 250 MHz	25 @ 32 MHz 15 @ 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 TABLE[1] (Specifications shown are typical unless otherwise noted.)

SM or Leaded	Frequency Range	Calibration Tolerance @ 25°C	Frequency Temperature Stability	Aging, first year	Shock, survival[2]	Vibration, survival	Standard CX data sheet
SWCX1 (SM) SWCX1 (03)	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, ½ 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 specification at this low temperature.
x	x		Frequency and resistance over operating temperature range	MIL-PRF-3098	Measure every 2.5 degree C or tighter over operating temperature range; frequency and resistance must meet specification.
x	x		Accelerated aging	105 degree C for a minimum of 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.