

ISSUE 1; June 2019

**Description**

- This product is designed and manufactured by Statek Corporation in California, USA and distributed by IQD. An increasing number of applications require the use of high-temperature crystals. For these applications, we offer CX4VHT crystals. These crystals are designed to operate at temperatures up to and including 200°C, and feature an expected life in excess of 1,000 hours at these temperatures. The frequency range offered is 30kHz to 250kHz
- -SM1 SM1 (gold plated, RoHS compliant)
- -SM5 SM5 (Solder dipped, RoHS compliant)
- Please note that all data is only valid at 25°C unless otherwise stated.

**Frequency Parameters**

- Frequency 30.0kHz to 250.0kHz
- Frequency Tolerance ±30.00ppm to ±5,000.00ppm
- Tolerance Condition @ 25°C
- Ageing ±5ppm max in first year @ 25°C

**Electrical Parameters**

- Load Capacitance (CL) 9.0pF
- Shunt Capacitance (C0) 1.1pF typ
- Drive Level 0.5µW Max
- Typical Motional Values @ 32.768kHz:  
R1 70kΩ  
C1 2.3fF  
Q 31k  
Co 1.1pF  
Turnover Temperature 23°C  
R1 @ 150°C 100kΩ  
R1 @ 200°C 125kΩ  
Drive Level 0.5µW max
- Actual Frequency Shift (@ 32.768kHz):  
1008 Hours 1824 Hours  
150°C 1.97ppm 2.51ppm  
175°C 4.80ppm 5.66ppm  
200°C 29.40ppm 36.82ppm
- Projected Frequency Shift (@ 32.768kHz using curve fitting):  
4320 Hours 8760 Hours  
150°C 3.30ppm 3.94ppm  
175°C 6.94ppm 7.99ppm  
200°C 47.61ppm 56.46ppm

**Frequency Adjustment**

- Temperature Coefficient: -0.035ppm/°C<sup>2</sup>

**Operating Temperature Ranges**

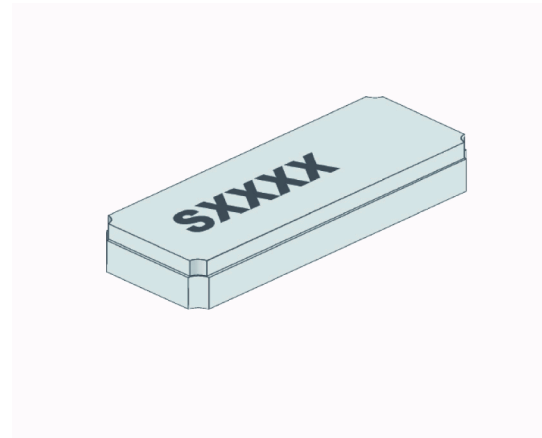
- 0 to 200°C

**Environmental Parameters**

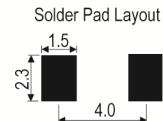
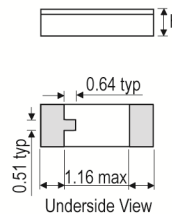
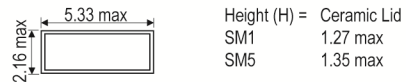
- Vibration: 20G rms, 10-2000Hz
- Shock: 5000G 0.3ms, 1/2 sine
- Storage temperature range -55 to 125°C

**Manufacturing Details**

- Maximum process temperature: 260°C for 20s



**Outline (mm) -SM1 = SM1 (gold plated, RoHS compliant)**



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**Ordering Information**

- Termination Variants:  
SM1 = Gold Plated (RoHS)  
SM5 = Solder Dipped (RoHS)
- Example:  
32.768kHz CX4VHT TF-SM1  
±100ppm 0+200C FUND
- Minimum Required\*:  
Frequency\*  
Model\*  
Termination Variant\*  
Frequency Tolerance (@25°C)\*  
Operating Temperature Range\*  
Load Capacitance

**Compliance**

- RoHS Status (2015/863/EU)      Optional
- REACH Status                      Compliant
- MSL Rating (JDEC-STD-033):    Not Applicable

**Packaging Details**

- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
Pack Size: 1,000
- Pack Style: Tray      Supplied on a tray  
Pack Size: 1

**Electrical Specification - maximum limiting values**

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
30.00kHz	250.00kHz	0 to 200		Fundamental	- 0

\*Stability Maximum values ±0ppm

*This document was correct at the time of printing; please contact your local sales office for the latest version.  
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