

ISSUE 2; 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, IQD offers Statek's CX1VHT 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 10kHz to 600kHz.
- -SM1 SM1 (Gold Plated, RoHS compliant)
- -SM5 SM5 (Solder Dipped, RoHS compliant)
- Features:
High temperature operation up to 200°C
High shock resistance
Hermetically sealed ceramic package
- Applications:
Industrial
Downhole instrumentation
Rotary shaft sensors
Underground boring tools

Frequency Parameters

- Frequency 10.0kHz to 600.0kHz
- Frequency Tolerance ±30.00ppm to ±5,000.00ppm
- Ageing ±5ppm max in 1st year @ 25°C
- Frequency Stability: $(f(T) - f(T_0)) / f(T_0) = k(T - T_0)^2$
where $f(T)$ = frequency at temperature T, T = temperature, T_0 = turnover temperature, F_0 = frequency at turnover temperature T_0
- Temperature Coefficient (k): -0.035ppm/°C²

Electrical Parameters

- Load Capacitance (CL) 4.0pF to 11.0pF
- Shunt Capacitance (C0) 1.7pF typ 32.768kHz
- Drive Level 0.5µW 10-24.9kHz, 1µW max 25-600kHz
- Motional Resistance (@ 32.768kHz): 40kΩ typ, 55kΩ @ 150°C, 73kΩ @ 200°C
Motional Capacitance (@ 32.768kHz): 2.3fF typ
Quality Factor (@ 32.768kHz): 53k typ
Turnover Temperature (To): 26°C
- Please note that all data is only valid at 25°C unless otherwise stated.

Operating Temperature Ranges

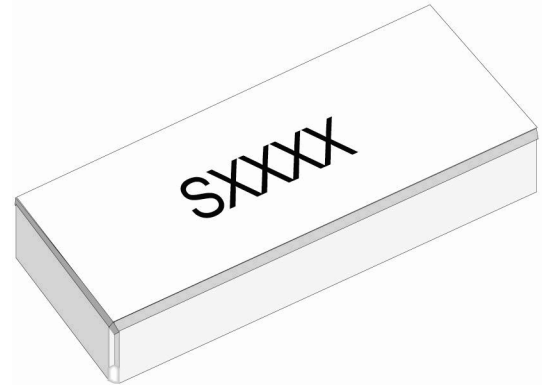
- 0 to 200°C

Environmental Parameters

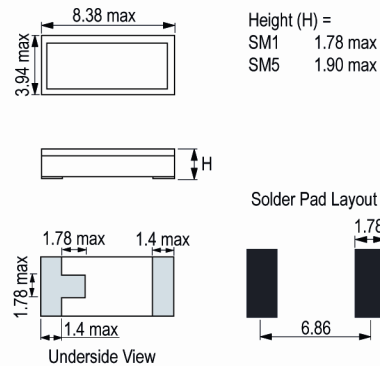
- Shock: 1000g, 1ms, 1/2 sine
- Vibration: 20g rms, 10-2000Hz
- Storage Temperature: -55 to 125°C
- Higher shock and vibration specifications available: please contact the IQD Sales Office to discuss specific requirements

Manufacturing Details

- RoHS Reflow 260°C max for 20 sec max



Outline (mm) -SM1 = SM1 (Gold Plated, RoHS compliant)



Frequency Shift vs Time

Temp.	Frequency shift after:			
	1008 hours (Actual Data)	1824 hours (Actual Data)	4320 hours ² (Actual Data)	8760 hours ² (Actual Data)
150°C	1.97ppm	2.51ppm	3.30ppm	3.94ppm
175°C	4.80ppm	5.66ppm	6.94ppm	7.99ppm
200°C	29.40ppm	36.82ppm	47.61ppm	56.46ppm

1. The data listed in this table is for a 32.768kHz CX4 crystal.
2. The data shown for 4320 hours and 8760 hours is data that has been projected using a curve-fitting method.

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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 Tray
Pack Size: 1

Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
10.00kHz	600.0kHz	0 to 200		Fundamental	- 0

*Stability Maximum values ± 0 ppm

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