



Description

- 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 (Gold Plated, RoHS compliant)
- Model CX1VHT TF-SM1
- Model Issue number 2

Frequency Parameters

- Frequency 32.7680kHz
- Frequency Tolerance $\pm 50.00\text{ppm}$
- Operating Temperature Range 25.00 to 150.00°C
- Overtone Order Fundamental
- Ageing $\pm 5\text{ppm}$ 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): $-0.035\text{ppm}/^\circ\text{C}^2$

Electrical Parameters

- Load Capacitance (CL) 9.00pF
- Shunt Capacitance (C0) 1.7pF typ 32.768kHz
- Drive Level 0.5μW 10-24.9kHz, 1μW max 25-
- 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 (T_0): 26°C
- Please note that all data is only valid at 25°C unless otherwise stated.

Environmental Parameters

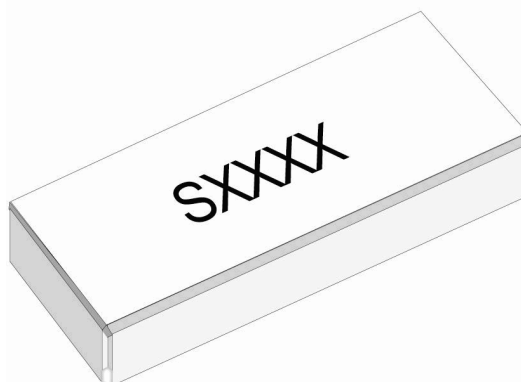
- Shock: 1000g, 1ms, 1/2 sine
- Vibration: 20g rms, 10-2000Hz
- Storage Temperature: -55 to 125°C
- RoHS Terminations
- RoHS Reflow Temp 260°C max for 20 sec max

Compliance

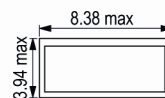
- RoHS Status (2011/65/EU) Optional
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Packaging Details

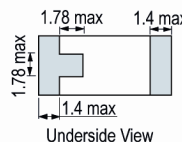
- Pack Style: Tray Tray
- Pack Size: 1
- Alternative packing option available



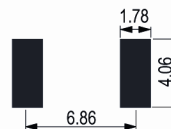
Outline (mm)



Height (H) =
SM1 1.78 max
SM5 1.90 max



Solder Pad Layout



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

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

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