

ISSUE 1; January 2020

**Description**

- This product is designed and manufactured by Statek Corporation in California, USA and distributed by IQD. The CX11VSM tuning-fork quartz crystal has an extremely small footprint (3.2mm x 1.5mm) and a very low profile (under 1mm). For applications where space or mass are a premium, the small size and low mass of the CX11VSM make it the ideal choice.
- -C SM1 Ceramic lid SM1 (Gold Plated, RoHS compliant)
- Please note that all data is only valid at 25°C unless otherwise stated.

**Frequency Parameters**

- Frequency 32.0kHz to 180.0kHz
- Frequency Tolerance ±20.00ppm to ±100.00ppm
- Tolerance Condition @ 25°C
- Ageing ±3ppm max in 1st year
- The crystal frequency (f) as a function of temperature (T) follows the parabolic relationship:  
 $f(T) = f(T_0)[1+k(T-T_0)^2]$   
 Where  $T_0$  is the turnover temperature and k is the frequency stability coefficient
- Frequency Stability Coefficient (k): -0.035ppm/°C<sup>2</sup>

**Electrical Parameters**

- Load Capacitance (CL) 9.0pF
- Shunt Capacitance (C0) 1pF typ @ 32.7680kHz
- Drive Level 0.5µW max
- Typical:
 

Fundamental Frequency	32.7680kHz	50.0kHz	100.0kHz
Motional Resistance (R1)	50kΩ	40kΩ	20kΩ
Motional Capacitance (C1)	3.5fF	1.4fF	1.0fF
Quality Factor (Q)	25k	55k	70k
- Typical:
 

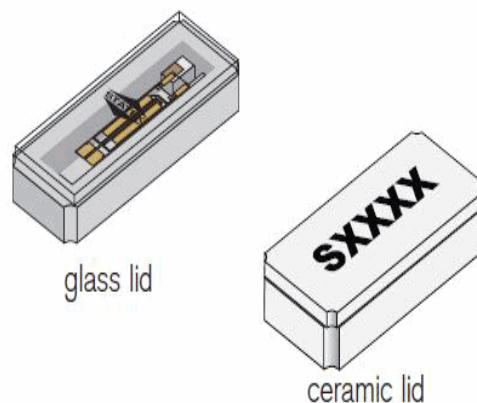
Fundamental Frequency	32.7680kHz	50.0kHz	100.0kHz
Shunt Capacitance (Co)	1.0pF	0.8pF	0.8pF
Load Capacitance (CL)	9pF	9pF	9pF
Mass (SM1, ceramic lid)	12mg	12mg	12mg
Turnover Temperature (To)	25°C	17°C	18°C
- Note:
  - Other load capacitances are available
  - Other turnover temperatures are available
  - Tighter frequency tolerances are available
  - Please contact an IQD Sales Office for further information

**Operating Temperature Ranges**

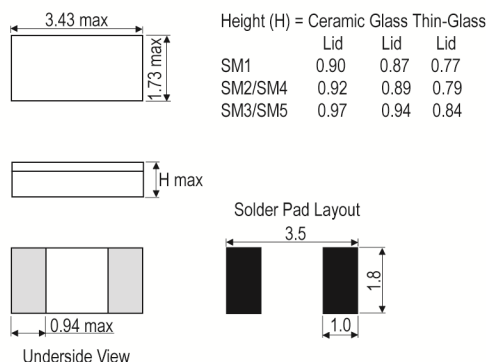
- -10 to 70°C
- -40 to 85°C
- -55 to 125°C

**Environmental Parameters**

- Shock: 5000G, 0.3ms, 1/2 sine
- Vibration: 20G, 10-2000Hz swept sine
- Storage Temperature Range: -55 to 125°C



**Outline (mm) -C SM1 = Ceramic lid SM1 (Gold Plated, RoHS compliant)**



**Sales Office Contact Details:**

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### Manufacturing Details

- FEATURES:
  - Ultra-miniature
  - Low profile (less than 1mm)
  - Low mass (12mg for SM1 with ceramic lid)
  - Surface mount
  - Available with ceramic or glass lid
  - High shock and vibration survival
  - Excellent ageing characteristics
  - Ideal for low power applications
- APPLICATIONS:
  - Medical -
    - CRM
    - Infusion pumps
    - Diabetes Control
- Maximum Process Temperature: 260°C for 20 sec

### Ordering Information

- Frequency\*
- Model\*
- Lid\*
- Termination Variant\*
- Frequency Tolerance (@ 25°C)\*
- Operating Temperature Range\*
- Load Capacitance\*
- Overtone
- (\*minimum required)
- Lid Options:
  - Glass - blank
  - Thin Glass - T
  - Ceramic - C
- Termination Variants:
  - Gold Plated - SM1
  - Solder Plated - SM4
  - Solder Dipped - SM5

(Note: non-RoHS compliant terminations are available - please contact our sales offices)
- Example
  - 32.7680kHz CX11V TF-C SM1
  - 100/-/-55 to 125C/9 FUND

### 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  
Pack Size: 1

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**Electrical Specification - maximum limiting values**

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
32.000kHz	180.00kHz	-10 to 70		Fundamental	- 0
		-40 to 85			- 0
		-55 to 125			- 0

\*Stability Maximum values  $\pm 0$ ppm

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

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