

ISSUE 1; January 2016

Description

- 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/°C²

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:

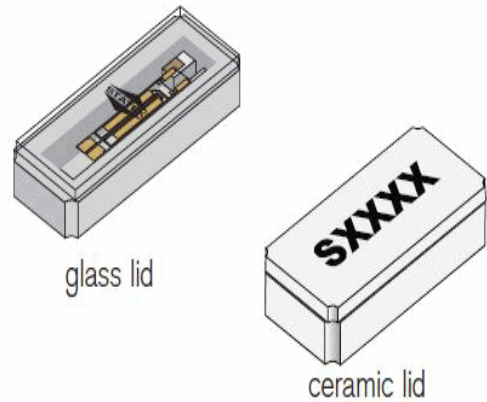
Fundamental Frequency	32.7680kHz	50.0kHz	100.0kHz
Shunt Capacitance (Co)	1.0pF	0.8pF	0.8pF
Load Capacitance (CL)	9pF	9pF	9pF
Mass (SM1, ceramic lid)	12mg	12mg	12mg
Turnover Temperature (To) 25°C	17°C	18°C	
- Note:
 - Other load capacitances are available
 - Other turnover temperatures are available
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

Operating Temperature Ranges

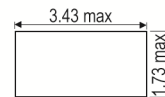
- -10 to 70°C
- -40 to 85°C
- -55 to 125°C

Environmental Parameters

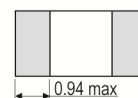
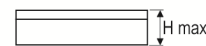
- Shock: 5000G, 0.3ms, 1/2 sine
- Vibration: 20G, 10-2000Hz swept sine
- Storage Temperature Range: -55 to 125°C



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

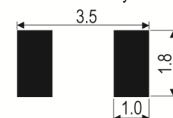


	Height (H) = Ceramic Glass Thin-Glass		
	Lid	Lid	Lid
SM1	0.90	0.87	0.77
SM2/SM4	0.92	0.89	0.79
SM3/SM5	0.97	0.94	0.84



Underside View

Solder Pad Layout



Sales Office Contact Details:

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USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
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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
 - Full military testing available
- 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 (2011/65/EU) Optional
- REACh Status Compliant
- MSL Rating (JEDEC-STD-033): Not Applicable

Packaging Details

- Pack Style: Tray Tray pack
- Pack Size: 1
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
- Pack Size: 1,000

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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 -40 to 85 -55 to 125		Fundamental	- - -

*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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