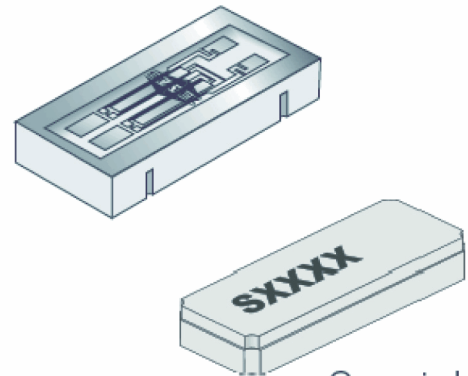


ISSUE 1; January 2016

Description

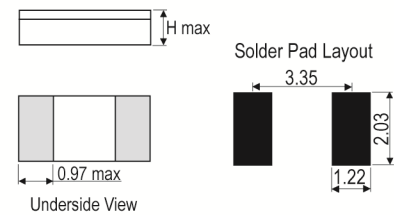
- The CX9V TF quartz crystal is available in frequencies from 32 kHz to 160 kHz. Using micro-machining processes, this surface-mountable crystal is hermetically sealed within an ultra-miniature ceramic package to ensure high stability and low ageing. Tight calibration and high frequency/temperature stability make the CX9V TF ideally suited for all low frequency applications.
- -SM1 SM1 (Gold Plated RoHS)
- -SM1-C SM1-C (Gold Plated, ceramic lid, RoHS)
- -SM4 SM4 (Solder Plated, RoHS)
- -SM4-C SM4-C (Solder Dipped, ceramic lid, RoHS)
- -SM5 SM5 (Solder Dipped, RoHS)
- -SM5-C SM5-C (Solder Dipped, ceramic lid, RoHS)
- **FEATURES:**
 - Ultra-miniature, surface mount design
 - Low profile
 - Available with glass or ceramic lid
 - Hermetically sealed ceramic package
 - High shock and vibration survival
 - Excellent ageing characteristics
 - Designed for low power applications
 - Full military testing available
- **APPLICATIONS:**
 - Medical -
 - Pacemaker, defibrillator and other implantables
 - Medical instruments
 - Industrial, Computer & Communications -
 - Smart card
 - Down hole instrumentation
 - Transponder / Animal migration
 - Process instrumentation
 - Military & Aerospace -
 - Airborne hybrid
 - Navigational computer
 - Real time clock
- Please note that all data is only valid at 25°C unless otherwise stated.



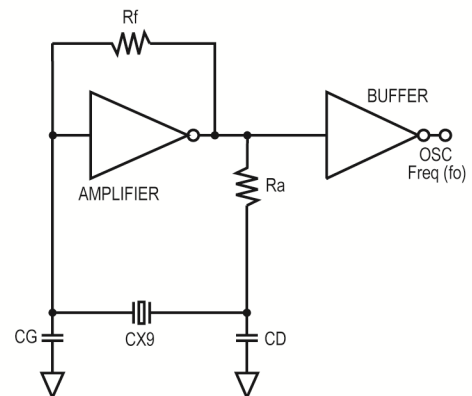
Ceramic Lid

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

	Height (H) = Glass Ceramic	
	SM1	0.87 0.90
	SM2/SM4	0.87 0.90
	SM3/SM5	0.91 0.94



Conventional CMOS Pierce Oscillator Circuit



Frequency Parameters

- Frequency 32.0kHz to 160.0kHz
- Frequency Tolerance ±30.00ppm to ±10,000.00ppm
- Tolerance Condition @ 25°C
- Ageing ±5ppm max in 1st year @ 25°C
- Frequency (f) at temperature (T) deviation from frequency (fo) at turning point temperature (To): $(f - fo)/fo = k(T - To)^2$
- Note: Tighter Frequency Tolerances are available - please contact an IQD Sales Office

Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Electrical Parameters

- Load Capacitance (CL) 5.0pF to 9.0pF
- Shunt Capacitance (C0) 1.0pF typ
- Drive Level 0.5µW max
- Typical Motional Values:

Frequency	32.768kHz	100kHz
Motional Resistance R1 (kΩ)	60	19
Motional Capacitance C1 (fF)	2.2	1.0
Quality Factor Q (k)	37	80
Shunt Capacitance C0 (pF)	1.0	0.84
Load Capacitance (pF)	9	5
Turning Point (°C)	20	16
- Note: Other load capacitances and other turning point temperatures are available - please contact an IQD Sales Offices
- Temperature Coefficient: -0.035ppm/°C²

Operating Temperature Ranges

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

Environmental Parameters

- Shock: 5000G, 0.3ms, 1/2 sine
Note: Higher shock values also available - please contact an IQD Sales Offices
- Vibration: 20G rms, 10-2000Hz random
- Storage Temperature Range: -55 to 125°C

Manufacturing Details

- Maximum Process Temperature: 260°C for 20sec max

Ordering Information

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

Note: non-RoHS compliant terminations are available - please contact an IQD Sales Office
- Example
 - 100.0kHz CX9V TF-C-SM1
 - 100/-/-40 to 85C/5 FUND

Compliance

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

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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

Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
32.000kHz	160.00kHz	-10 to 70		Fundamental	-
		-40 to 85			-
		-55 to 125			-

*Stability Maximum values ± 0 ppm

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

[Click to view latest version on our website.](#)

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