

ISSUE 1; July 2016

**Description**

- The IQXC-138 is a low profile SMD AT-cut quartz crystal in a ceramic package with a 2.0 x 1.6mm footprint.
- Applications:  
Automotive  
GPS  
Communications  
Feature phone  
Consumer
- Features:  
Low ageing  
Low hysteresis  
Wide temperature range

**Frequency Parameters**

- Frequency 19.2MHz to 52.0MHz
- Frequency Tolerance  $\pm 10.00\text{ppm}$  to  $\pm 50.00\text{ppm}$
- Tolerance Condition @ 25°C  $\pm 2^\circ\text{C}$
- Frequency Stability  $\pm 15.00\text{ppm}$  to  $\pm 50.00\text{ppm}$
- Ageing  $\pm 1\text{ppm}$  max per year @ 25°C
- Reflow shift (Two consecutive reflow as per profile after 4 hours recovery at 25°C):  $\pm 1\text{ppm}$  max
- Frequency stability over temperature referenced to frequency reading at 25°C and the specified load capacitance.
- Frequency perturbations (Peak-to-peak deviation from the frequency versus temperature curve fit 5th order. Minimum of 1 frequency reading every 3°C over operating temperature range): 1ppm max
- Pullability (load and frequency dependant): 0.5ppm/pF min

**Electrical Parameters**

- Load Capacitance (CL) 5.0pF to 32.0pF
- Shunt Capacitance (C0) 0.5 to 3pF
- Drive Level 30µW max

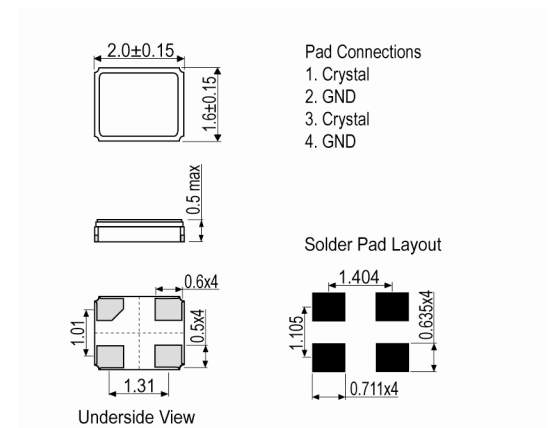
**Operating Temperature Ranges**

- -40 to 85°C

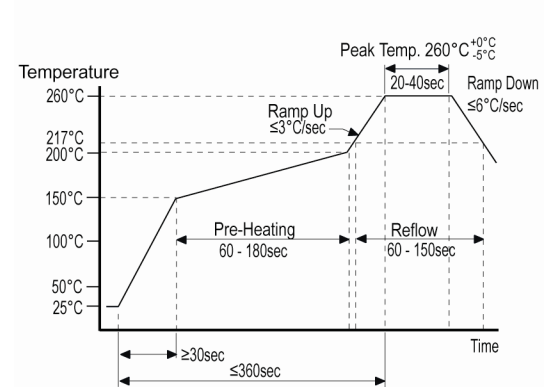
**Environmental Parameters**

- g Sensitivity Gamma vector of all three axes from 30Hz to 1500Hz at 10RMS: 2ppb/g max
- Insulation Resistance (100V  $\pm 15\text{V}$  at 25°C): 500MΩ min
- Shock: Half sine-wave acceleration of 3000G peak amplitude. Duration: 0.3ms, Velocity: 12.3ft/s [MIL-STD-202 M213]
- Moisture resistance: 1000 hours at 85°C, 85% Relative Humidity. Biased. [MIL-STD-202 M106G]
- Temperature cycling: 1000 temperature cycles, where each cycle consists of a 25 minute soak time at -45°C followed by a 25 minute soak time at 85°C, with a 60 second maximum transition time between temperatures. Air to air transition. [JESD22 METHOD JA-104C]
- Vibration 5g for 20 minutes. 12 cycles in each of 3 orientations. Test from 10-2000 Hz [JESD22-B103-B]
- Storage temperature: -55 to 105°C

**Outline (mm)**



**Pb-Free Reflow**



**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](mailto:info@iqdfrequencyproducts.com)  
Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

#### Ordering Information

- \*minimum information required  
Frequency\*  
Model\*  
Frequency Tolerance\*  
Frequency Stability\*  
Operating Temperature Range\*  
Load Capacitance\*

#### Compliance

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

#### Packaging Details

- Pack Style: Reel      Tape & Reel in accordance with EIA-481-D  
Pack Size: 4,000

#### Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
19.2MHz	52.0MHz	-40 to 85	±15	Fundamental	85

\*Stability Maximum values ±50ppm

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

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Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)