Quartz Crystal Specification
IQXC-140

ISSUE 1; July 2016

Description

- The IQXC-140 is a low profile SMD AT-cut quartz crystal with a thermally coupled temperature sensor in a ceramic package with a 2.0 x 1.6mm foot print.
- Applications:
  Automotive
  Communications
  GPS
  Mobile phones
  Wi-Fi
- Features:
  Low ageing
  Excellent shock and vibration performance
  Thermally coupled temperature sensor

Frequency Parameters

- Frequency 19.2MHz to 52.0MHz
- Frequency Tolerance ±10.00ppm to ±50.00ppm
- Tolerance Condition @ 25°C ±2°C
- Frequency Stability ±12.00ppm to ±50.00ppm
- Ageing ±2ppm max per year @ 25°C
- Reflow shift (Frequency shift after reflow with 4 hours settling at 25°C): ±1ppm 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): 0.5ppm max
- Pullability (load and frequency dependant): 0.5ppm/pF min

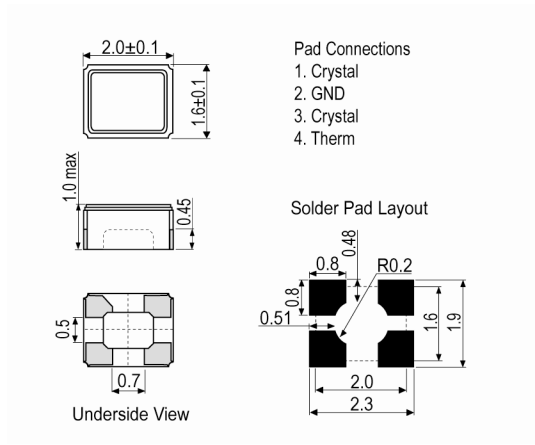
Electrical Parameters

- Load Capacitance (CL) 5.0pF to 32.0pF
- Shunt Capacitance (C0) 0.5 to 3pF
- Drive Level 100µW max
- Frequency vs Temperaure Curve Fit Coefficients:
  Inflection temperature (T0) (Reference temperature for calculation of 3rd order coefficients) 28 to 32°C
  First/second/third order coefficients: typical values using third order curve fitting referenced to T0. Calculated over the operating temperature range: TBD
- Temperature Sensor Characteristics:
  Resistance (Ro) Resistance at 25°C (To): 10 to 100kΩ
  Resistance tolerance: ±1% max
  Beta constant: (25 - 50°C) 10kΩ, calculated between two specified temperatures points R and Ro. T and To are absolute temperature (K). Beta=ln(R/Ro)/(1/T-1/To): 3380K
  Beta constant (25 - 50°C) 100kΩ, calculated between two specified temperatures points R and Ro. T and To are absolute temperature (K). Beta=ln(R/Ro)/(1/T-1/To): 4250K
  Beta Tolerrance: ±1% max
- Thermistor size: 0201

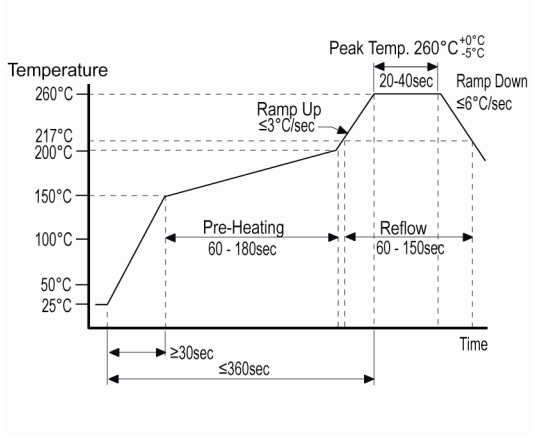
Operating Temperature Ranges

- -40 to 85°C

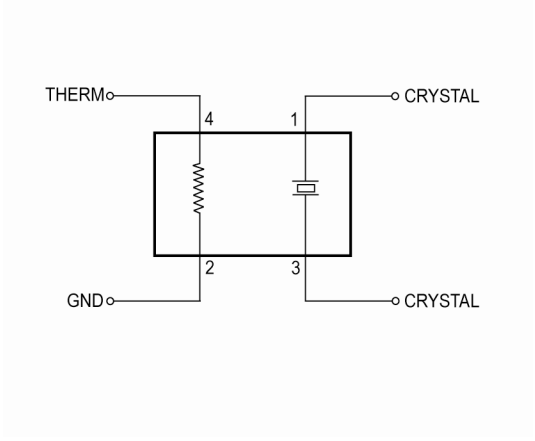
Outline (mm)



Pb-Free Reflow



Electrical Circuit



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Environmental Parameters

- g Sensitivity Gamma vector of all three axes from 30Hz to 1500Hz at 10RMS: 2ppb/g max
- Insulation Resistance (100V ±15V 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: -40 to 105ºC

Manufacturing Details

- Able to withstand aqueous washing process.

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 (JDEC-STD-033): Not Applicable

Packaging Details

- Pack Style: Reel Tape & Reel in accrordance with EIA-481-D
  Pack Size: 3,000

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	±12	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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