

## Description

- The IQXT-270-1 temperature compensated crystal oscillator (TCXO) employs an analogue ASIC for the oscillator and a high order temperature compensation circuit in a 2.0 x 1.6mm size package.

Model	IQXT-270-1
Model Issue number	1

## Frequency Parameters

- Frequency: 26.0MHz
- Frequency Tolerance:  $\pm 2.00\text{ppm}$
- Frequency Stability:  $\pm 0.50\text{ppm}$
- Operating Temperature Range:  $-30.00$  to  $85.00^\circ\text{C}$
- Ageing:  $\pm 1\text{ppm}$  max per year at  $25^\circ\text{C}$
- Frequency Tolerance: Offset from nominal frequency measured at  $25^\circ\text{C} \pm 2^\circ\text{C}$ . Two consecutive reflows as per profile shown, after 2 hours relaxation at  $25^\circ\text{C}$ .
- Frequency Stability: Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range (also see note 1).
- Frequency Slope (minimum of one frequency reading every  $2^\circ\text{C}$ , over the operating temperature range - also see note 1):  $0.1\text{ppm}/^\circ\text{C}$  max
- Static Temperature Hysteresis (frequency change after reciprocal temperature ramped over the operating range, frequency measured before and after at  $25^\circ\text{C}$ ):  $\pm 0.6\text{ppm}$  max
- Supply Voltage Variation ( $\pm 5\%$  change at  $25^\circ\text{C}$ ):  $\pm 0.1\text{ppm}$  max
- Load Variation ( $\pm 10\%$  change at  $25^\circ\text{C}$  - also see note 2):  $\pm 0.2\text{ppm}$  max
- Frequency Drift Rate:
  - Drift Period: 0.03 to 0.3 seconds:  $500\text{ppb/s}$  max
  - Drift Period: 0.3 to 1.0 seconds:  $40\text{ppb/s}$  max
  - Drift Period: 1.0 to 3.0 seconds:  $2.5\text{ppb/s}$  max

## Electrical Parameters

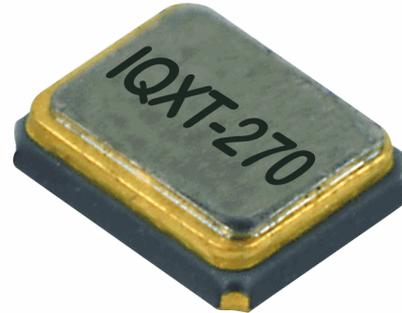
- Supply Voltage:  $1.8\text{V} \pm 5\%$
- Current Draw:  $1.50\text{mA}$
- Supply Current (at  $V_s$  max - also see note 2):  $1.5\text{mA}$  max

## Output Details

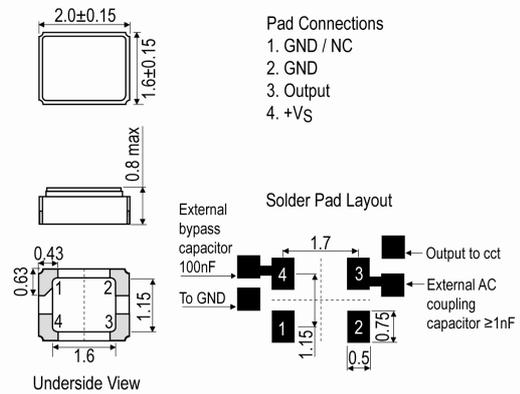
- Output Compatibility: Clipped Sine
- Drive Capability:  $10\text{k}\Omega // 10\text{pF} \pm 10\%$
- Output Voltage Level (at  $V_s$  min - also see note 2):  $0.8\text{V}$  pk-pk min
- Output: DC coupled (also see note 3)

## Noise Parameters

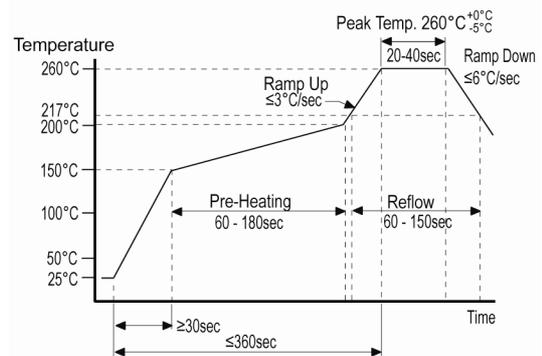
- Phase Noise at  $25^\circ\text{C}$  (typical):
  - $-65\text{dBc}/\text{Hz}$  @  $1\text{Hz}$
  - $-93\text{dBc}/\text{Hz}$  @  $10\text{Hz}$
  - $-117\text{dBc}/\text{Hz}$  @  $100\text{Hz}$
  - $-137\text{dBc}/\text{Hz}$  @  $1\text{kHz}$
  - $-149\text{dBc}/\text{Hz}$  @  $10\text{kHz}$
  - $-151\text{dBc}/\text{Hz}$  @  $100\text{kHz}$



## Outline (mm)



## Pb-Free Reflow



## Sales Office Contact Details:

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**Environmental Parameters**

- Shock: MIL-STD-202 M213 (also see note 4): Half sine-wave acceleration of 3000G peak amplitude, duration 0.3ms, velocity 12.3ft/s.
- Vibration: JESD22-B103-B (also see note 4): 10G peak acceleration for 4 minutes per sweep, 4 sweeps in each of the 3 orientations, swept from 20-2000Hz.
- Moisture Resistance: MIL-STD-202 M106g (also see note 4): 1000 hours at 85°C, 85% relative humidity. Biased.
- Thermal Cycling: JESD22 Method JA-104C (also see note 4): 1000 temperature cycles, where each cycle consists of a 25 minutes soak time at -40°C followed by a 25 minute soak time at 85°C, with a 60 second maximum transition time between temperatures. Air to air transition.
- Storage Temperature Range: -40 to 85°C

**Manufacturing Details**

- Maximum Process Temperature: 260°C (40secs max)
- It is recommended that no tracks, including plains, are under the device.
- Note 1: Parts should be shielded from drafts causing unexpected thermal gradients. Temperature changes due to ambient air currents can lead to short term frequency drift.
- Note 2: Specified for the load stated in Output Details above, at 25°C.
- Note 3: External AC coupling capacitor required; 1nF or greater recommended.
- Note 4: Frequency shift of  $\pm 1$ ppm max after environmental conditions.

**Compliance**

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

**Packaging Details**

- Pack Style: **Cutt**      In tape, cut from a reel  
Pack Size: 100
- *Alternative packing option available*

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