

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°C
- Ageing $\pm 1\text{ppm}$ max per year at 25°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°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°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°C): $\pm 0.6\text{ppm}$ max
- Supply Voltage Variation ($\pm 5\%$ change at 25°C): $\pm 0.1\text{ppm}$ max
- Load Variation ($\pm 10\%$ change at 25°C - also see note 2): $\pm 0.2\text{ppm}$ max
- Frequency Drift Rate:
Drift Period: 0.03 to 0.3 seconds: 500ppb/s max
Drift Period: 0.3 to 1.0 seconds: 40ppb/s max
Drift Period: 1.0 to 3.0 seconds: 2.5ppb/s max

Electrical Parameters

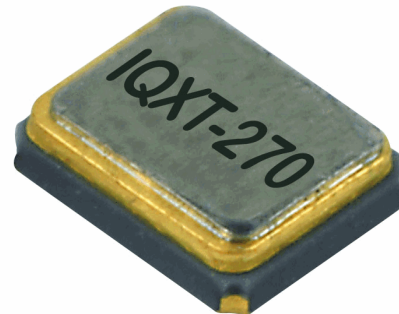
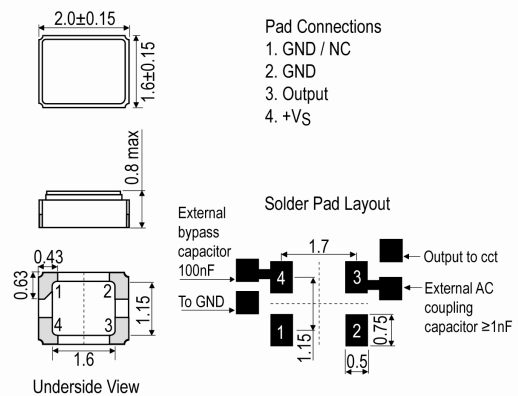
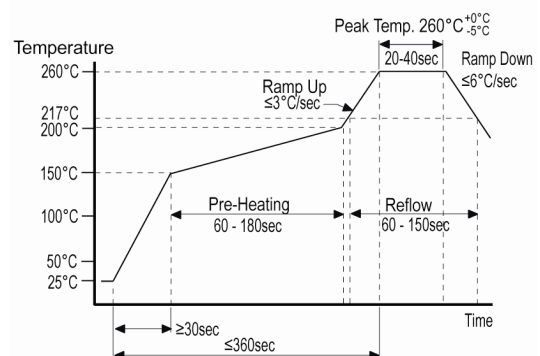
- Supply Voltage $1.8\text{V} \pm 5\%$
- Current Draw 1.50mA
- Supply Current (at V_s max - also see note 2): 1.5mA max

Output Details

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

Noise Parameters

- Phase Noise at 25°C (typical):
-65dBc/Hz @ 1Hz
-93dBc/Hz @ 10Hz
-117dBc/Hz @ 100Hz
-137dBc/Hz @ 1kHz
-149dBc/Hz @ 10kHz
-151dBc/Hz @ 100kHz


Outline (mm)

Pb-Free Reflow

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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 ± 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: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 4,000
- *Alternative packing option available*

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