

Description

- The IQXT-270-6 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-270-6
Model Issue number	1

Frequency Parameters

- Frequency: 26.0MHz
- Frequency Tolerance: $\pm 1.00\text{ppm}$
- 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 $25^\circ\text{C} \pm 2^\circ\text{C}$.
- Reflow Shift (two consecutive reflows as per profile after 1 hour relaxation at 25°C): $\pm 1\text{ppm}$ max
- Frequency Stability: Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range (note 1).
- Frequency Slope (minimum of one frequency reading every 2°C , over -20 to 70°C - note 1): $0.05\text{ppm}/^\circ\text{C}$ max
- Frequency Slope (minimum of one frequency reading every 2°C , over -30°C to -20°C and 70°C to 85°C - 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 - note 2): $\pm 0.2\text{ppm}$ max

Electrical Parameters

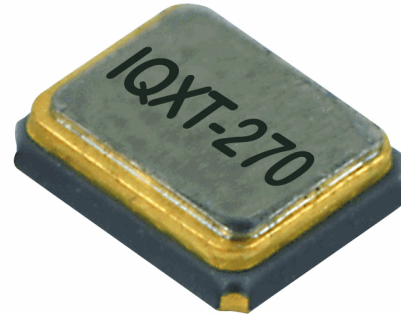
- Supply Voltage: $1.8\text{V} \pm 5\%$
- Current Draw: 1.50mA
- Supply Current (at V_s max - note 2): 1.5mA max

Output Details

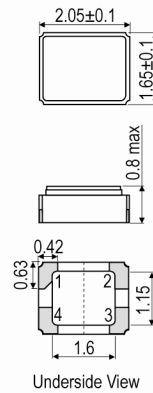
- Output Compatibility: Clipped Sine
- Drive Capability: $10\text{k}\Omega // 10\text{pF} \pm 10\%$
- Output Voltage Level (at V_s min - note 2): 0.8V pk-pk min
- Output: DC coupled (note 3)

Noise Parameters

- Phase Noise at 25°C (typical):
 - $-62\text{dBc}/\text{Hz}$ @ 1Hz
 - $-90\text{dBc}/\text{Hz}$ @ 10Hz
 - $-112\text{dBc}/\text{Hz}$ @ 100Hz
 - $-132\text{dBc}/\text{Hz}$ @ 1kHz
 - $-145\text{dBc}/\text{Hz}$ @ 10kHz
 - $-147\text{dBc}/\text{Hz}$ @ 100kHz



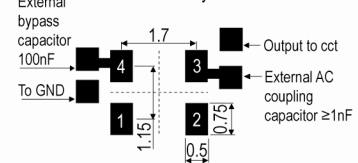
Outline (mm)



Pad Connections

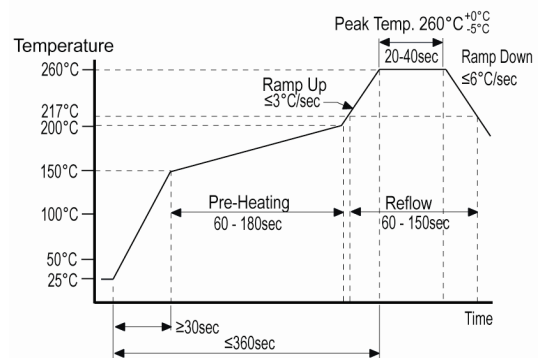
- GND / N/C
- GND
- Output
- +Vs

Solder Pad Layout



Recommend no tracks, including plains under the device.

Pb-Free Reflow



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Environmental Parameters

- Shock: MIL-STD-202 M213 (note 4): Half sine-wave acceleration of 3000G peak amplitude, duration 0.3ms, velocity 12.3ft/s.
- Moisture Resistance: MIL-STD-202 M106g (note 4): 1000 hours at 85°C, 85% relative humidity. Biased.
- Thermal Cycling: JESD22 Method JA-104C (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.
- Vibration: JESD22-B103-B (also see note 4): 10G peak acceleration for 20 minutes 12 cycles in each of the 3 orientations, swept from 10-2000Hz.
- Storage Temperature Range: -40 to 85°C

Manufacturing Details

- Maximum Process Temperature: 260°C (40secs max)
- 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 ±1ppm 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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