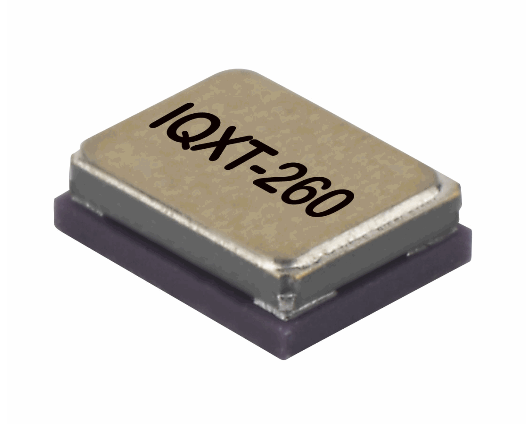
Description

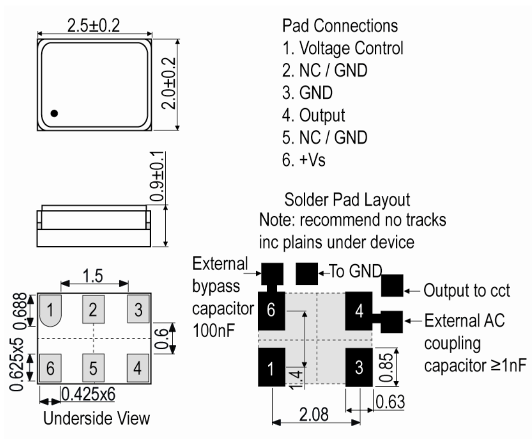
- The IQXT-260-17 employs an analogue ASIC for the oscillator and a high-order temperature compensation circuit in a 2.5 x 2.0mm size package.
- Model IQXT-260-17
- Model Issue number 2



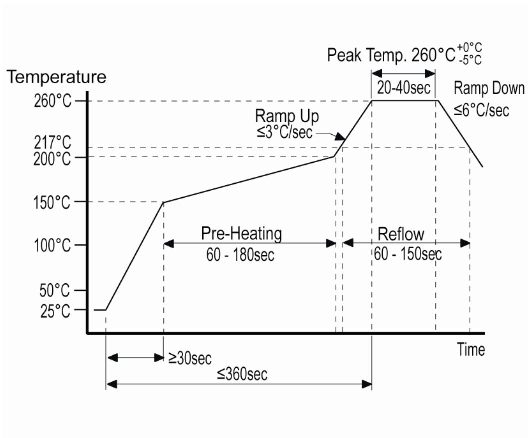
Frequency Parameters

- Frequency 19.20MHz
- Frequency Tolerance ±1.00ppm
- Tolerance Condition @ 25°C ±2°C
- Frequency Stability ±0.50ppm
- Operating Temperature Range -30.00 to 85.00°C
- Ageing ±0.7ppm max over 1yr @ 25°C
- Frequency Stability: TA varied over operating temperature range, measurement referenced to frequency observed with Fref=(Fmax+Fmin)/2, Vs=1.8V, VC=0.9V and load=10kΩ//10pF.
- Frequency Slope (minimum of one frequency reading every 2°C and VC=0.9V):
  -10°C to 60°C: 0.05ppm/°C max
- Frequency Drift (calculated from frequency slope with temperature varied at a maximum of 1.92°C/min (0.032°C/s) over -10°C to 60°C): 1.6ppb/sec max
- Frequency Slope (minimum of one frequency reading every 2°C and VC=0.9V):
  -30°C to 85°C: 0.1ppm/°C max
- Frequency Drift (calculated from frequency slope with temperature varied at a maximum of 0.96°C/min (0.016°C/s) over -30°C to 85°C): 1.6ppb/sec max
- Note: Frequency Drift rate is calculated from the equation ppb/s=°C/s x ppb/°C.
- Small Thermal Cycle Frequency Slope (measured at 0.5°C intervals over any 5°C heating and 5°C cooling cycle, at a minimum rate of 1°C/minute within the operating temperature range): 50ppb/°C max
  (Note: Discard the first 0.5°C interval of each heating and cooling cycle.)
- Small Thermal Cycle Hysteresis (difference in frequency measurements over any 5°C heating and 5°C cooling cycle, at a minimum rate of 1°C/minute within the operating temperature range): 50ppb pk-pk max
- Supply Voltage Variation (±5% change @ 25°C): ±0.1ppm max
- Load Variation (±10% change @ 25°C): ±0.2ppm max
- Reflow Variation (after two consecutive reflows as per profile shown and 1hr recovery @ 25°C): ±1ppm max
- Note: Parts should be shielded from drafts causing unexpected thermal gradients. Temperature changes due to ambient air currents can lead to short term frequency drift.

Outline (mm)



Pb-Free Reflow



Electrical Parameters

- Supply Voltage 1.8V ±5%
- Current Draw 1.500mA
- Supply Current (@ TA=25°C, Vs max and load=10kΩ//10pF): 1.5mA max

Frequency Adjustment

- Pulling ±15.6ppm to ±24.0ppm
- Control Voltage 0.9V ±0.6V
- Input Impedance 500kΩ
- Input Impedance: Measured between control voltage and GND pins.
- Linearity (deviation from a straight line curve fit): 20% max

Output Details

- Output Compatibility Clipped Sine
- Drive Capability 10kΩ//10pF ±10%
- Output Voltage Level (@ TA=25°C, Vs min and load=10kΩ//10pF): 0.8V pk-pk min
- Start Up Time (frequency within ±0.5ppm of steady state frequency): 0.5ms max
- Output: DC coupled
- Note: AC-coupled output requires an external capacitor, ≥1nF recommended.

Noise Parameters

- Phase Noise @ 25°C (max):
  -86dBc/Hz @ 10Hz
  -110dBc/Hz @ 100Hz
  -137dBc/Hz @ 1kHz
  -143dBc/Hz @ 10kHz
  -150dBc/Hz @ 100kHz
- Harmonics: -5dBc max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C
- Shock: MIL-STD-202 M213: Half sine wave acceleration of 3000G peak amplitude, duration 0.3ms, velocity 12.3ft/s.
- Vibration: JESD22-B103-B: 10G peak acceleration for 20mins, 12 cycles in each of the 3 orientations, tested from 10-2000Hz.
- Moisture Resistance: MIL-STD-202 M106g: 1000hrs @ 85°C, 85% RH, biased.
- Thermal Cycling: JESD22 Method JA-104C: 1000 temperature cycles, where each cycle consists of a 25mins soak time @ -40°C followed by a 25mins soak time @ 85°C, with a 60secs maximum transition time between temperatures, air to air transition.
- Note: Frequency shift ≤1ppm after environmental conditions.

Manufacturing Details

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

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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