

## Description

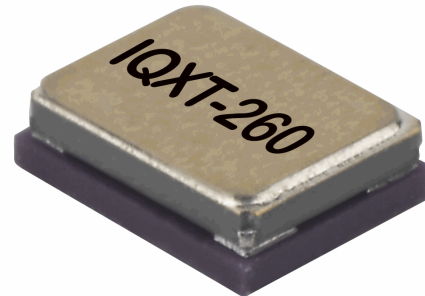
- The IQXT-260-17 employs an analogue ASIC for the oscillator and a high-order temperature compensation circuit in a 2.5 x 2.0mm size package.
- Model: IQXT-260-17
- Model Issue number: 2

## Frequency Parameters

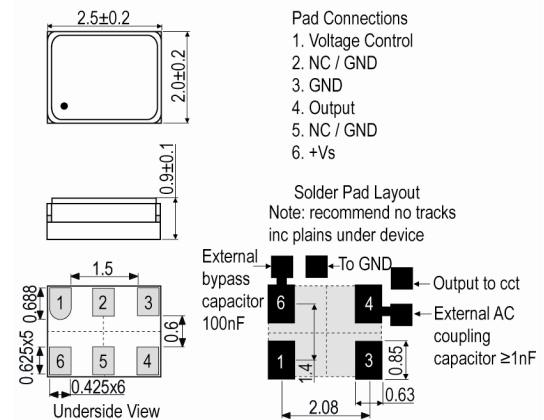
- Frequency: 19.20MHz
- Frequency Tolerance:  $\pm 1.00$ ppm
- Tolerance Condition: @ 25°C  $\pm 2^\circ\text{C}$
- Frequency Stability:  $\pm 0.50$ ppm
- Operating Temperature Range: -30.00 to 85.00°C
- Ageing:  $\pm 0.7$ ppm max over 1yr @ 25°C
- Frequency Stability: TA varied over operating temperature range, measurement referenced to frequency observed with  $F_{ref} = (F_{max} + F_{min})/2$ ,  $V_s = 1.8\text{V}$ ,  $V_C = 0.9\text{V}$  and load = 10k $\Omega$ /10pF.
- Frequency Slope (minimum of one frequency reading every 2°C and  $V_C = 0.9\text{V}$ ):
  - 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  $V_C = 0.9\text{V}$ ):
  - 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  $\text{ppb/s} = ^\circ\text{C/s} \times \text{ppb}/^\circ\text{C}$ .
- 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 ( $\pm 5\%$  change @ 25°C):  $\pm 0.1$ ppm max
- Load Variation ( $\pm 10\%$  change @ 25°C):  $\pm 0.2$ ppm max
- Reflow Variation (after two consecutive reflows as per profile shown and 1hr recovery @ 25°C):  $\pm 1$ ppm 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.

## Electrical Parameters

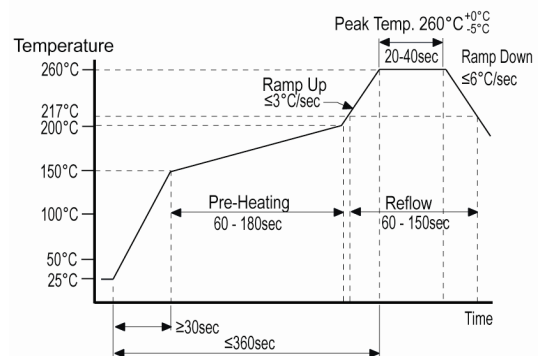
- Supply Voltage: 1.8V  $\pm 5\%$
- Current Draw: 1.500mA
- Supply Current (@ TA=25°C, Vs max and load=10k $\Omega$ /10pF): 1.5mA max



## Outline (mm)



## Pb-Free Reflow



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**Frequency Adjustment**

- Pulling  $\pm 15.6\text{ppm}$  to  $\pm 24.0\text{ppm}$
- Control Voltage  $0.9\text{V} \pm 0.6\text{V}$
- Input Impedance  $500\text{k}\Omega$
- 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  $10\text{k}\Omega//10\text{pF} \pm 10\%$
- Output Voltage Level (@  $T_A=25^\circ\text{C}$ ,  $V_s$  min and load= $10\text{k}\Omega//10\text{pF}$ ):  $0.8\text{V}$  pk-pk min
- Start Up Time (frequency within  $\pm 0.5\text{ppm}$  of steady state frequency):  $0.5\text{ms}$  max
- Output: DC coupled
- Note: AC-coupled output requires an external capacitor,  $\geq 1\text{nF}$  recommended.

**Noise Parameters**

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

**Manufacturing Details**

- Maximum Process Temperature:  $260^\circ\text{C}$  ( $40\text{secs}$  max)

**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:  $3,000$
- *Alternative packing option available*

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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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- Подбор аналогов;
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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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