

**Customer Part:**

**Description**

- The IQXT-274-6 employs an analogue IC for the oscillator and temperature compensation. The crystal is surface mounted on top of the ceramic IC carrier. The segregation of the crystal from the oscillator further improves the reliability of the product.
- Model IQXT-274-6
- Model Issue number 1

**Frequency Parameters**

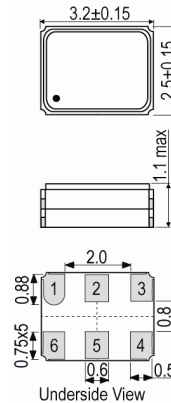
- Frequency 19.20MHz
- Frequency Tolerance  $\pm 1.00\text{ppm}$
- Frequency Stability  $\pm 0.50\text{ppm}$
- Operating Temperature Range  $-30.00$  to  $85.00^\circ\text{C}$
- Ageing  $\pm 2\text{ppm}$  max over 1 year @  $25^\circ\text{C}$
- Frequency Tolerance: Offset from nominal frequency measured at  $25^\circ\text{C} \pm 2^\circ\text{C}$ .
- Reflow shift (two consecutive reflows as per profile after 1 hour recovery at  $25^\circ\text{C}$ ):  $\pm 1\text{ppm}$  max
- Frequency Stability: Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range, note 1
- Frequency slope: (temperature range  $-10^\circ\text{C}$  to  $60^\circ\text{C}$ . Tested to a minimum of 1 frequency reading every  $2^\circ\text{C}$ , note 1):  $0.05\text{ppm}/^\circ\text{C}$  max
- Frequency drift: (calculated from frequency slope with temperature varied at a maximum of  $1.92^\circ\text{C}/\text{min}$  ( $0.032^\circ\text{C}/\text{s}$ ) over  $-10^\circ\text{C}$  to  $60^\circ\text{C}$ , note 5):  $1.6\text{ppb}/\text{sec}$  max
- Frequency slope (temperature range  $-30^\circ\text{C}$  to  $85^\circ\text{C}$ . Tested to a minimum of 1 frequency reading every  $2^\circ\text{C}$ , note 1):  $0.1\text{ppm}/^\circ\text{C}$  max
- Frequency drift: (calculated from frequency slope with temperature varied at a maximum of  $0.96^\circ\text{C}/\text{min}$  ( $0.016^\circ\text{C}/\text{s}$ ) over  $-30^\circ\text{C}$  to  $85^\circ\text{C}$ , note 5):  $1.6\text{ppb}/\text{sec}$  max
- Small thermal cycle frequency slope (measured at  $0.5^\circ\text{C}$  intervals over any  $5^\circ\text{C}$  heating and  $5^\circ\text{C}$  cooling cycle, at a minimum rate of  $1^\circ\text{C}/\text{minute}$  within the operating temperature range, note 6):  $50\text{ppb}/^\circ\text{C}$  max
- Small thermal cycle hysteresis (difference in frequency measurements over any  $5^\circ\text{C}$  heating and  $5^\circ\text{C}$  cooling cycle, at a minimum rate of  $1^\circ\text{C}/\text{minute}$  within the operating temperature range):  $50\text{ppb}$  pk-pk max
- Supply Voltage Variation ( $\pm 5\%$  change, at  $25^\circ\text{C}$ ):  $\pm 0.1\text{ppm}$  max
- Load Variation ( $\pm 10\%$  change):  $\pm 0.2\text{ppm}$  max

**Electrical Parameters**

- Supply Voltage  $2.85\text{V} \pm 5\%$
- Current Draw  $2.000\text{mA}$
- Supply Current: (at  $V_s$  max)

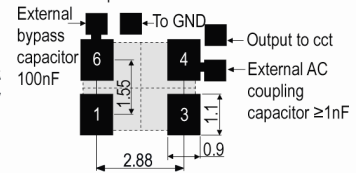
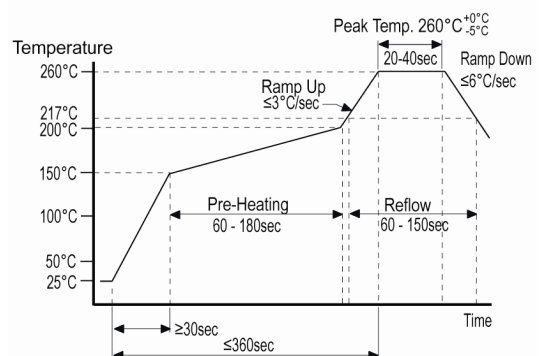
**Output Details**

- Output Compatibility Clipped Sine
- Drive Capability  $10\text{k}\Omega//10\text{pF} \pm 10\%$
- Output: DC coupled (note 4)
- Output Voltage Level (at  $V_s$  min):  $0.8\text{V}$  pk-pk min

**Outline (mm)**

**Pad Connections**

1. GND
2. NC
3. GND
4. Output
5. NC
6.  $+V_s$

Solder Pad Layout  
Note: recommend no tracks inc plains under device


**Pb-Free Reflow**

**Sales Office Contact Details:**

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**Customer Part:****Noise Parameters**

- Phase Noise (typ at 25°C):
  - 62dBc/Hz @ 1Hz
  - 90dBc/Hz @ 10Hz
  - 115dBc/Hz @ 100Hz
  - 135dBc/Hz @ 1kHz
  - 147dBc/Hz @ 10kHz
  - 149dBc/Hz @ 100kHz
- Phase Noise (max at 25°C):
  - 57dBc/Hz @ 1Hz
  - 86dBc/Hz @ 10Hz
  - 111dBc/Hz @ 100Hz
  - 133dBc/Hz @ 1kHz
  - 144dBc/Hz @ 10kHz
  - 148dBc/Hz @ 100kHz

**Environmental Parameters**

- Shock: Half sine-wave acceleration of 100G peak amplitude for 11ms duration, 3 cycles each plane.
- Humidity: after 48 hours at 85°C±2°C 85% relative humidity non-condensing.
- Thermal shock: exposed at -40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days.
- Storage Temperature Range: -40 to 85°C

**Manufacturing Details**

- 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 the Output Details section, at 25°C.
- Note 3: The unit will operate on any voltage between minimum and maximum values.
- Note 4: External AC-Coupling capacitor required. 1nF or greater recommended.
- Note 5: Frequency drift rate is calculated from the equation  $\text{ppb/s} = ^\circ\text{C/s} \times \text{ppb}/^\circ\text{C}$
- Note 6: Discard the first 0.5°C interval of each heating and cooling cycle.

**Compliance**

- RoHS Status (2015/863/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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