

ISSUE 1; April 2016

Description

- The IQXT-275 with voltage control option, 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.
- Applications:
Feature phone
Wi-MAX/W-LAN
Wi-Fi

Frequency Parameters

- Frequency 10.0MHz to 40.0MHz
- Frequency Tolerance $\pm 1.00\text{ppm}$
- Frequency Stability $\pm 1.00\text{ppm}$ to $\pm 5.00\text{ppm}$
- Frequency calibration: Offset from nominal frequency measured at 25°C
- Reflow shift: Two consecutive reflows as per profile after 1 hour recovery at 25°C: $\pm 1\text{ppm}$ max
- Frequency stability over temperature: referenced to the midpoint between minimum and maximum frequency value over the specified temperature range. Control voltage set to midpoint of control voltage (Note 1)
- Frequency slope, minimum of 1 frequency reading every 2°C, over the operating temperature range (Note 1): $1\text{ppm}/^\circ\text{C}$
- 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): $\pm 0.2\text{ppm}$ max
- Load variation ($\pm 10\%$ change): $\pm 0.2\text{ppm}$ max
- Long term stability, frequency drift over 1 year at 25°C: $\pm 1\text{ppm}$ max

Electrical Parameters

- Supply voltage range: 1.8 to 3.0V
- Supply current (see note 2)
- 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 oscillator output section at 25°C
- Note 3: Voltage control cannot exceed Vcc -0.2V or below GND +0.2V
- Note 4: External AC-Coupling capacitor required. 1nF or greater recommended

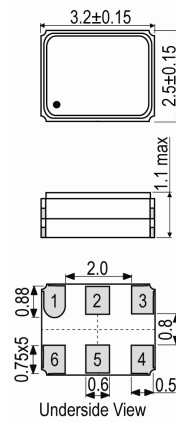
Frequency Adjustment

- Pulling $\pm 6\text{ppm}$ to $\pm 20\text{ppm}$
- Input Impedence 500k Ω min
- Control voltage range: The nominal control voltage value is midway between the minimum and maximum. (Note 3): 0.3 to 1.5V
- Linearity (deviation from straight line curve fit): 20% max

Operating Temperature Ranges

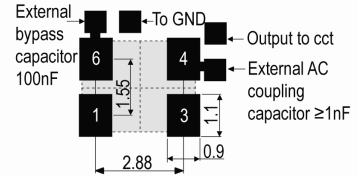
- -40 to 85°C

Outline (mm)

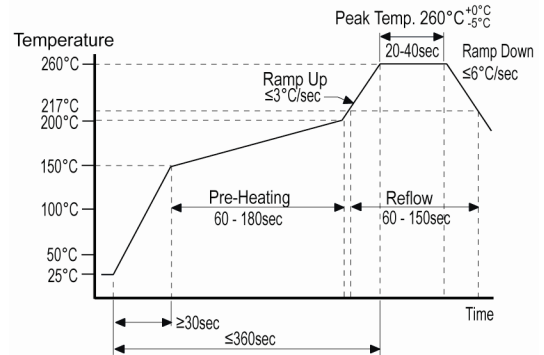


- Pad Connections
1. GND or Voltage Control
 2. N/C
 3. GND
 4. Output
 5. N/C
 6. +Vs

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



Pb-Free Reflow



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Output Details

- Output Compatability Clipped Sine
- Drive Capability 10kΩ//10pF ±10%
- Output: DC coupled (see note 4)
- Output voltage level (at min supply voltage): 0.8V min (Note 2)

Noise Parameters

- Phase noise (typ @ 26MHz & 25°C):
 - 63dBc/Hz @ 1Hz
 - 90dBc/Hz @ 10Hz
 - 114dBc/Hz @ 100Hz
 - 133dBc/Hz @ 1kHz
 - 144dBc/Hz @ 10kHz
 - 147dBc/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 test: Exposed at -40°C for 30 minutes then to 85°C for 30 minutes constantly for a period of 5 days.
- Vibration: 10G RMS from 30Hz to 1500Hz random in each of the 3 axis of 4 hours. Totally 12 hours
- Storage Temperature Range: -40 to 85°C

Ordering Information

- *minimum information required
 - Frequency*
 - Model*
 - Supply Voltage*
 - Pad 1 function*
 - Frequency Stability*
 - Operating Temperature Range*

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Packaging Details

- Pack Style: Bulk Loose in bulk pack
Pack Size: 1
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 3,000

Electrical Specification - maximum limiting values

| Frequency | Frequency Max | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|-----------|---------------|-------------------|-----------------|--------------|--------------------|------------|
| | | °C | ppm | mA | ns | % |
| 10.0MHz | 40.0MHz | -40 to 85 | ±1.0 | 2 | - | - |

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Chipset Approval Table

| IQD Model | Ref No. | Frequency | Chipset Type | IC Supplier | |
|------------------|----------------|------------------|---------------------|--------------------|--|
| IQXT-275-1 | 508209 | 19.2MHz | APQ Family, APQ8064 | Qualcomm | |
| IQXT-275-2 | 513780 | 16.8MHz | TBA | Cirrus Logic | |

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