

ISSUE 1; January 2016

**Description**

- The IQXT-274 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-Fi  
Wi-MAX/W-LAN

**Frequency Parameters**

- Frequency 10.0MHz to 40.0MHz
- Frequency Tolerance  $\pm 1.00\text{ppm}$
- Frequency Stability  $\pm 0.50\text{ppm}$  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): 0.05 to 1ppm/°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):  $\pm 0.1\text{ppm}$  max
- Load variation ( $\pm 10\%$  change, note 2):  $\pm 0.2\text{ppm}$  max
- Long term stability, frequency drift over 1 year at 25°C:  $\pm 2\text{ppm}$  max

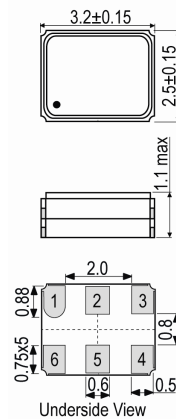
**Electrical Parameters**

- Supply voltage range: 2.4 to 3.7V
- 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: The maximum frequency tuning range depends on the design frequency and the trimming sensitivity of the crystal. Linearity performance degrades if maximum frequency tuning setting is selected
- Note 5: External AC-Coupling capacitor required. 1nF or greater recommended

**Frequency Adjustment**

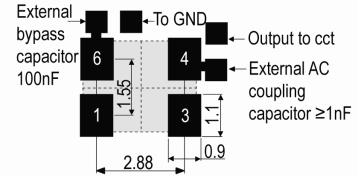
- Pulling  $\pm 6\text{ppm}$  to  $\pm 50\text{ppm}$
- Input Impedance 500kΩ min
- Control voltage range: The nominal control voltage value is midway between the minimum and maximum. (Note 3): 0.5 to 2.8V
- Linearity (deviation from straight line curve fit): 20% max

**Outline (mm)**

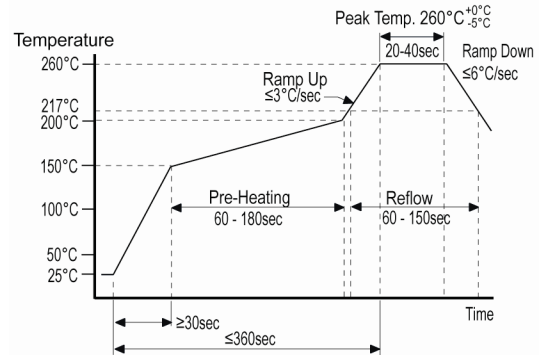


- Pad Connections
1. GND or Voltage Control
  2. N/C
  3. GND
  4. Output
  5. N/C
  6. +Vs

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



**Pb-Free Reflow**



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### Operating Temperature Ranges

- -40 to 85°C

### Output Details

- Output Compatibility                      Clipped Sine
- Drive Capability                            10kΩ/10pF ±10%
- Output: DC coupled (see note 5)
- Output voltage level (at min supply voltage): 0.8V min (Note 2)

### Noise Parameters

- Phase noise (typ @ 16.369MHz & 25°C):  
 -60dBc/Hz @ 1Hz  
 -89dBc/Hz @ 10Hz  
 -113dBc/Hz @ 100Hz  
 -132dBc/Hz @ 1kHz  
 -145dBc/Hz @ 10kHz

### 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.
- Storage Temperature Range: -40 to 85°C

### Manufacturing Details

- Washing: Able to withstand aqueous washing process

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

### 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	±0.5	2	-	-

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**Chipset Approval Table**

<b>IQD Model</b>	<b>Ref No.</b>	<b>Frequency</b>	<b>Chipset Type</b>	<b>IC Supplier</b>	
IQXT-274-6	508208	19.2MHz	APQ Family, APQ8064	Qualcomm	
IQXT-274-7	513030	16.368MHz	TBA	TBA	
IQXT-274-8	513031	16.369MHz	TBA	TBA	
IQXT-274-10	513029	26MHz	TBA	TBA	
IQXT-274-14	507771	10MHz	HL72xx	Fudan-Holding Hualong	

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