

ISSUE 1; September 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

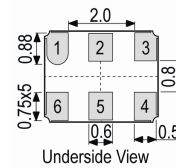
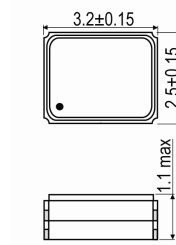
Electrical Parameters

- 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 $V_{cc} - 0.2\text{V}$ 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

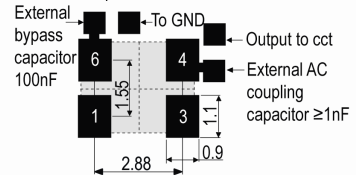
- Pulling $\pm 6\text{ppm}$ to $\pm 50\text{ppm}$
- Input Impedance 500k Ω min
- Control voltage range: The nominal control voltage value is midway between the minimum and maximum. (Note 3): 0.5 to 2.8V
- Linearity (deviation from straight line curve fit): 20% max

Outline (mm)

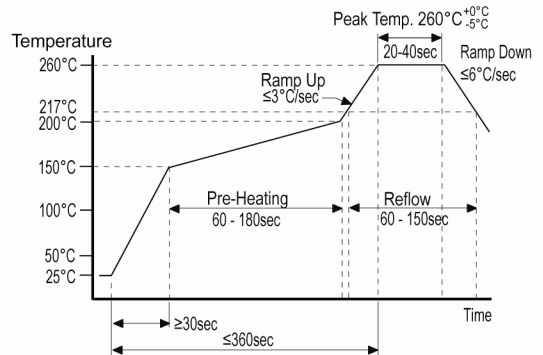


- Pad Connections
1. GND or Voltage Control
 2. N/C
 3. GND
 4. Output
 5. N/C
 6. +Vs

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

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

IQD Model	Ref No.	Frequency	Chipset Type	IC Supplier	
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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