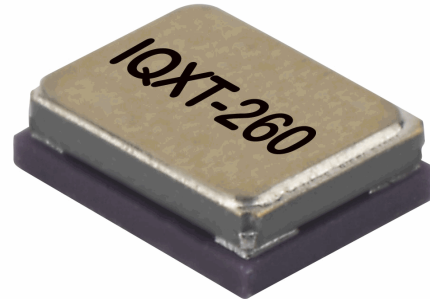




ISSUE 1; April 2015

Description

- The IQXT-260 employs an analogue ASIC for the oscillator and a high order temperature compensation circuit in a 2.5 x 2.0mm size package. The device can be placed in power down mode through a single input pin. During standard operation, power consumption is minimised by operating down to a supply voltage of 1.8V. The IQXT-260's high stability, low power consumption, small footprint and powerful compensation method makes it a TCXO ideally suited for demanding GPS mobile applications.
- Applications:
GPS
Smartphone
PNS
Consumer
Communications
Wi-Fi
WiMax/W-LAN
- Features:
Frequency slope and perturbation specifications can be customised to the application requirement
Excellent phase noise performance
Standard temperature stability choices are $\pm 0.5\text{ppm}$, $\pm 1\text{ppm}$, $\pm 1.5\text{ppm}$ and $\pm 2.5\text{ppm}$ over wide temperature ranges



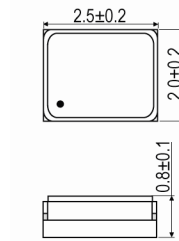
Frequency Parameters

- Frequency 10.0MHz to 52.0MHz
- Frequency Tolerance $\pm 1.00\text{ppm}$
- Frequency Stability $\pm 0.50\text{ppm}$ to $\pm 2.50\text{ppm}$
- Frequency calibration: Offset from nominal frequency measured at $25^\circ\text{C} \pm 2^\circ\text{C}$
- 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): 0.1 to $1\text{ppm}/^\circ\text{C}$
- 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): $\pm 0.1\text{ppm}$ 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 : $\pm 1\text{ppm}$ max

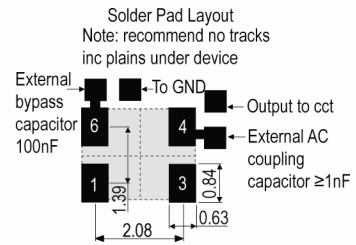
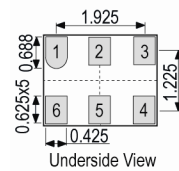
Electrical Parameters

- Reflow shift: Two consecutive reflows as per profile after 1 hour recovery at 25°C : $\pm 1\text{ppm}$ max
- Supply voltage range: 1.8 to 3.3V
- 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: External AC-Coupled output requires an external capacitor $\geq 1\text{nF}$ recommended.
- Note 4: Frequency shift $\leq 1\text{ppm}$ after environmental conditions

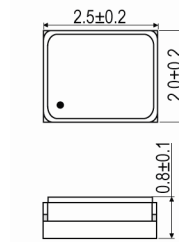
Outline (mm) = Pad 1 GND/NC



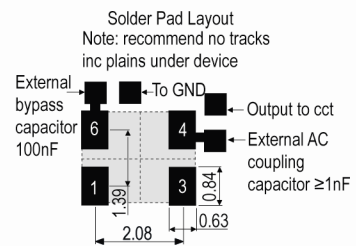
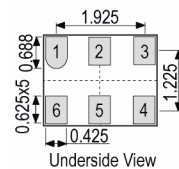
- Pad Connections
1. NC / GND
 2. NC / GND
 3. GND
 4. Output
 5. NC / GND
 6. +Vs



Outline (mm) = Pad 1 VC



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



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Web: www.iqdfrequencyproducts.com



Frequency Adjustment

- Pulling $\pm 10\text{ppm min}$
- Input Impedence $500\text{k}\Omega \text{ min}$

Operating Temperature Ranges

- $-40 \text{ to } 85^\circ\text{C}$

Output Details

- Output Compatability Clipped Sine
- Drive Capability $10\text{k}\Omega//10\text{pF} \pm 10\%$
- Output: DC coupled (see note 3)

Output Control

- Control voltage range: The nominal control voltage value is midway between the minimum and maximum. Voltage control should not exceed the supply voltage +0.2V or GND.
Supply voltage $\leq 2.3\text{V}$: 0.3 to 1.5V
Supply voltage $> 2.3\text{V}$: 0.4 to 2.4V
- Power Down Mode:
Logic low (20%Vs max) to E/D disables output.
Logic high (80%Vs min) to E/D enables output.
- Standby current: 0.01 μA max
- Start-Up Time (amplitude) within 90% of specified output: 0.5ms max
- Start-Up Time (frequency) within $\pm 0.5\text{ppm}$ of steady state: 2ms max

Output Levels

- Output voltage level (at min supply voltage): 0.8V min (Note 2)

Noise Parameters

- Phase noise for a 38.4MHz oscillator @ 25°C :
-62dBc/Hz @ 1Hz
-86dBc/Hz @ 10Hz
-109dBc/Hz @ 100Hz
-132dBc/Hz @ 1kHz
-148dBc/Hz @ 10kHz

Environmental Parameters

- Shock [MIL-STD-202 M213] (Note 4): Half sine-wave acceleration of 3000G peak amplitude. Duration: 0.3ms, Velocity: 12.3ft/s
- Moisture resistance [MIL-STD-202 M106g] (Note 4): 1000 hours at 85°C , 85% relative humidity. Biased.
- Thermal cycling [JESD22 METHOD JA-104C] (Note 4): 1000 temperature cycles, where each cycle consists of a 25 minutes soak time at -40°C followed by a 25 minute soak time at 85°C , with a 60 second maximum transition time between temperatures. Air to air transition.
- Vibration [JESD22-B103-B] (Note 4): 10G peak acceleration for 20 minutes. 12 cycles in each of the 3 orientations. Test from 10-2000Hz
- Storage Temperature Range: $-40 \text{ to } 85^\circ\text{C}$

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Ordering Information

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

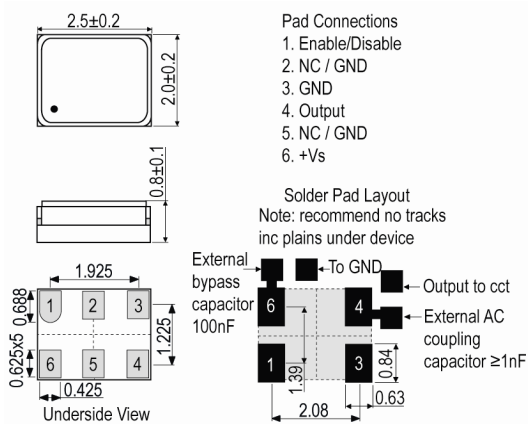
Compliance

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

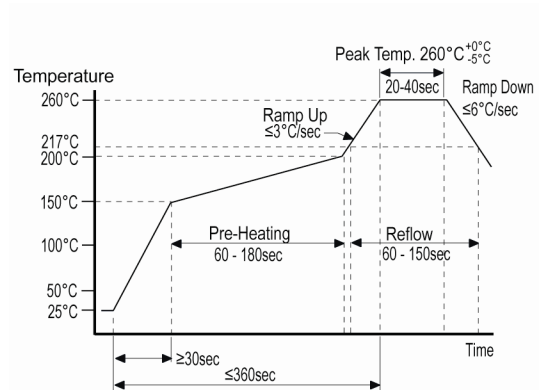
Packaging Details

- 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

Outline (mm) = Pad 1 E/D



Pb-Free Reflow



Electrical Specification - maximum limiting values

| Frequency | Frequency Max | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|-----------|---------------|-------------------|-----------------|--------------|--------------------|------------|
| 10.0MHz | 52.0MHz | °C | ppm | mA | ns | % |
| | | -40 to 85 | ±0.5 | 2 | - | - |

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