



Description

- Voltage Controlled Temperature Compensated Crystal Oscillator (VCTCXO) in a surface mount 7.0 x 5.0mm package.
- Model IQXT-314-22
- Model Issue number 2

Frequency Parameters

- Frequency 20.0MHz
- Frequency Tolerance $\pm 1.00\text{ppm}$
- Tolerance Condition @ 25°C $\pm 1^\circ\text{C}$, VC=1.5V
- Frequency Stability $\pm 0.50\text{ppm}$
- Operating Temperature Range -40.00 to 85.00°C
- Reflow Variation (Pre to post reflow ΔF , measured ≥ 60 minutes after reflow): $\pm 0.5\text{ppm}$ max
- Frequency Stability: Reference to $(F_{\text{max}} + F_{\text{min}})/2$
- Slope of frequency over temperature (Ramp rate $\leq 1^\circ\text{C/minute}$): $\pm 0.2\text{ppm}/^\circ\text{C}$ max
- Supply Voltage Variation ($\pm 5\%$ change, ref to frequency at nominal supply voltage): $\pm 25\text{ppb}$ typ
- Load Variation ($\pm 5\text{pF}$ change, ref to frequency at nominal load): $\pm 50\text{ppb}$ typ
- Ageing (at 25°C):
 $\pm 1\text{ppm}$ max over 1 year
 $\pm 3\text{ppm}$ max over 10 years
- Acceleration Sensitivity (gamma vector of all 3 axes from 30 to 1500Hz): $< 2\text{ppb/g}$ typ

Electrical Parameters

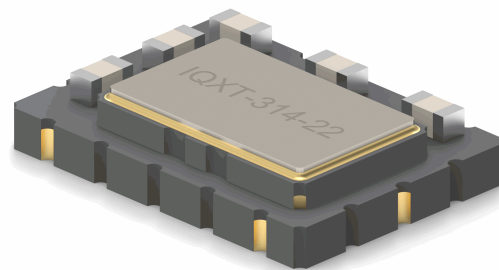
- Supply Voltage 3.3V $\pm 5\%$
- Current Draw 5.000mA
- Absolute Maximum Ratings (Note: Operating beyond these limits may result in change or permanent damage to the oscillator):
Junction temperature: 150°C max
Supply Voltage (Vs): -0.5V to 7V
All other inputs: -0.5V to Vs+0.5V
Power Dissipation: 100mW max

Frequency Adjustment

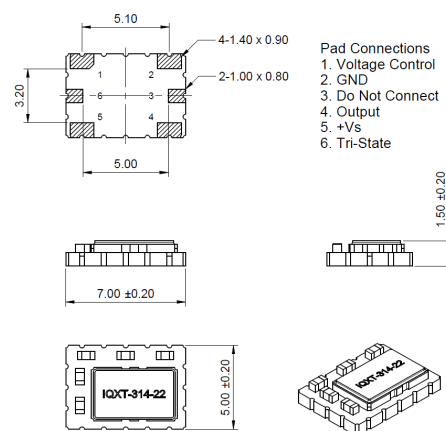
- Pulling $\pm 5\text{ppm}$ min to $\pm 10\text{ppm}$ max
- Control Voltage 0.5V to 2.5V
- Input Impedance 100k Ω min
- Slope: $+7\text{ppm/V}$ typ
- Linearity (deviation from straight line curve fit): 1% max
- Modulation Bandwidth: 1Hz min

Output Details

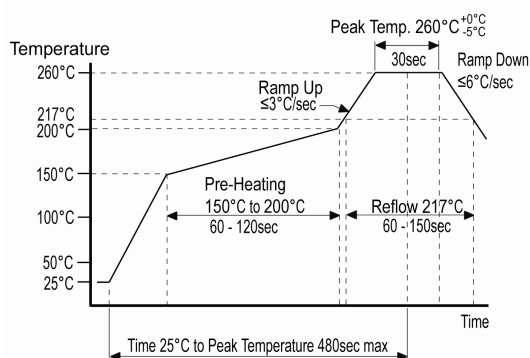
- Output Compatibility HCMOS
- Drive Capability 15pF
- Rise and Fall Time 8.0ns max
- Duty Cycle 45/55%
- Start-up time (90% amplitude): 15ms max
- Output Level Low (Vol): 10%Vs max
Output Level High (Voh): 90%Vs min



Outline (mm)



Reflow Solder Profile



Sales Office Contact Details:

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Output Control

- Tri-State Mode:
Logic '0' (20%Vs max) to pad 6 disables the oscillator output, the output goes to a high impedance state.
Logic '1' (60%Vs min) or no connection to pad 6 enables the oscillator output.
Note: The tri-state control (enable) input pad has an internal 100kΩ pull up resistor which allows it to be left unconnected if not used. When in tri-state mode, the output stage is disabled but the oscillator and compensation circuit are still active.
Current when in tri-state mode 2mA typ.
- Output Enable Time: 100μs max

Noise Parameters

- Phase Noise typ @ 25°C:
-70dBc/Hz @ 1Hz
-100dBc/Hz @ 10Hz
-120dBc/Hz @ 100Hz
-140dBc/Hz @ 1kHz
-145dBc/Hz @ 10kHz
-150dBc/Hz @ 100kHz
-155dBc/Hz @ 1MHz

Environmental Parameters

- Solderability: JESD22-B102, M1, Condition E (IPC/EIA J-STD-002A), 245°C for 5secs, precondition for 16hrs at 150°C
- High Temperature Operating Life (HTOL): JESD22-A108: 1008hrs @ 125°C
- Temperature Cycling: JESD22-A104, 500 cycles, -55 to 125°C
- Low Temperature Storage: IEC 60068-2-1, test Ab, 1000hrs @ -55°C
- High Temperature Storage: IEC 60068-2-2, test Bb, 1000hrs @ 150°C
- Humidity: JESD22-A101: 1008hrs @ 85°C/85% RH, precondition: 3 reflow cycles @ peak temperature 260°C
- Vibration: JESD22-B103: 20g, 60-2000Hz, 4 hours in each of the 3 axes, 12hrs total.
- Mechanical Shock: JESD22-B104: 1500g, 0.5ms duration, 5 pulses in each of 6 directions.
- Ageing: MIL-PRF-55310: 1008hrs @ 85°C, precondition: 3 reflow cycles @ (peak temperature 260°C)
- Resistance to Soldering Heat: IPC/JEDEC J-STD-020: 3 reflow cycles (peak temperature 260°C).
- RoHS Terminations
- RoHS Reflow Temp 260°C max for 30secs max

Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): 1

Packaging Details

- Tape & reel in accordance with EIA-481
Quantities below the standard reel size to be supplied on cut tape

Standard Pack Quantity: 1,000

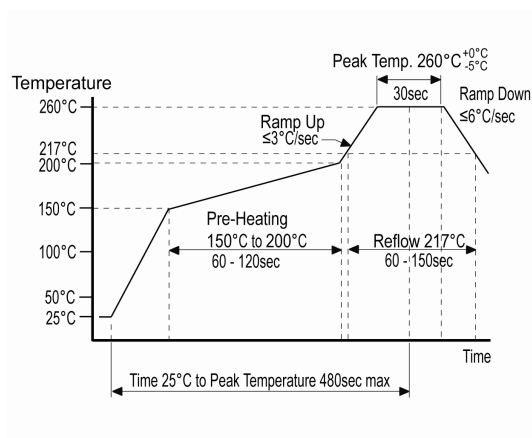
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