VCTCXO Specification

Part No.: ***LFTVXO083710***

Description

- Voltage Controlled Temperature Compensated Crystal Oscillator (VCTCXO) in a surface mount 7.0 x 5.0mm package.
- Model IQXT-314-13
- Model Issue number 2

Frequency Parameters

- Frequency 16,3840MHz
- Frequency Tolerance ±1.00ppm
- Tolerance Condition @ 25°C ±1°C, VC=1.5V
- Frequency Stability ±0.50ppm
- Operating Temperature Range -40.00 to 85.00°C
- Ageing ±1ppm max in 1st year @ 25°C, ±3ppm max in 10 years
- Frequency Stability: TA varied over operating temperature range, measurement referenced to frequency observed with Fref=(Fmax+Fmin)/2, Vs=3.3V and load=15pF.
- Frequency Slope: Ramp rates<±1°C/minute - ±0.1ppm/°C max
- Acceleration Sensitivity (gamma vector of all 3 axes from 30 to 1500Hz): Typically 2ppb/g max
- Supply Voltage Variation (±5% change @ 25°C, ref to frequency @ 3.3V): ±25ppb typ
- Load Variation (±5pF change @ 25°C, ref to frequency @ 15pF): ±50ppb typ
- Reflow Variation (after reflow as per profile shown and 1hr recovery @ 25°C): ±0.5ppm max

Electrical Parameters

- Supply Voltage 3.3V ±5%
- Current Draw 6.000mA
- Absolute Maximum Ratings:
  Supply Voltage (Vs): -0.5V to 7V
  All other inputs: -0.5V to Vs+0.5V
  Power Dissipation: 100mW max
  Junction Temperature: 150°C max
  Note: Operating beyond these limits may result in change or permanent damage to the oscillator.

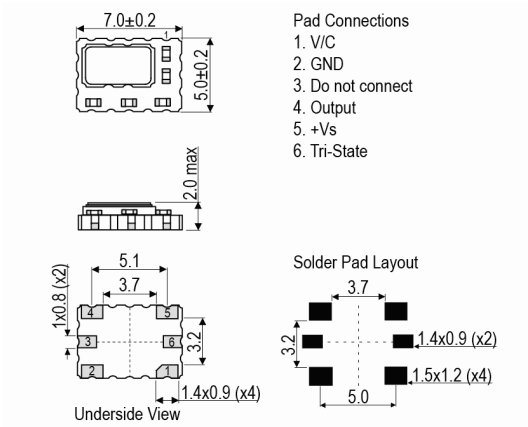
Frequency Adjustment

- Pulling ±5ppm min to ±10ppm max
- Control Voltage 0.5V to 2.5V
- Input Impedance 100kΩ min
- Linearity (deviation from straight line curve fit): 1% typ
- Frequency Tuning Slope: +7ppm/V typ
- Modulation Bandwidth: 1Hz min

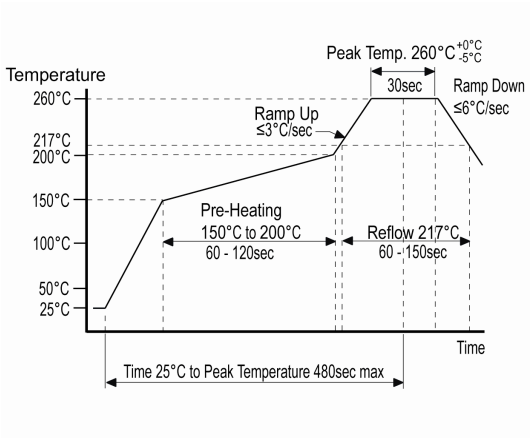
Output Details

- Output Compatibility HCMOS
- Drive Capability 15pF typ
- Rise and Fall Time 8.0ns max
- Duty Cycle 45/55%
- Output Voltage Levels:
  Output Low (VoL): 10%Vs max
  Output High (VoH): 90%Vs min
- Start Up Time (amplitude within 90% of specified output level): 15ms max

Outline (mm)



Reflow Solder Profile



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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: When disabled the oscillator and compensation circuit are still active (Current Consumption: 2mA typ)
- Output Enable Time: 100µs max

Noise Parameters

- Phase Noise @ 25°C (typ):
  -70dBc/Hz @ 1Hz
  -100dBc/Hz @ 10Hz
  -128dBc/Hz @ 100Hz
  -141dBc/Hz @ 1kHz
  -150dBc/Hz @ 10kHz
  -155dBc/Hz @ 100kHz
  -155dBc/Hz @ 1MHz

Environmental Parameters

- Low Temperature Storage: IEC 60068-2-01, Test Ab: 1000hrs @ -55°C.
- High Temperature Storage: IEC 60068-2-02, Test Bb: 1000hrs @ 150°C.
- Mechanical Shock: JESD22-B104: 1500g, 0.5ms duration, 5 pulses in each of 6 directions.
- Vibration: JESD22-B103: 20g peak acceleration for 4hrs in each of the 3 orientations, tested from 60-2000Hz, 12hrs total.
- High Temperature Operating Life (HTOL): JESD22-A108: 1008hrs @ 125°C.
- Thermal Cycling: JESD22-A104: 500 temperature cycles, -55 to 125°C.
- Solderability: JESD22-B102, Method 1, Condition E: 245°C for 5secs, (preconditioning: 150°C, 16hrs).
- Resistance to Soldering Heat: IPC/JEDEC J-STD-020: 3 reflow cycles (peak temperature 260°C).
- Humidity: JESD22-A101: After 1008hrs @ 85°C ±2°C, 85% RH non-condensing (preconditioning: 3 reflow cycles @ peak temperature 260°C).
- Ageing: MIL-PRF-55310: 1008hrs @ 85°C (preconditioning: 3 reflow cycles @ peak temperature 260°C).

Manufacturing Details

- Maximum Process Temperature: 260°C (30secs max)
- 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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