


**Description**

- Voltage controlled temperature compensated crystal oscillator (VTCXO) in a 5x3.2mm SMD package.
- Model IQXT-210-42
- Model Issue number 1

**Frequency Parameters**

- Frequency 20.0MHz
- Frequency Tolerance  $\pm 0.50$ ppm
- Frequency Stability  $\pm 0.14$ ppm
- Operating Temperature Range  $-40.00$  to  $85.00^{\circ}\text{C}$
- Ageing  $\pm 0.02$ ppm max/day,  $\pm 1$ ppm max/yr
- Frequency Tolerance: Measurement referenced to frequency observed with  $T_A=25^{\circ}\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.5\text{V}$  and within 30 days after ex-works.
- Frequency Stability:  $T_A$  varied across the operating temperature range, measurement referenced to frequency observed with  $T_A=25^{\circ}\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.5\text{V}$ , load= $15\text{pF}$  and temperature variable speed less than  $2^{\circ}\text{C}$  per minute.
- Ageing:  $T_A=25^{\circ}\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.5\text{V}$  and after 1hr of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with  $T_A=25^{\circ}\text{C}$ ,  $V_s$  varied from  $3.13\text{V}$  to  $3.47\text{V}$ ,  $V_C=1.5\text{V}$  and load= $15\text{pF}$ ):  $\pm 0.1$ ppm max
- Load Variation (measurement referenced to frequency observed with  $T_A=25^{\circ}\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.5\text{V}$  and load change= $15\text{pF} \pm 5\%$ ):  $\pm 0.2$ ppm max

**Electrical Parameters**

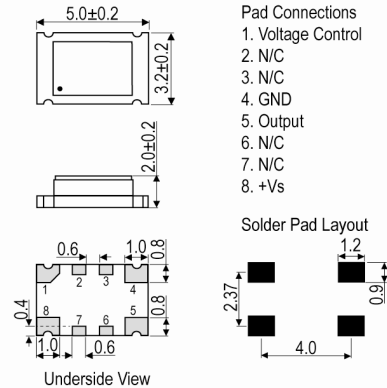
- Supply Voltage  $3.3\text{V} \pm 5\%$
- Current Draw  $10.000\text{mA}$
- Current Consumption (measurement observed with  $T_A=25^{\circ}\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.5\text{V}$  and load= $15\text{pF}$ ):  $10\text{mA}$  max

**Frequency Adjustment**

- Pulling  $\pm 10$ ppm min,  $\pm 15$ ppm max
- Control Voltage  $1.5\text{V} \pm 1.5\text{V}$
- Input Impedance  $100\text{k}\Omega$  min
- Linearity: 10% max
- Slope: Positive

**Output Details**

- Output Compatibility HCMOS
- Drive Capability  $15\text{pF}$
- Rise and Fall Time  $8.0\text{ns}$  max
- Duty Cycle 45/55%
- Output Voltage Levels (@  $V_s=3.3\text{V}$  and load= $15\text{pF}$ ):  
Output Low (VoL):  $0.4\text{V}$  max  
Output High (VoH):  $2.4\text{V}$  min

**Outline (mm)**

**Sales Office Contact Details:**

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**Noise Parameters**

- Phase Noise (typ @ 25°C):
  - 85dBc/Hz @ 10Hz
  - 115dBc/Hz @ 100Hz
  - 130dBc/Hz @ 1kHz
  - 145dBc/Hz @ 10kHz
  - 150dBc/Hz @ 100kHz
  - 150dBc/Hz @ 1MHz
- Phase Noise (max @ 25°C):
  - 80dBc/Hz @ 10Hz
  - 108dBc/Hz @ 100Hz
  - 125dBc/Hz @ 1kHz
  - 140dBc/Hz @ 10kHz
  - 145dBc/Hz @ 100kHz
  - 145dBc/Hz @ 1MHz

**Environmental Parameters**

- Storage Temperature Range: -55 to 105°C
- ESD Levels: ANSI/ESDA/JEDEC JS-001-2010:
  - Human Body Model, Class 2: 2000V to 4000V
  - Machine Model, Class B: 200V to 400V
- Shock: IEC 60068-2-27, Test Ea, Severity 50A: 100g acceleration for 6ms, half sine wave, 3 times in 3 mutually perpendicular planes.
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-2000Hz, 0.75mm amplitude, 10g acceleration, 30mins per cycle, 3 times in 3 mutually perpendicular planes, test duration 2hrs.
- RoHS Terminations
- RoHS Reflow Temp                      260°C max for 30secs max

**Compliance**

- RoHS Status (2011/65/EU)              Compliant
- REACH Status                              Compliant
- MSL Rating (JDEC-STD-033):           2

**Packaging Details**

- Pack Style: Bulk              Loose in bulk packaging  
Pack Size: 1
- *Alternative packing option available*

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