


**Description**

- Temperature compensated crystal oscillator (TCXO)
- Model IQXT-210-48
- Model Issue number 1

**Frequency Parameters**

- Frequency 20.0MHz
- Frequency Tolerance  $\pm 1.00\text{ppm}$
- Frequency Stability  $\pm 0.28\text{ppm}$
- Operating Temperature Range  $-40.00$  to  $105.00^\circ\text{C}$
- Ageing  $\pm 0.01\text{ppm}$  max per day,  $\pm 1\text{ppm}$  max per year
- Frequency Tolerance: Measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and within 30 days after ex-works.
- Frequency Stability:  $T_A$  varied across the operating temperature range, measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $\text{load}=15\text{pF}$  and temperature variable speed less than  $2^\circ\text{C}$  per minute.
- Ageing:  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and after 1hr of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s$  varied from 3.13V to 3.47V and  $\text{load}=15\text{pF}$ ):  $\pm 0.1\text{ppm}$  max
- Load Variation (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and load change= $15\text{pF}$   $\pm 5\%$ ):  $\pm 0.1\text{ppm}$  max

**Electrical Parameters**

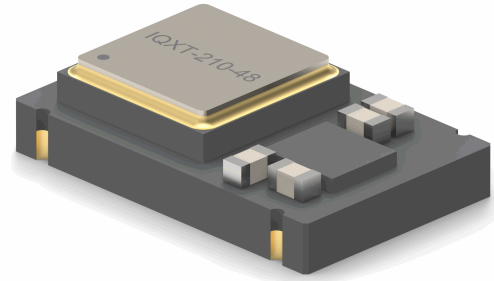
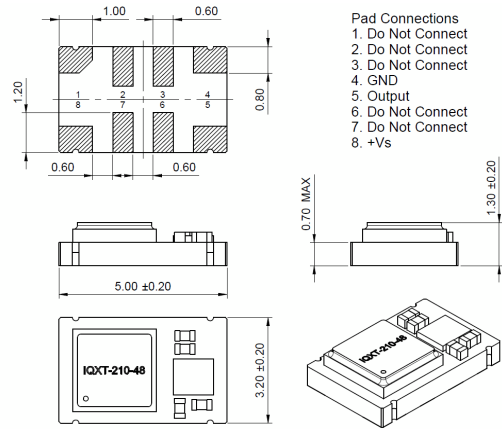
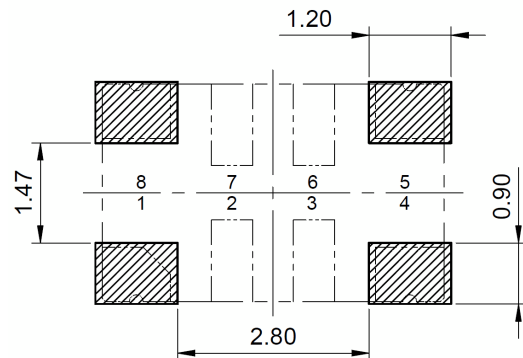
- Supply Voltage  $3.3\text{V} \pm 5\%$
- Current Draw  $10.000\text{mA}$  max
- Current:  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and  $\text{load}=15\text{pF}$

**Output Details**

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

**Noise Parameters**

- Phase Noise (@  $25^\circ\text{C}$  typ):
  - 93dBc/Hz @ 10Hz
  - 120dBc/Hz @ 100Hz
  - 145dBc/Hz @ 1kHz
  - 157dBc/Hz @ 10kHz
  - 159dBc/Hz @ 100kHz
  - 159dBc/Hz @ 1MHz
- Phase Noise (@  $25^\circ\text{C}$  max):
  - 88dBc/Hz @ 10Hz
  - 115dBc/Hz @ 100Hz
  - 140dBc/Hz @ 1kHz
  - 152dBc/Hz @ 10kHz
  - 154dBc/Hz @ 100kHz
  - 154dBc/Hz @ 1MHz


**Outline (mm)**

**Recommended Solder Pad Layout**

**Sales Office Contact Details:**

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**Environmental Parameters**

- Storage Temperature Range: -55 to 105°C
- ESD Level:  
Human Body Model: Class 2: 2000V to 4000V, JEDEC JS-001-2010  
Machine Model: Class B: 200V to 400V, JEDEC JESD22-A115C
- Shock: IEC 60068-2-27, Test Ea: 100G acceleration for 6ms, half sinewave, in 3 mutually perpendicular planes
- Vibration: IEC 60068-2-6, Test Fc: 10Hz-2000Hz, 0.75mm amplitude, 10G acceleration, 30mins per cycle, in 3 mutually perpendicular planes, test duration 2hrs

**Manufacturing Details**

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

**Compliance**

- RoHS Status (2015/863/EU)      Compliant
- REACH Status                      Compliant
- MSL Rating (JDEC-STD-033):    3

**Packaging Details**

- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
Pack Size: 1,000
- *Alternative packing option available*

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