


**Description**

- Temperature Compensated Crystal Oscillator (TCXO)
- Model IQXT-210-32
- Model Issue number 1

**Frequency Parameters**

- Frequency 12.80MHz
- Frequency Tolerance  $\pm 0.50$ ppm
- Frequency Stability  $\pm 0.14$ ppm
- Operating Temperature Range -40.00 to 85.00°C
- Ageing  $\pm 0.02$ ppm max per day,  $\pm 1$ ppm max per year
- Frequency Tolerance: Measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$  and  $V_s=3.3\text{V}$  within 30 days after ex-works.
- Frequency Stability:  $T_A$  varied across the operating temperature range, measurement referenced to frequency observed with  $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$ ,  $V_s=3.3\text{V}$ , load=15pF and temperature variable speed less than  $2^\circ\text{C}/\text{min}$ .
- Ageing: measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$  and  $V_s=3.3\text{V}$  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 load=15pF):  $\pm 0.1$ ppm max
- Load Variation (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and load change=15pF  $\pm 5\%$ ):  $\pm 0.2$ ppm max

**Electrical Parameters**

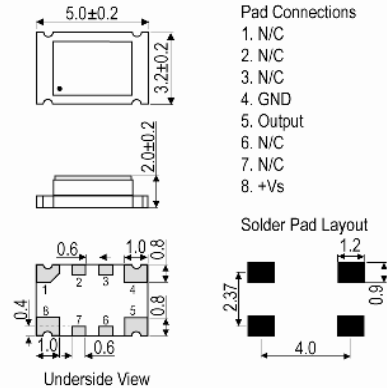
- Supply Voltage 3.3V  $\pm 5\%$
- Current Draw 10.000mA
- Current Consumption (@  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$  and load=15pF): 10mA max

**Output Details**

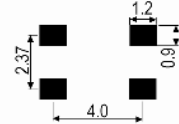
- Output Compatibility HCMOS
- Drive Capability 15pF
- Rise and Fall Time 8.0ns max
- Duty Cycle 45/55%
- Output Voltage Levels (@  $V_s=3.3\text{V}$  and load=15pF):  
Output Low (VoL): 0.4V max  
Output High (VoH): 2.4V min

**Noise Parameters**

- Phase Noise (typ @  $25^\circ\text{C}$ ):  
-85dBc/Hz @ 10Hz  
-115dBc/Hz @ 100Hz  
-135dBc/Hz @ 1kHz  
-145dBc/Hz @ 10kHz  
-150dBc/Hz @ 100kHz  
-150dBc/Hz @ 1MHz
- Phase Noise (max @  $25^\circ\text{C}$ ):  
-80dBc/Hz @ 10Hz  
-110dBc/Hz @ 100Hz  
-130dBc/Hz @ 1kHz  
-140dBc/Hz @ 10kHz  
-145dBc/Hz @ 100kHz  
-145dBc/Hz @ 1MHz

**Outline (mm)**

**Pad Connections**

1. N/C
2. N/C
3. N/C
4. GND
5. Output
6. N/C
7. N/C
8. +Vs

**Solder Pad Layout**

**Sales Office Contact Details:**

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USA: +1.760.318.2824

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
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**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 (JEDEC-STD-033):            2

**Packaging Details**

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

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