


**Description**

- Voltage Controlled Temperature Compensated Crystal Oscillator (TVXO)
- Model IQXT-200-47
- 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/year
- Frequency Tolerance (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  within 30 days after ex-works)
- Frequency Stability:  $T_A$  varied across the operating temperature range, measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$ , load= $15\text{pF}$  and temperature variable speed less than  $2^\circ\text{C}$  per minute.
- Ageing:  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  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  $3.47\text{V}$ ,  $V_C=1.65\text{V}$  and load= $15\text{pF}$ ):  $\pm 0.05\text{ppm}$  max
- Load Variation (5% load change measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  and load=  $15\text{pF}$ ):  $\pm 0.05\text{ppm}$  max

**Electrical Parameters**

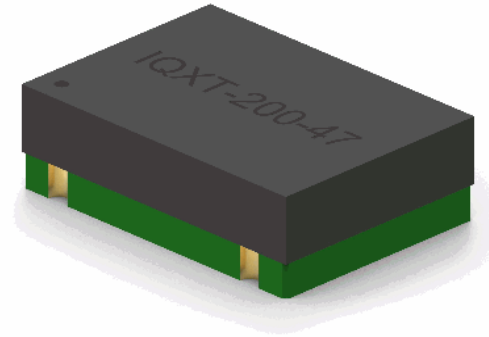
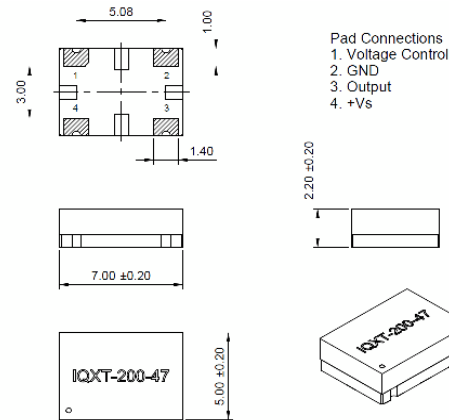
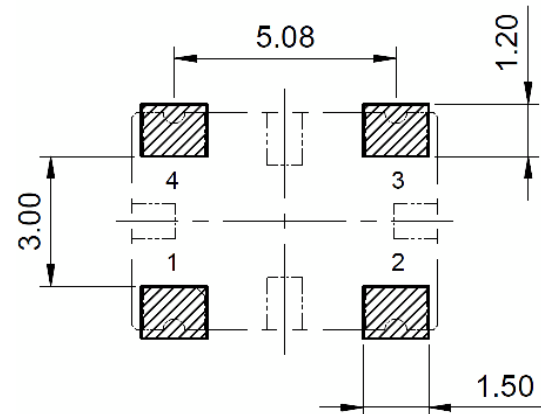
- Supply Voltage  $3.3\text{V} \pm 5\%$
- Current Draw  $10.000\text{mA}$  max
- Current: @  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  and load= $15\text{pF}$

**Frequency Adjustment**

- Pulling  $\pm 8\text{ppm}$  min
- Control Voltage  $1.65\text{V} \pm 1.65\text{V}$
- Input Impedance  $100\text{k}\Omega$  min
- Linearity:  $\pm 10\%$  max
- Slope: Positive

**Output Details**

- Output Compatibility HCMOS
- Drive Capability  $15\text{pF}$
- Rise and Fall Time  $5.0\text{ns}$  max
- Duty Cycle  $45/55\%$  max
- 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)**

**Recommended Solder Pad Layout**

**Sales Office Contact Details:**

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 Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

**Noise Parameters**

- Phase Noise (typ @ 25°C):
  - 85dBc/Hz @ 10Hz
  - 115dBc/Hz @ 100Hz
  - 140dBc/Hz @ 1kHz
  - 150dBc/Hz @ 10kHz
  - 152dBc/Hz @ 100kHz
  - 155dBc/Hz @ 1MHz
- Phase Noise (max @ 25°C):
  - 80dBc/Hz @ 10Hz
  - 110dBc/Hz @ 100Hz
  - 135dBc/Hz @ 1kHz
  - 145dBc/Hz @ 10kHz
  - 148dBc/Hz @ 100kHz
  - 150dBc/Hz @ 1MHz

**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: 100g, 6ms, half sine wave (3 times for each 3 directions X, Y, Z), IEC 68-2-27 Test Ea/Severity 50A
- Vibration: Test Condition: 0.75mm, acceleration 10g, 10Hz~2000Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X, Y, Z). IEC 68-2-06 Test Fc
- RoHS Terminations
- RoHS Reflow Temp                      260°C for 30s max

**Compliance**

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

**Packaging Details**

- Pack Style: Reel            Tape & reel in accordance with EIA-481-D  
Pack Size: 600
- *Alternative packing option available*

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