Q-Tech’s QTCC, QTCT, and QTCV Products

Q-Tech now offers ultra-miniature high reliability crystal oscillators, TCXOs and VCXOs in packages as small as 2.5 x 3.2 mm. These oscillators are fully qualified, configuration controlled, and thoroughly tested to meet the same high standards as our older, bigger products. Capable of covering the full temperature range of -55 ºC to +125 ºC with tight stability and low aging, the products also offer low phase noise and jitter. Furthermore, Q-Tech offers short lead times, with 8 weeks maximum and in many cases only 2 weeks lead time for standard parts.

**Highlights**
- Packages as small as 2.5 x 3.2 mm
- Full military temperature range of -55 ºC to +125 ºC
- Low phase noise
- Low jitter
- Fully qualified
- High Reliability
- Configuration Controlled
- TCXO stabilities as tight as ±0.5 PPM
- Quick lead times, 8 weeks guaranteed worst case, 2 weeks typical for repeat orders
- Great customer service

<table>
<thead>
<tr>
<th>Image (Actual Size)</th>
<th>Q-Tech Package</th>
<th>Dimensions (mm)</th>
<th>Product Type</th>
<th>Logic</th>
<th>Voltage</th>
<th>Frequency Range</th>
<th>Stability</th>
<th>Typical Phase Noise (100kHz)</th>
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<tr>
<td>QTCC230</td>
<td>2.50x3.20x1.15</td>
<td>XO</td>
<td>CMOS</td>
<td>1.8 to 3.3Vdc</td>
<td>625kHz to 133MHz</td>
<td>50ppm to 100ppm</td>
<td>-156 dBc/Hz @80MHz</td>
<td></td>
</tr>
<tr>
<td>QTCC350</td>
<td>3.20x5.00x1.20</td>
<td>XO</td>
<td>CMOS</td>
<td>1.8 to 5.0Vdc</td>
<td>32.768kHz to 125MHz</td>
<td>20ppm to 100ppm</td>
<td>-158 dBc/Hz @80MHz</td>
<td></td>
</tr>
<tr>
<td>QTCC570</td>
<td>5.00x7.00x1.40</td>
<td>XO</td>
<td>CMOS</td>
<td>1.8 to 5.0Vdc</td>
<td>1.544MHz to 190MHz</td>
<td>20ppm to 100ppm</td>
<td>-156 dBc/Hz @100MHz</td>
<td></td>
</tr>
<tr>
<td>QTCC356</td>
<td>3.20x5.00x1.20</td>
<td>XO</td>
<td>LVDS LVPECL</td>
<td>2.5 to 3.3Vdc</td>
<td>25MHz to 250MHz</td>
<td>25ppm to 100ppm</td>
<td>-146 dBc/Hz @100MHz</td>
<td></td>
</tr>
<tr>
<td>QTCC576</td>
<td>5.00x7.00x1.50</td>
<td>XO</td>
<td>LVDS LVPECL</td>
<td>2.5 to 3.3Vdc</td>
<td>25MHz to 250MHz</td>
<td>25ppm to 100ppm</td>
<td>-150 dBc/Hz @100MHz</td>
<td></td>
</tr>
<tr>
<td>QTCT230</td>
<td>2.50x3.20x0.90</td>
<td>TCXO</td>
<td>Clipped Sine</td>
<td>2.8 to 3.3Vdc</td>
<td>10MHz to 45MHz</td>
<td>1ppm to 2.5ppm</td>
<td>-150 dBc/Hz @19.2MHz</td>
<td></td>
</tr>
<tr>
<td>QTCT350</td>
<td>3.20x5.00x1.10</td>
<td>TCXO</td>
<td>Clipped Sine</td>
<td>3.3 to 5.0Vdc</td>
<td>10MHz to 52MHz</td>
<td>0.5ppm to 2.5ppm</td>
<td>-156 dBc/Hz @12.8MHz</td>
<td></td>
</tr>
<tr>
<td>QTCT570</td>
<td>5.00x7.00x1.90</td>
<td>TCXO</td>
<td>Clipped Sine</td>
<td>2.8 to 3.3Vdc</td>
<td>5MHz to 52MHz</td>
<td>0.5ppm to 2.5ppm</td>
<td>-156 dBc/Hz @12.8MHz</td>
<td></td>
</tr>
<tr>
<td>QTCV356</td>
<td>3.20x5.00x1.20</td>
<td>VCXO</td>
<td>CMOS PECL</td>
<td>3.3 to 5.0Vdc</td>
<td>1MHz to 156.25MHz</td>
<td>25ppm APR to 100ppm APR</td>
<td>-157 dBc/Hz @122.88MHz</td>
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</tr>
<tr>
<td>QTCV576</td>
<td>5.00x7.00x1.50</td>
<td>VCXO</td>
<td>CMOS PECL</td>
<td>3.3 to 5.0Vdc</td>
<td>1MHz to 156.25MHz</td>
<td>30ppm APR to 100ppm APR</td>
<td>-155 dBc/Hz @61.44MHz</td>
<td></td>
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</tbody>
</table>

Three package sizes with dime for reference (US Dime is 17.9mm in diameter)
Surface Mount Miniature Oscillator Products Brochure

Q-Tech’s QTCC, QTCT, and QTCV Products

**XO (CMOS)**

- **QTCC570**
  - Package: QTCC570 = 5x7mm
  - Output Frequency: 50.000MHz

- **QTCC350**
  - Package: QTCC350 = 3.2x5mm
  - Output Frequency: 50.000MHz

- **QTCC230**
  - Package: QTCC230 = 2.5x3.2mm
  - Output Frequency: 50.000MHz

**Logic & Supply Voltage:**
- AC = HCMOS +5.0V at 50pF
- HC = HCMOS +5.0V at 15pF
- LA = LVCMOS +3.3V at 50pF
- L = LVCMOS +3.3V at 15pF
- N = LVCMOS +2.5V at 15pF
- R = LVCMOS +1.8V at 15pF

**Screening:**
- Blank = Unscreened
- M = Per MIL-PRF-55310, Level B

**Tristate**
- D = Tristate

**Note:**
Supply options AC, HC, and LA are not available for QTCC230. Stability Code 14 is not available for QTCC230.

**TCXOs**

- **QTCT350**
  - Output Frequency: 10.000MHz

- **Supply Voltage:**
  - 5 = +5.0V
  - 3 = +3.3V
  - A = +3.0V
  - 2 = +2.8V

**Output Logic**
- C = HCMOS
- S = Clipped Sine

**VCXOs**

- **QTCV576**
  - Output Frequency: 50.000MHz

- **Absolute Pull Range vs. Temperature Code:**
  - L2 = ± 100ppm APR at -10ºC to +70ºC
  - L7 = ± 100ppm APR at -40ºC to +85ºC
  - K2 = ± 50ppm APR at -10ºC to +70ºC
  - K7 = ± 50ppm APR at -40ºC to +85ºC
  - J2 = ± 30ppm APR at -10ºC to +70ºC
  - J7 = ± 30ppm APR at -40ºC to +85ºC

- **Logic & Supply Voltage:**
  - HC = HCMOS +5V
  - L = LVCMOS +3.3V
  - P = LVPECL +3.3V

- **Screening:**
  - Blank = Unscreened
  - M = Per MIL-PRF-55310, Level B

- **Tristate**
  - D = Tristate

**Note:**
Voltage option 5 is not available for QTCT230.