Model CVCSO-914 is a voltage-controlled SAW (surface acoustic wave) Clock Oscillator (VCSO). SAW crystal technology provides low-noise and low-jitter performance with true sinewave output. Features include -135 dBC/Hz phase noise at 10 kHz offset at 1 GHz, 5V input voltage, -20°C to +70°C operating temperature, and 9×14 mm SMT package. The oscillator has no sub-harmonic and the second harmonic is typically -20 dBC.

Applications include PLL frequency translation, test and measurement, avionics, point-to-point radios, and multi-point radios.
Ultra-Low Phase Noise
True SineWave
SAW Based VCSO

Frequency Range: 245.760 MHz to 1000 MHz
Temperature Range:
  CVCSO-914A option 0°C to +70°C
  CVCSO-914M option 0°C to +50°C
  CVCSO-914X option -20°C to +70°C
  CVCSO-914A option -40°C to +85°C
Storage: -40°C to 90°C
Input Voltage: 5.0V ±0.25V
Control Voltage Range: 0V to 5.0V
Tuning Sensitivity (Kv): +120 ppm/V Typical
Settability At Nominal (25°C): 1.5V ±0.5V -1.0V
Frequency vs Temperature: ±200ppm Typical
Input Current: 25mA Typical, 35mA Max

Output: True SineWave
  Pullability APR: ±50ppm Min
  Linearity: ±20% Max
  Output Power: +10dBm Min into 50 Ω Load
  Start-Up Time: 2ms Typical, 10ms Max
  2nd Harmonic: -20dBc Typical, -15dBc Max
  Sub-Harmonics: None
  Modulation BW: >20kHz @ -3dB
  G-sensitivity: 0.9×10⁻⁹ per G
  Weight: 0.816 g

PAD FINISH: Immersion Gold (ENIG); 5 micro inches maximum

See Table A

<table>
<thead>
<tr>
<th>Pad</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volt. Control</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Output</td>
</tr>
<tr>
<td>4</td>
<td>Vdd</td>
</tr>
</tbody>
</table>

pad layout

Table A

<table>
<thead>
<tr>
<th>Package Height Options (Max)</th>
<th>inches</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>0.210</td>
<td>5.33</td>
</tr>
<tr>
<td>Option L</td>
<td>0.135</td>
<td>3.43</td>
</tr>
</tbody>
</table>

Date: 27-Aug-2019
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**Ultra-Low Phase Noise**

**True SineWave**

**SAW Based VCSO**

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**Crystek Part Number Guide**

<table>
<thead>
<tr>
<th>Crystek Part Number Guide</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CVCSO - 914 X L - 640.000</strong></td>
<td></td>
</tr>
<tr>
<td>#1 Crystek Saw Voltage Controlled Oscillator</td>
<td></td>
</tr>
<tr>
<td>#2 Model 914</td>
<td></td>
</tr>
<tr>
<td>#3 Temperature Range (X = -40/85°C) (M = -20/70°C) (Blank = 0/70°C)</td>
<td></td>
</tr>
<tr>
<td>#4 Height (L = 0.135&quot;) (Blank = 0.210&quot;)</td>
<td></td>
</tr>
<tr>
<td>#5 Frequency in MHz: 3 or 6 decimal places</td>
<td></td>
</tr>
</tbody>
</table>

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**Available Frequencies (MHz):**

- 245.760
- 250.000
- 640.000
- 800.000
- 840.000
- 916.000
- 1000.000

Custom Frequencies Available with NRE Fee

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**RECOMMENDED REFLOW SOLDERING PROFILE**

- **TEMPERATURE**
  - 200°C
  - 217°C
  - 260°C
  - Critical Temperature Zone
  - Ramp-Up 3°C/Sec Max.
  - Ramp-Down 6°C/Sec.
  - Preheat 180 Secs. Max.
  - 90 Secs. Max.
  - 8 Minutes Max.
  - 260°C for 10 Secs. Max.

**NOTE:** Reflow Profile with 240°C peak also acceptable.

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**Frequency vs Temperature**

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**Parameter** | **Conditions**
---|---
Mechanical Vibration | MIL-STD-883, Method 2007, Condition A
Solderability | MIL-STD-883, Method 2003
Solvent Resistance | MIL-STD-202, Method 215
Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition I or J
Thermal Shock | MIL-STD-883, Method 1011, Condition A
Moisture Resistance | MIL-STD-883, Method 1004

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Crystek Corporation reserves the right to make changes to its products and/or information contained herein without notice. No liability is assumed as a result of its use or application.
Ultra-Low Phase Noise
True SineWave
SAW Based VCSO

CVCSO-914 Model
9x14 mm SMD, 5.0V, SineWave

CVCSO-914-640 Model

-145 dBc/Hz

CVCSO-914-245.760 Model

-145 dBc/Hz