Model CVCSO-914-1000 is a 1 GHz 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 -138 dBc/Hz phase noise at 10 kHz offset, 5V input voltage, -20°C to +70°C operating temperature, and 9×14 mm SMT package. The CVCSO-914X offers an operating temperature range of -40°C to +85°C. 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.
CVCSO-914-1000 Model
9×14 mm SMD, 5.0V, SineWave

Ultra-Low Phase Noise
True SineWave
1GHz, SAW Based VCSO

Frequency: 1 GHz
Temperature Range: -20°C to +70°C
   CVCSO-914X-1000 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
Settablity At Nominal (25°C): +0.5V to 2.0V
Tuning Sensitivity (Kv): +120ppm/V
Frequency vs Temperature: ±100ppm 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
Phase Noise Typical:
   1kHz -110 dBc/Hz
   10kHz -139 dBc/Hz
   100kHz -160 dBc/Hz
   1MHz -170 dBc/Hz
   10MHz -174 dBc/Hz
G-sensitivity: 0.9×10^-9 per g

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

<table>
<thead>
<tr>
<th>Pad</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volt. Control</td>
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<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>

SUGGESTED PAD LAYOUT

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

CRYSSTEK
CVCSO-914
1 GHz
Date Code

See Table A

Package Height Options (Max)

<table>
<thead>
<tr>
<th>inches</th>
<th>mm</th>
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<tbody>
<tr>
<td>Standard</td>
<td>0.210</td>
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<tr>
<td>Option L</td>
<td>0.135</td>
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Table A

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**Ultra-Low Phase Noise**

**True SineWave**

**1GHz, SAW Based VCSO**

### Crystek Part Number Guide

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
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<tbody>
<tr>
<td>Mechanical Vibration</td>
<td>MIL-STD-883, Method 2007, Condition A</td>
</tr>
<tr>
<td>Solderability</td>
<td>MIL-STD-883, Method 2003</td>
</tr>
<tr>
<td>Solvent Resistance</td>
<td>MIL-STD-202, Method 215</td>
</tr>
<tr>
<td>Resistance to Soldering Heat</td>
<td>MIL-STD-202, Method 210, Condition I or J</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>MIL-STD-883, Method 1011, Condition A</td>
</tr>
<tr>
<td>Moisture Resistance</td>
<td>MIL-STD-883, Method 1004</td>
</tr>
</tbody>
</table>

**Frequency vs Temperature**

![Graph showing frequency vs temperature](image)

**Recommended Reflow Soldering Profile**

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

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

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**Date: 11-Dec-2019**

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