Model CVCSO-914M3 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, 3.3V 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

CVCSO-914M3 Model
9×14 mm SMD, 5.0V, SineWave

Frequency Range: 250 MHz to 1000 MHz
Temperature Range: -20°C to +70°C
Storage: -40°C to 90°C
Input Voltage: 3.3V ±5%
Control Voltage Range: 0V to 3.3V
Settability At Nominal (25°C): +0.5V to 2.0V
Frequency vs Temperature: ±200ppm Typical
Tuning Sensitivity (Kv): +120ppm/V Typical
Input Current: 25mA Typical, 35mA Max

Output:
Pullability APR: True SineWave ±50ppm Min
Linearity: ±20% Max
Output Power: +8dBm Min into 50 Ω Load
Start-Up Time: 2mSec Typical, 10mSec Max
2nd Harmonic: -20dBc Typical, -15dBc Max
Sub-Harmonics: None
Modulation BW: >20kHz @ -3dB
Phase Jitter: 12kHz~80MHz <1ps RMS (1-sigma) Max
Phase Noise (Typical):

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Phase Noise (Typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1kHz</td>
<td>-105 dBc/Hz</td>
</tr>
<tr>
<td>10kHz</td>
<td>-135 dBc/Hz</td>
</tr>
<tr>
<td>100kHz</td>
<td>-145 dBc/Hz</td>
</tr>
<tr>
<td>1MHz</td>
<td>-160 dBc/Hz</td>
</tr>
<tr>
<td>10MHz</td>
<td>-170 dBc/Hz</td>
</tr>
</tbody>
</table>

G-sensitivity: 0.9×10^-9 per g

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

SUGGESTED PAD LAYOUT

PAD CONNECTION:

<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>

Table A

<table>
<thead>
<tr>
<th>Standard</th>
<th>Option L</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>mm</td>
</tr>
<tr>
<td>0.210</td>
<td>5.33</td>
</tr>
<tr>
<td>0.135</td>
<td>3.43</td>
</tr>
</tbody>
</table>

Package Height Options (Max)

<table>
<thead>
<tr>
<th>Height Options (Max)</th>
<th>Standard</th>
<th>Option L</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>0.560 ±0.005 (14.2 ±0.127)</td>
<td></td>
</tr>
<tr>
<td>mm</td>
<td>(9.14 ±0.127)</td>
<td></td>
</tr>
</tbody>
</table>

See Table A
Ultra-Low Phase Noise  
True SineWave  
SAW Based VCSO

Available Frequencies (MHz):
- 250.000
- 640.000
- 800.000
- 840.000
- 916.000
- 1000.000

Custom Frequencies Available with NRE Fee

**RECOMMENDED REFLOW SOLDERING PROFILE**

- **Temp °C**
  - 150°C
  - 217°C
  - 260°C
- **Temperature**
  - **Ramp-Up** 3°C/Sec Max.
  - **Critical Temperature Zone** Ramp-Down 6°C/Sec.
  - **Preheat** 180 Secs. Max.  
  - **90 Secs. Max.**  
  - 260°C for 10 Secs. Max.

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

**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 Shock | MIL-STD-883, Method 1004