High Frequency SineWave Crystal Oscillator

CCO-983/985 Model
9x14 mm SMD, 3.3V/5V, SineWave

Frequency Range: 50 MHz to 500 MHz
Temperature Range: ±25 ppm, 0°C to 70°C
(Option X) ±50 ppm, -40°C to 85°C
Storage: -45°C to 90°C
Input Voltage: 3.3V ±0.3V
5.0V ±0.5V
Input Current: 30mA Max @ 3.3V
50mA Max @ 5.0V
Output: True SineWave
Output Power: 0 dBm Min
Start-up time: 2ms Typical, 10ms Max
Load: 50 Ω
Period Jitter: (20,000 periods) <5ps RMS (1-sigma) Max
Phase Jitter: 12 kHz~20 MHz <1ps RMS (1-sigma) Max
50 kHz~80 MHz <1ps RMS (1-sigma) Max
Phase Noise Typical: 10 Hz -50 dBc/Hz
100 Hz -80 dBc/Hz
1 kHz -110 dBc/Hz
10 kHz -135 dBc/Hz
100 kHz -145 dBc/Hz
Aging: <3 ppm 1st year, <2 ppm every year thereafter

Applications:
10 Gigabit Ethernet
OC48: Forward Error Correction
Broadband Networks
SONET/SDH/DWD
ATM
Network/switch
Telecom

Designed using FR5 PCB & HFF crystal technology to provide a Low Noise, Low Jitter Crystal Oscillator with True SineWave Output.

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9×14 mm SMD, 3.3V/5V, SineWave

### Crystek Part Number Guide

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Frequency</th>
<th>Date Code</th>
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</thead>
<tbody>
<tr>
<td>CCO-983 X-500.000</td>
<td>3.3V, -40/85°C, 500.000 MHz</td>
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</tr>
</tbody>
</table>

Example:
CCO-983X-500.000 = 3.3V, -40/85°C, 500.000 MHz

### Recommended Reflow Soldering Profile

**Ramp-Up**
- 3°C/Sec Max.

**Preheat**
- 180 Secs. Max.
- 8 Minutes Max.

**Critical Temperature Zone**
- 260°C for 10 Secs. Max.

**Ramp-Down**
- 6°C/Sec.

**Temperatures**
- 150°C
- 200°C
- 217°C
- 260°C

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

### Suggested Pad Layout

<table>
<thead>
<tr>
<th>Pad</th>
<th>Connection</th>
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<tbody>
<tr>
<td>1</td>
<td>N/C</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>OUT</td>
</tr>
<tr>
<td>4</td>
<td>Vdd</td>
</tr>
</tbody>
</table>

### Mechanical:

- **Shock:** MIL-STD-883, Method 2002, Condition B
- **Solderability:** MIL-STD-883, Method 2003
- **Vibration:** MIL-STD-883, Method 2007, Condition A
- **Solvent Resistance:** MIL-STD-202, Method 215
- **Resistance to Soldering Heat:** MIL-STD-202, Method 210, Condition I or J

### Environmental:

- **Thermal Shock:** MIL-STD-883, Method 1011, Condition A
- **Moisture Resistance:** MIL-STD-883, Method 1004

### Packaging:

- **Tape/Reel:** 100ea, 250ea, 500ea 24mm Tape