CRYSTEK CRYSTALS
A Division of Crystek Corporation

# High Frequency SineWave Crystal Oscillator

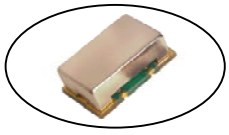
## CCO-983/985 Model

9×14 mm SMD, **3.3V/5V, SineWave**

RoHS Compliant

CRYSTEK CORPORATION
MADE IN THE USA

| | | |
|---|---|---|
| **Frequency Range:** | | 50 MHz to 500 MHz |
| **Temperature Range:** | | ±25ppm, 0°C to 70°C |
| | (Option X) | ±50ppm, -40°C to 85°C |
| **Storage:** | | -45°C to 90°C |
| **Input Voltage:** | | 3.3V ±0.3V<br>5.0V ±0.5V |
| **Input Current:** | | 30mA Max @ 3.3V<br>50mA Max @ 5.0V |
| **Output:** | | True SineWave |
| | Output Power: | 0 dBm Min |
| | Start-up time: | 2ms Typical, 10ms Max |
| | Load | 50 Ω |
| **2nd Harmonic:** | | -20 dBc Max |
| **Sub-Harmonics:** | | |
| | (50 MHz ~ 170 MHz) | None |
| | (171 MHz ~ 500 MHz) | -40 dBc Typical, -35 dBc Max |
| **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 Typ.:** | 10 Hz | -50 dBc/Hz |
| (@311.04 MHz) | 100 Hz | -80 dBc/Hz |
| | 1 kHz | -110 dBc/Hz |
| | 10 kHz | -135 dBc/Hz |
| | 100 kHz | -145 dBc/Hz |
| **Aging:** | | <3ppm 1st year, <2ppm 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.

Specifications subject to change without notice.



CRYSTEK CORPORATION
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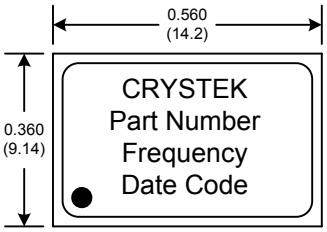
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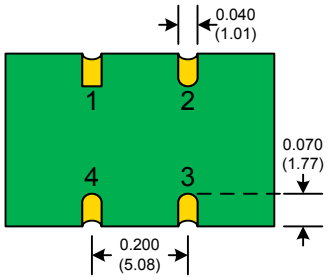
### Crystek Part Number Guide

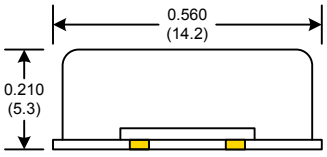
CCO-983 X-500.000
#1 #2 #3 #4

#1 Crystek 9×14 SMD SineWave Oscillator
#2 Model 983 = 983=3.3V 985=5.0V
#3 Temp. Range: Blank = 0/70°C, X=-40/85°C
#4 Frequency in MHz: 3 or 6 decimal places

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

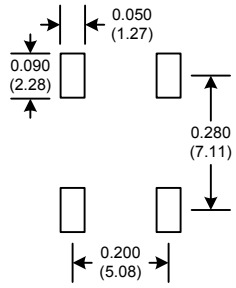


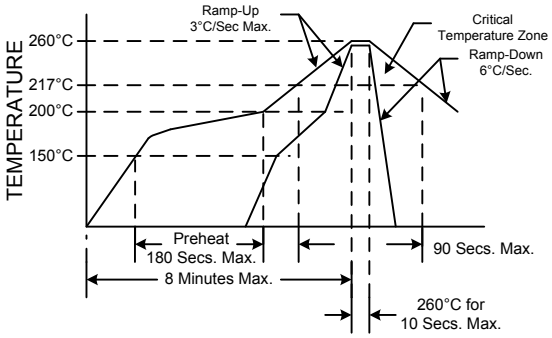

| Pad | Connection |
|---|---|
| 1 | N/C |
| 2 | GND |
| 3 | OUT |
| 4 | Vdd |

**SUGGESTED PAD LAYOUT**




| Standard Frequencies MHz | |
|---|---|
| 77.7600 | 167.3317 |
| 155.5200 | 212.5000 |
| 156.2500 | 250.0000 |
| 161.1328 | 311.0400 |
| 166.6286 | |

**RECOMMENDED REFLOW SOLDERING PROFILE**




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

RoHS Compliant

**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 |

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