

# High Frequency SineWave Crystal Oscillator

**CCO-983/985 Model**  
9×14 mm SMD, 3.3V/5V, SineWave



<b>Frequency Range:</b>	50 MHz to 500 MHz
<b>Temperature Range:</b> (Option X)	±25ppm, 0°C to 70°C ±50ppm, -40°C to 85°C
<b>Storage:</b>	-45°C to 90°C
<b>Input Voltage:</b>	3.3V ±0.3V 5.0V ±0.5V
<b>Input Current:</b>	30mA Max @ 3.3V 50mA Max @ 5.0V
<b>Output:</b>	True SineWave
Output Power:	0 dBm Min
Start-up time:	2ms Typical, 10ms Max
Load:	50 Ω
<b>2nd Harmonic:</b>	-20 dBc Typical
<b>Sub-Harmonics:</b>	
(50 MHz ~ 170 MHz)	None
(171 MHz ~ 500 MHz)	-40 dBc Typical, -35 dBc Max
<b>Period Jitter:</b> (20,000 periods)	<5ps RMS (1-sigma) Max
<b>Phase Jitter:</b> 12 kHz~20 MHz	<1ps RMS (1-sigma) Max
50 kHz~80 MHz	<1ps RMS (1-sigma) Max
<b>Phase Noise Typical:</b>	
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
<b>Aging:</b>	<3ppm 1 <sup>st</sup> 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.

Rev: M
Date: 04-Apr-2019
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**9x14 mm SMD, 3.3V/5V, SineWave**

## Crystek Part Number Guide

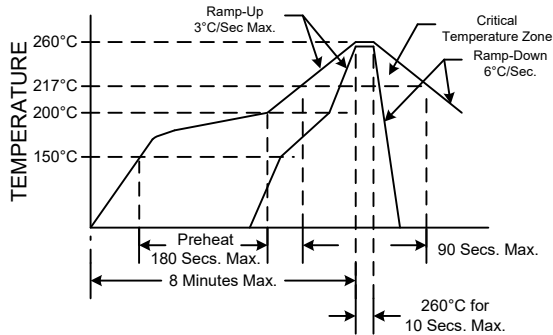
**CCO-983 X-500.000**

#1 #2 #3 #4

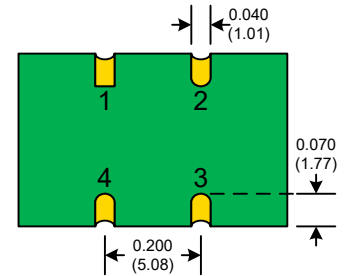
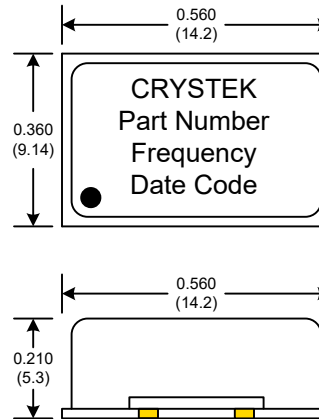
#1 Crystek 9x14 SMD SineWave Oscillator  
#2 Model 983 = 983=3.3V 985=5.0V  
#3 Temp. Range: Blank = 0/70°C, X=-40/85°C  
#4 Frequency in MHz: 3 or 6 decimal places

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

### RECOMMENDED REFLOW SOLDERING PROFILE

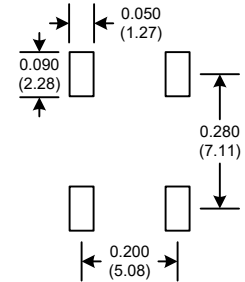


NOTE: Reflow Profile with 240°C peak also acceptable.



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

### SUGGESTED PAD LAYOUT



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

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

### 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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