



**CRYSTEK**  
CRYSTALS  
A DIVISION OF CRYSTEK CORPORATION



# Differential LVPECL VCXO

## CVPD-970 Model

9x14 mm SMD, 3.3V, LVPECL

### Frequency Range:

622.080 MHz to 670 MHz

### Frequency Stability:

±25ppm

### Temperature Range:

0°C to 70°C

(Option X)

-40°C to 85°C

### Storage:

-45°C to 90°C

### Input Voltage:

3.3V ±0.3V

### Control Voltage:

1.65V ±1.65V

### Input Current:

80mA Max

### Output:

Differential LVPECL

Symmetry:

49/51% Typical, 45/55% Max

Rise/Fall Time:

0.4ns Max @ 20% to 80% Vcc

Pullability APR:

±50ppm Min

Linearity:

±10% Max

Load: Terminated to Vdd-2V

into 50 ohms

Logic "1" Level:

Vcc-0.96V Min, Vcc-0.81V Max

Logic "0" Level:

Vcc-1.85V Min, Vcc-1.65V Max

Disable Time:

100ns Max

Start-up Time:

2ms Typical, 10ms Max

### Modulation BW:

>10kHz @ -3dB

### Sub-harmonics:

-40dBc

**Period Jitter:** (20,000 periods)

<5ps RMS (1-sigma) Max

**Phase Jitter:** 12kHz~20MHz

<1ps RMS (1-sigma) Max,

50kHz~80MHz

<1ps RMS (1-sigma) Max,

**Phase Noise Typical:** 100Hz

-80 dBc/Hz

1kHz

-108 dBc/Hz

10kHz

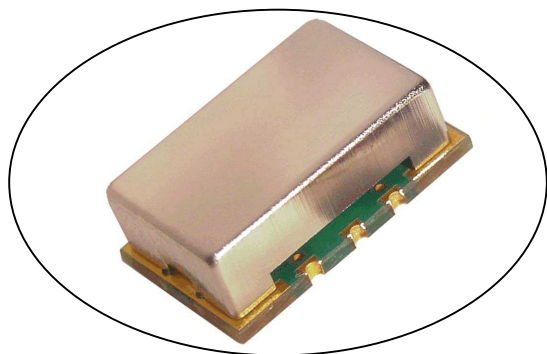
-132 dBc/Hz

100kHz

-140 dBc/Hz

### Aging:

<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 Voltage Controlled Clock Oscillator solution at a competitive price.

Specifications subject to change without notice.

TD-030607 Rev. F

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# Differential LVPECL VCXO



## CVPD-970 Model 9x14 mm SMD, 3.3V, LVPECL

### Crystek Part Number Guide

CVPD - 970 - X - 622.080

#1 #2 #3 #4

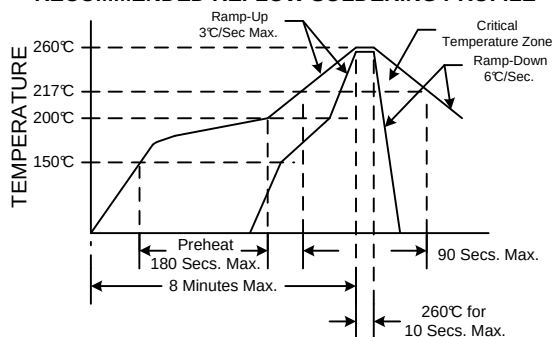
#1 Crystek 9x14 SMD PECL VCXO  
#2 Model 970 = High Frequency 3.3V  
#3 Temp. Range: Blank = 0/70°C, X = -40/85°C  
#4 Frequency in MHz: 3 or 6 decimal places

Example:  
CVPD-970X-622.080 = 3.3V, -40/85°C, 622.080 MHz

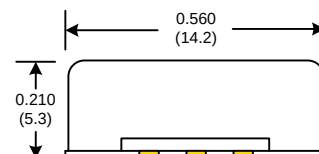
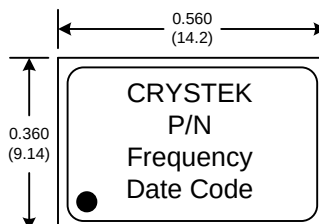
### Standard Frequencies MHz

|            |            |
|------------|------------|
| 622.080    | 666.514300 |
| 625.000    | 669.128100 |
| 644.531300 | 669.326500 |

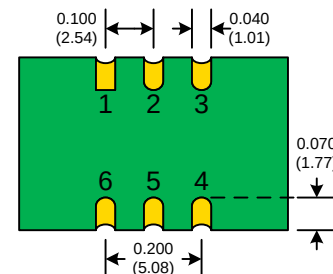
### RECOMMENDED REFLOW SOLDERING PROFILE



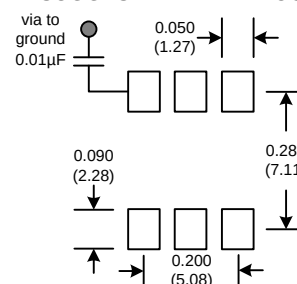
NOTE: Reflow Profile with 240°C peak also acceptable.



| PIN | Function |
|-----|----------|
| 1   | Vcont    |
| 2   | E/D      |
| 3   | GND      |
| 4   | OUT      |
| 5   | COU      |
| 6   | Vdd      |



### SUGGESTED PAD LAYOUT



| Enable/Disable Function                      |            |
|----------------------------------------------|------------|
| Pin 2                                        | Output pin |
| Open                                         | Active     |
| "0" level Vcc-1.620V Max                     | Active     |
| "1" level Vcc-1.025V Min                     | Disabled   |
| Disabled State:                              |            |
| Pin 4 will assume a fixed level of logic "0" |            |
| Pin 5 will assume a fixed level of logic "1" |            |

### Mechanical:

Shock:

Solderability:

Vibration:

Solvent Resistance:

Resistance to Soldering Heat:

MIL-STD-883, Method 2002, Condition B

MIL-STD-883, Method 2003

MIL-STD-883, Method 2007, Condition A

MIL-STD-202, Method 215

MIL-STD-202, Method 210, Condition I or J

### Environmental:

Thermal Shock:

Moisture Resistance:

MIL-STD-883, Method 1011, Condition A

MIL-STD-883, Method 1004

### Packaging:

Tape/Reel:

100ea, 250ea, 500ea 24mm Tape

TD-030607 Rev. F

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