



CRYSTEK
CRYSTALS
A DIVISION OF CRYSTEK CORPORATION

**CCPD-023 5x7mm SMD
LVPECL Clock Oscillator
2.5 Volts**



Model CCPD-023 is a 77.760MHz to 161.000MHz LVPECL Clock Oscillator operating at 2.5Volts. The oscillator utilizes a High Q Third Overtone crystal design providing very low Jitter and Phase Noise. No Sub-Harmonics are present in the Output Signal.



5x7mm SMD

Applications:

**Digital Video
SONET/SDH/DWDM
Storage Area Networks
Broadband Access
Ethernet, Gigabit Ethernet**



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Frequency Range: 77.760Mhz to 161.000Mhz
Frequency Stability Options(ppm): ±20, ±25, ±50, ±100

Temperature Range: (standard) 0°C to +70°C
(Option M) -20°C to +70°C
(Option X) -40°C to +85°C

Storage: -55°C to 120°C
Input Voltage: 2.5V ± 0.125V
Input Current: 55mA Typ., 88mA Max

Output: Differential LVPECL
Symmetry: 45/55% Max @ 50% Vdd
Rise/Fall Time: 1nsec Max @ 20% to 80% Vdd

Logic: Terminated to Vdd-2V into 50 ohms
Temp. 0°C to 85°C "0"=0.690 Min., 1.095 Max
"1"=1.475 Min., 1.760 Max
Temp. -40°C to 0°C "0"=0.670 Min., 1.195 Max
"1"=1.415 Min., 1.620 Max
Disable Time 200nSec Max
Start-up Time 1mSec Typ., 2mSec Max

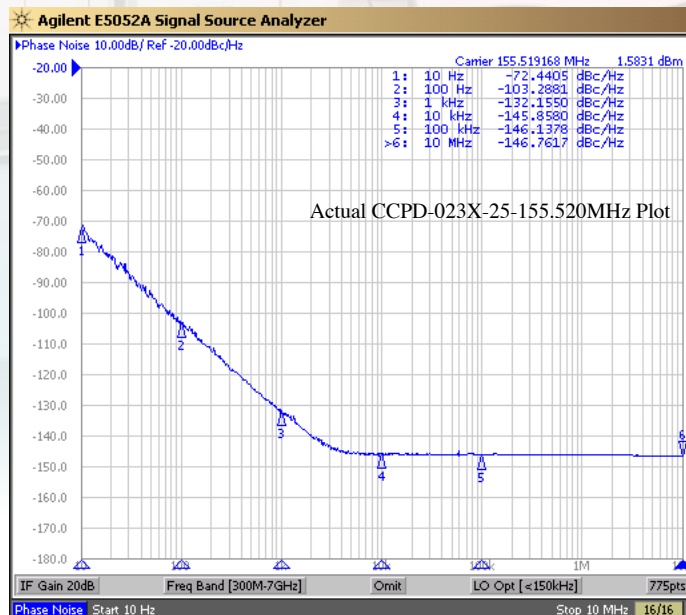
Phase Jitter: 12KHz~80MHz 0.5psec Typ., 1psec RMS Max

Phase Noise: (See Plot Below)

Sub-harmonics:

None

Aging: <3ppm 1st/yr, <1ppm every year thereafter





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CCPD-023 5x7mm SMD LVPECL Clock Oscillator



PART NUMBER GUIDE

CCPD - 023 X - 25 - 155.520

#1 #2 #3 #4 #5

#1 Crystek PECL Osc.

#2 Model 023

#3 Temp. Range (Blank=0/70°C)(M=-20/70°C)(X=-40/85°C)

#4 Stability: (see Table 1)

#5 Frequency in MHz: 3 or 6 decimal places

Example:

CCPD-023X-25-155.520

2.5V, -40/85°C, ±25ppm, 155.520 MHz

| Stability Indicator | |
|---------------------|---------|
| Blank(std) | ±100ppm |
| 50 | ±50ppm |
| 25 | ±25ppm |
| 20 | ±20ppm |

Table 1

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

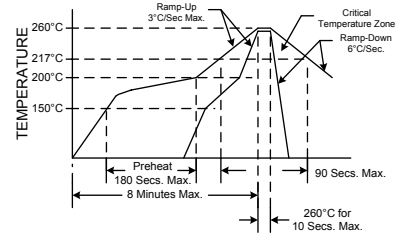
Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition I or J

Environmental:

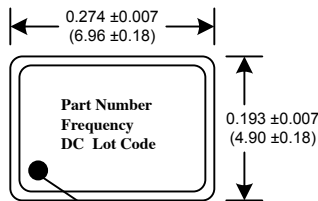
Thermal Shock: MIL-STD-883, Method 1011, Condition A

Moisture Resistance: MIL-STD-883, Method 1004

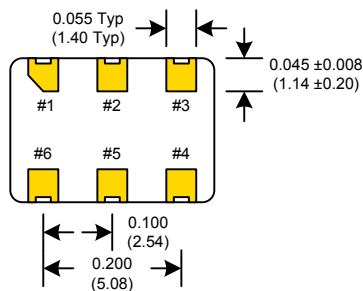
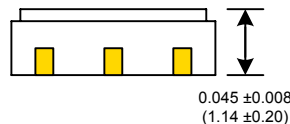
RECOMMENDED REFLOW SOLDERING PROFILE



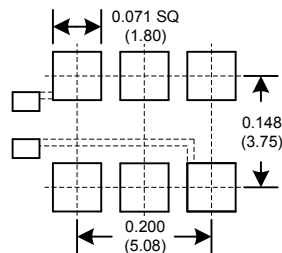
NOTE: Reflow Profile with 240°C peak also acceptable.



Denotes pad 1



SUGGESTED PAD LAYOUT



0.01uF Bypass Capacitor Recommended

Tri-State Function

| Pin #1 State | Output State |
|-----------------------|--------------|
| Open or N/C | Active |
| "1" level 0.7*Vcc Min | Active |
| "0" level 0.3*Vcc Max | High Z |

| Pad | Connection |
|-----|----------------|
| 1 | Enable/Disable |
| 2 | N/C |
| 3 | GND |
| 4 | Out |
| 5 | Comp. Out |
| 6 | VCC |