

**CCPD-023 Model**  
5×7 mm SMD, 2.5V, LVPECL



**Model CCPD-023 is a 77.760 MHz to 161.000 MHz LVPECL Clock Oscillator operating at 2.5 Volts. 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.**



**5×7mm SMD**

**Applications:**

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

|                 |
|-----------------|
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### CCPD-023 Model

5×7 mm SMD, 2.5V, LVPECL

|                                   |                            |
|-----------------------------------|----------------------------|
| Frequency Range:                  | 77.760 MHz to 161.000 MHz  |
| 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:                          | -45°C to 90°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 Ω

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

Enable Time:

1mSec Typ., 2mSec Max

Phase Jitter: 12kHz~80MHz

0.5psec Typ., 1psec RMS Max

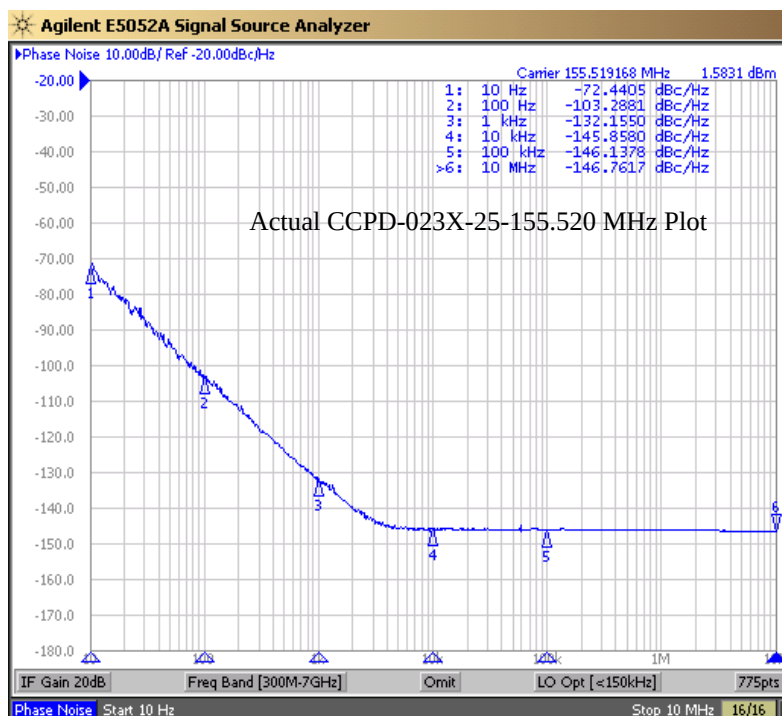
Phase Noise: (See Plot Below)

Sub-harmonics:

None

Aging:

<3ppm 1<sup>st</sup>/yr, <1ppm every year thereafter



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**Crystek Part Number Guide**

CCPD - 023 X - 25 - 155.520

#1 #2 #3 #4 #5

#1 Crystek LVPECL 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 | ± 100ppm |
| 50    | ± 50ppm  |
| 25    | ± 25ppm  |
| 20*   | ± 20ppm  |

\*not available in -40/85

Table 1

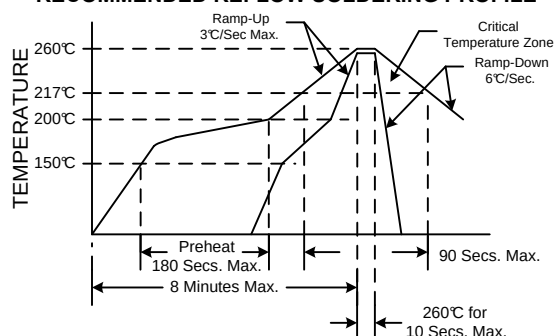
**Mechanical:**

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

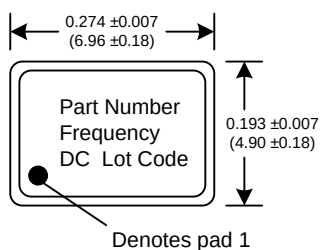
**Environmental:**

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

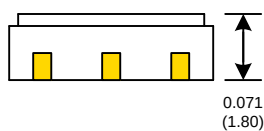
**RECOMMENDED REFLOW SOLDERING PROFILE**



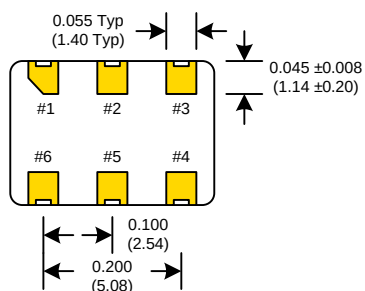
NOTE: Reflow Profile with 240°C peak also acceptable.



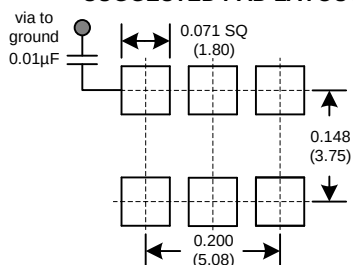
Dimensions inches (mm)  
All dimensions are Max unless otherwise specified.



| Tristate Function     |            |
|-----------------------|------------|
| Function pin 1        | Output pin |
| Open or N/C           | Active     |
| "1" level 0.7×Vdd Min | Active     |
| "0" level 0.3×Vdd Max | High Z     |



**SUGGESTED PAD LAYOUT**



0.01µF Bypass Capacitor Recommended

| PIN | Connection     |
|-----|----------------|
| 1   | Enable/Disable |
| 2   | N/C            |
| 3   | GND            |
| 4   | Output         |
| 5   | Comp Output    |
| 6   | Vcc            |

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