

3.3V Surface Mount 5x7.5mm LVDS Oscillator V501



VCXO

Features:

- 3.3V Operation
- Low Jitter <1pS RMS
- Total Frequency Tolerance ± 20 ppm
- Temperature Range 0° to 70°C
- Differential LVDS Outputs
- Enable / Disable Function
- Surface Mount Package

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The Connor-Winfield V501 is a 3.3V Voltage Controlled Crystal Oscillator (VCXO) with LVDS Differential outputs. The V501 is designed for use with PLL systems in SONET/SDH systems requiring low jitter and tight stability. No multiplication schemes are used in this oscillator design.

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-40	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	
Control Voltage (Vc)	-0.5	-	Vcc+0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	65	-	200	MHz	
Total Frequency Tolerance	-20	-	20	ppm	1
Operating Temperature Range	0	-	70	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	-	100	mA	
Jitter: (BW=10 Hz to 20 MHz) (BW=12 kHz to 80 MHz)	-	-	5 1	ps RMS	
SSB Phase Noise @ 10 Hz offset @ 100 Hz offset @ 1 kHz offset @ 10 kHz offset @ 100 kHz offset	-	-75 -95 -125 -140 -145	-	dBc/Hz	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.3	1.65	3.0	Vdc	
Frequency Pullability @ 25°C	± 70	-	-	ppm	2
Absolute Pull Range (APR)	± 50	-	-	ppm	3
Monotonic Linearity	-10	-	10	%	
Input Impedance	-	60K	-	Ohm	
Modulation Bandwidth (3dBm)	25	-	-	kHz	
Enable Input Voltage (Low) (Vil) Disable Input Voltage (High) (Vih)	- 0.7Vcc	-	0.3Vcc -	Vdc	4

LVDS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	100	Ohms	5
Output Differential Voltage (Vod)	250	-	450	mV	
Duty Cycle at 50% Level	45	50	55	%	
Rise/Fall Time	-	0.6	1.5	nS	

Notes:

1. Inclusive of calibration @25°C, frequency stability vs. temperature, control voltage (Vc) = 1.65 Vdc and aging for ten years.
2. Referenced to Fo at T=25°C Positive Slope.
3. Absolute pull range (APR) is the minimum guaranteed pull range of the VCXO under all conditions over lifetime operation including aging for ten years. The APR is referenced to Fo.
4. When oscillator is disabled both output are in a high impedance state (Tri-State)
5. Vod measured with 10 ohm resistor between the true output and the complementary output.

Ordering Information

V501 - 125.00 MHz

VCXO SERIES CENTER FREQUENCY

US Headquarters:
630-851-4722
European Headquarters:
+353-61-472221

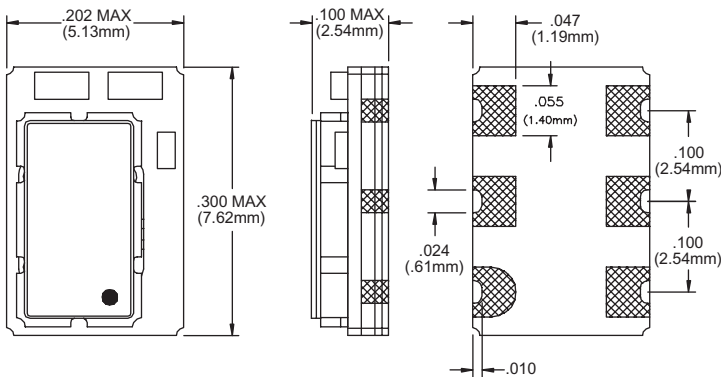
Bulletin	Vx500
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Process Recommendations

Solder Reflow SMD product suitable for Convection Reflow soldering.
Peak temperature 260°C Maximum time above 220°C, 60 seconds

Package Characteristics

Package Hermetically sealed ceramic package with grounded metal cover

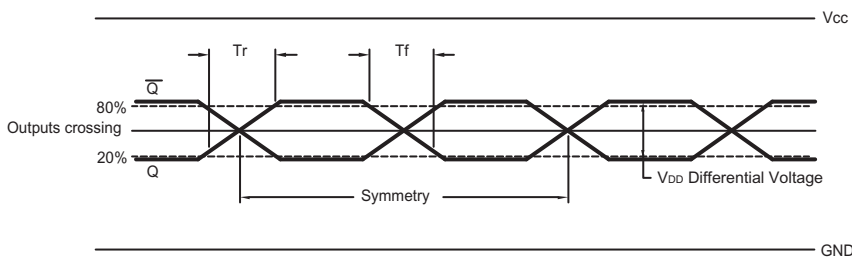


Pin Connections

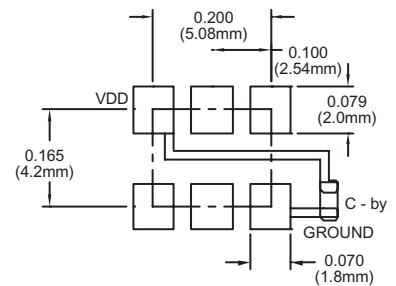
- 1: Control Voltage
- 2: Enable / Disable
- 3: Ground (Case)
- 4: Output Q
- 5: Comp Output \bar{Q}
- 6: Vcc

Dimensional Tolerance:
 ± 005 (.127mm)

Timing Chart



Suggested Pad Layout



Bypass capacitor, C-by, should be ceramic capacitor $\geq .01$ uf.

Test Circuit

