

# 3.3V Surface Mount 5.0 x 7.5mm LVPECL Oscillator V301

# CONNOR WINFIELD



## VCXO

## Features:

Surface Mount Package  
3.3V Operation  
Low Jitter <1pS RMS  
Total Frequency Tolerance  $\pm 20$  ppm  
Temperature Range 0° to 70°C  
Differential LVPECL Outputs  
Tape and Reel Packaging  
RoHS Compliant as of 12/2005

The Connor-Winfield RoHS Compliant V301 is a 3.3V Voltage Controlled Crystal Oscillator (VCXO) with LVPECL Differential outputs. The V301 is RoHS compliant and 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	-55	-	125	°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:					
Period Jitter	-	2.5	5.0	ps RMS	
Phase Jitter (BW= 12 kHz to 80 MHz)	-	0.3	1.0		
SSB Phase Noise for 155.52 MHz					
@ 10 Hz offset	-	-50	-		
@ 100 Hz offset	-	-80	-		
@ 1 kHz offset	-	-110	-		
@ 10 kHz offset	-	-142	-		
@ 100 kHz offset	-	-145	-		

## Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.3	1.65	3.0	Vdc	
Frequency Pullability @ 25°C	$\pm 70$	-	-	ppm	2
Absolute Pull Range (APR)	$\pm 50$	-	-	ppm	3
Monotonic Linearity	-10	-	10	%	
DC Input Impedance	-	60K	-	Ohm	
Modulation Bandwidth (3dB)	25	-	-	kHz	
Enable Input Voltage (Low) (Vil)	-	-	1.68	Vdc	4
Disable Input Voltage (High) (Vih)	2.275	-	-		

## Low Voltage PECL Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	50	Ohms	5
Voltage: High (Voh)	2.275	-	-	Vdc	
Low (Vol)	-	-	1.68		
Duty Cycle at 50% Level	45	50	55	%	
Rise/Fall Time measured @ 20% to 80%	-	0.6	1.5	nS	

## Notes:

- Inclusive of calibration @25°C, frequency stability vs. temperature, control voltage (Vc) = 1.65 Vdc and aging for ten years.
- Referenced to Fo at T=25°C Positive Slope.
- 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.
- When oscillator is disabled both output are in a high impedance state (Tri-State)
- 50 ohm termination into Vcc-2V or Thevein equivalent.

## Ordering Information

V301 - 155.52M

VCXO  
SERIES

CENTER  
FREQUENCY

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Bulletin **Vx473**  
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Revision **06**  
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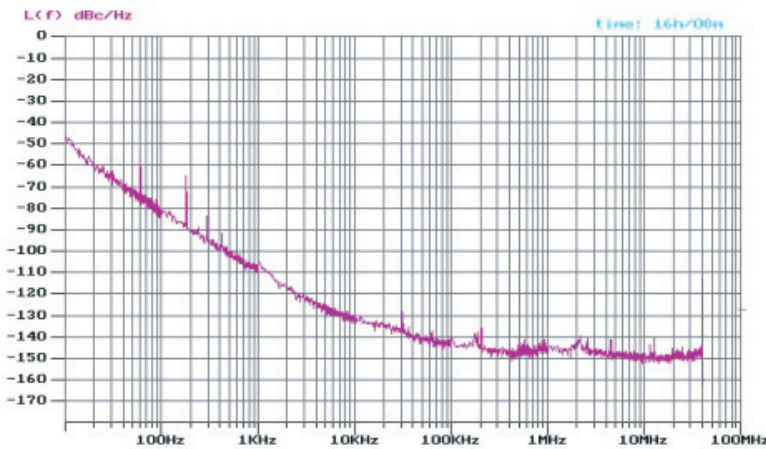
## Process Recommendations

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

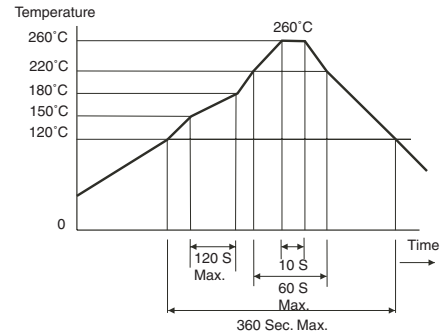
## Package Characteristics

Package Hermetically sealed ceramic package with grounded metal cover

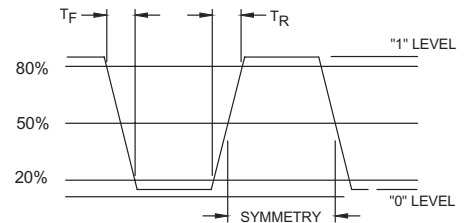
## Typical Phase Noise for 155.52 MHz



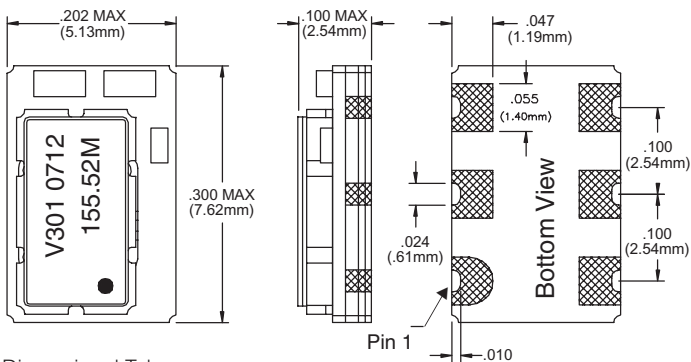
## Solder Profile



## Output Waveform



## Package Layout

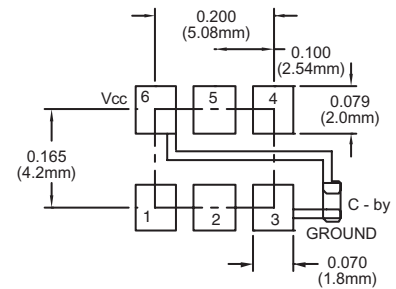


Dimensional Tolerance:  
±005 (.127mm)

## Pin Connections

- 1: Control Voltage
- 2: Enable / Disable
- 3: Ground (Case)
- 4: Output Q
- 5: Comp Output Q<sub>-</sub>
- 6: V<sub>cc</sub>

## Suggested Pad Layout



Bypass capacitor, C-by, should be ceramic capacitor ≥ .01 uf.

## Test Circuit

