

5.0x7.5mm LVCMOS 3.3V VCXO

CONNOR WINFIELD



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Description

The Connor Winfield model V401 is a 3.3V, Surface Mount 5.0x7.5mm, Voltage Controlled Crystal Oscillator (VCXO) with a LVCMOS output and enable/disable function. The V401 is designed for use with applications with PLL systems in SONET/SDH systems requiring low jitter and tight frequency stability. The surface mount package is designed for high-density mounting and is optimum for mass production.



Features

Models: V401

3.3V Operation
Total Frequency Tolerance: +/-20ppm
Absolute Pull Range (APR): +/-50ppm
Temperature Range: 0 to 70°C
LVCMOS Output
Low Jitter 0.4ps RMS Typical
Enable / Disable Function:
5.0x7.5mm Surface Mount Package
Tape and Reel Packaging
RoHS Compliant / Lead Free ✓ RoHS

Specifications

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	4.6	Vdc	
Control Voltage	(Vc)	-0.5	-	Vcc+0.5	Vdc	

OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	65	-	130	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)	-	-	40	mA	
Period Jitter		-	3.0	5.0	ps rms	
Integrated Phase Jitter (BW=12kHz to 20MHz)		-	0.4	1.0	ps rms	
SSB Phase Noise Fo = 74.25MHz						
SSB Phase Noise at 10Hz offset		-	-60	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-115	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-140	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-150	-	dBc/Hz	

INPUT CHARACTERISTICS

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
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	%	
DC Input Resistance		-	60K	-	Ohm	4
Modulation Bandwidth (-3dB)		25	-	-	KHz	
Disable Input Voltage (Low)	(Vil)	-	-	0.4	Vdc	5
Enable Input Voltage (High)	(Vih)	2.4	-	-	Vdc	5

LVCMOS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	15	pF	
Voltage (High)	(Voh)	2.4	-	-	Vdc	
(Low)	(Vol)	-	-	0.4	Vdc	
Duty Cycle at 50% Level		45	50	55	%	
Rise / Fall Time measured @ 20% to 80%		-	0.5	1.5	nS	

PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Hermetically sealed ceramic package with grounded metal cover.
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PROCESS RECOMMENDATIONS

TABLE 6.0

Soldering Process	RoHS compliant, lead free. See solder profile page 2.
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Bulletin Vx482

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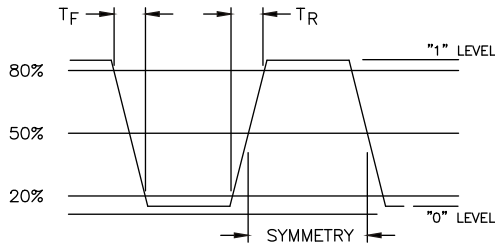
Revision 06

Date 05 Dec 2007

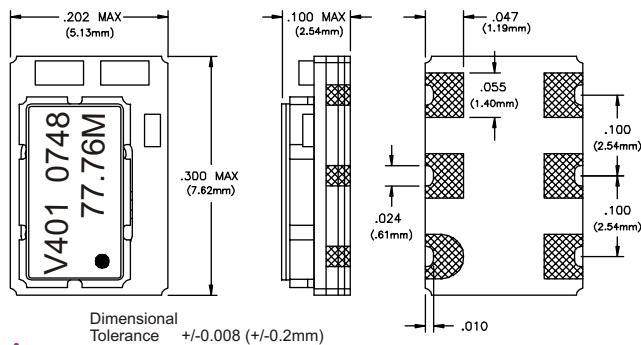
Notes

- 1.0 Inclusive of calibration @ 25°C, frequency stability vs. temperature, control voltage (Vc) = 1.65 Vdc and aging for ten years.
- 2.0 Referenced to Fo at T=25°C Positive Slope.
- 3.0 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.
- 4.0 Measured from pin 1 to ground.
- 5.0 With N/C on pad 2 oscillator is enabled, when oscillator is disabled output is in a high impedance state (Tri-State)

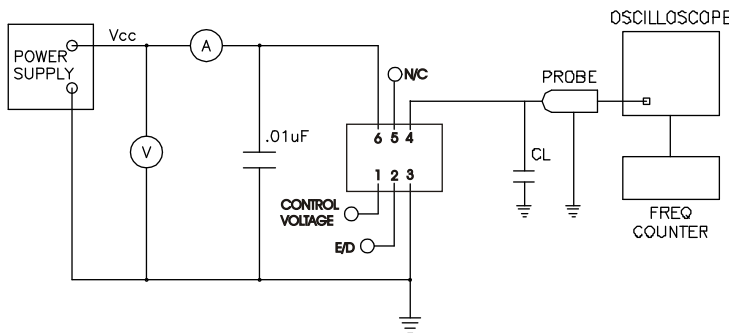
Output Waveform



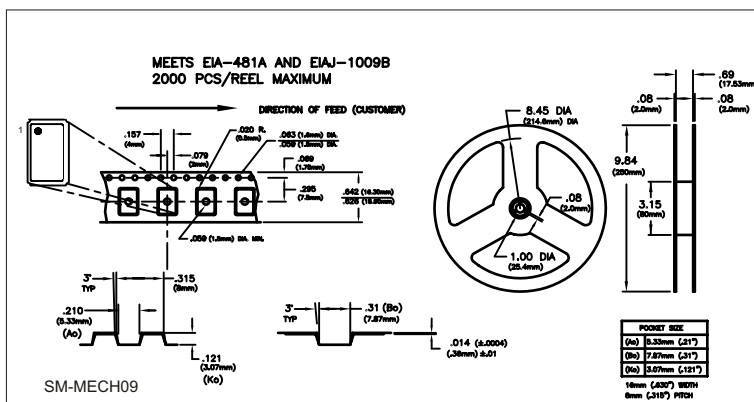
Package Layout



Test Circuit



Tape and Reel Information



Specifications subject to change without notice. All dimensions in inches. © Copyright 2007 The Connor-Winfield Corporation

Pad Connections

Table 7.0

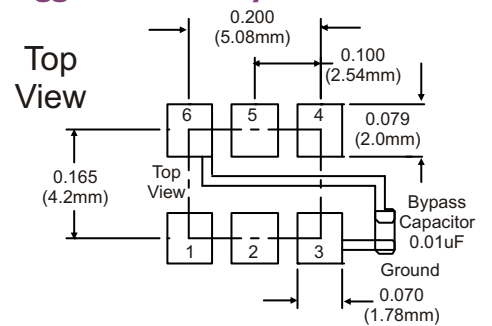
Pin	Function
1	Control Voltage
2	Enable / Disable
3	Ground (Case)
4	Output
5	N/C
6	Vcc

Enable / Disable Function

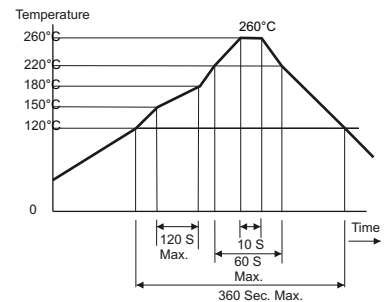
Table 8.0

Enable / Disable Function (Pad 2)	Output
Low	Enable
High or Open	Disable (High Impedance)

Suggested Pad Layout



Solder Profile



Ordering Information

V401 - 077.76MM

VCXO SERIES

CENTER FREQUENCY

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