

# 3.3V Surface Mount 5x7.5mm LVDS VCXO

# CONNOR WINFIELD



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## Description

The Connor Winfield model V503 is a 3.3V, Surface Mount 5x7.5mm, Voltage Controlled Crystal Oscillator (VCXO) with LVDS differential outputs and a enable/ disable function. The V503 is designed for use with applications requiring very high frequency, low jitter and low phase noise. The surface mount package is designed for high-density mounting and is optimum for mass production.



## Features

**Model: V503**

3.3V Operation  
5x7.5mm Surface Mount Package  
Absolute Pul Range(APR) : +/-100ppm  
Temperature Range: 0 to 70°C  
Differential LVDS Outputs  
Enable / Disable Function  
Tape and Reel Packaging  
RoHS Compliant / Lead Free

## 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)	130	-	167	MHz	
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	100	mA	
Period Jitter		-	3.0	5.0	ps rms	
Phase Jitter (BW=12kHz to 20MHz)		-	0.5	1.0	ps rms	
SSB Phase Noise at 10Hz offset		-	-60	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-125	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-140	-	dBc/Hz	
SSB Phase Noise at 100KHz offset		-	-145	-	dBc/Hz	

### INPUT CHARACTERISTICS

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Control Voltage Range	(Vc)	0.3	1.65	3.0	Vdc	
Absolute Pull Range (APR)		+/-100	-	-	ppm	1
Monotonic Linearity		-10	-	10	%	
Input Impedance		-	60K	-	Ohm	
Modulation Bandwidth (3dB)		25	-	-	KHz	
Enable Input Voltage (Low)	(Vil)	-	-	0.3Vcc	Vdc	2
Disable Input Voltage (High)	(Vih)	0.7Vcc	-	-	Vdc	2

### LVDS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	100	Ohms	3
Output Differential Voltage	(Vod)	250	-	450	mV	3
Output Swing (Differential Output peak to peak)	(Vopp)	500	-	900	mV	
Duty Cycle at 50% Level		45	50	55	%	4
Rise / Fall Time		-	0.6	1.0	nS	

### PACKAGE CHARACTERISTICS

TABLE 5.0

Package	Hermetically sealed ceramic package with grounded metal cover.
Soldering Process	RoHS Compliant / Lead Free, see solder profile on page 2.

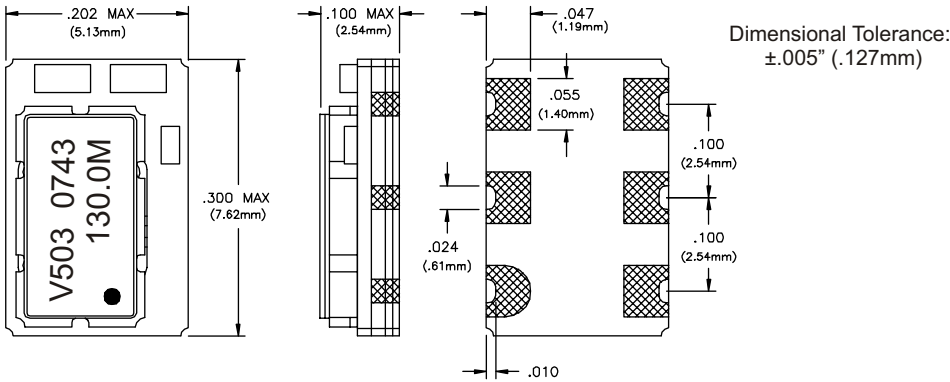
#### Notes

- 1.0 Absolute pull range (APR) is the minimum guaranteed pull range of the VCXO under all conditions over the lifetime operation. Including calibration @ 25°C, frequency vs. change in temperature, frequency vs. change in supply voltage, frequency vs. change in load, shock and vibration and aging for ten years. The APR is referenced to Fo. Positive Transfer Function.
- 2.0 When oscillator is disabled both output are in a high impedance state (Tri-State)
- 3.0 Vod measured with 100 ohm resistor between the true output and the complementary output.
- 4.0 Duty Cycle measured at 50% of output swing.

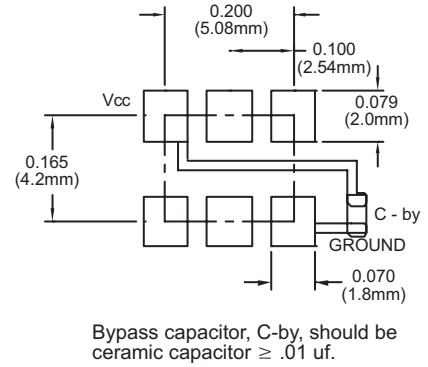


Bulletin	Vx594
Page	1 of 2
Revision	01
Date	18 Jan 2008

## Package Layout



## Suggested Pad Layout



## Pad Connections

TABLE 6.0

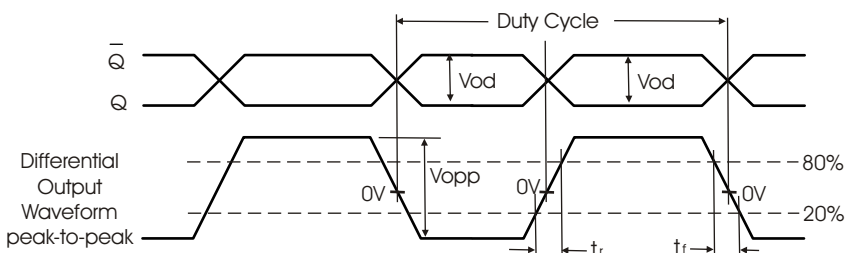
Pad	Function
1	Control Voltage
2	Enable / Disable
3	Ground (Case)
4	Output Q
5	Output Q
6	Vcc

## Enable / Disable Function

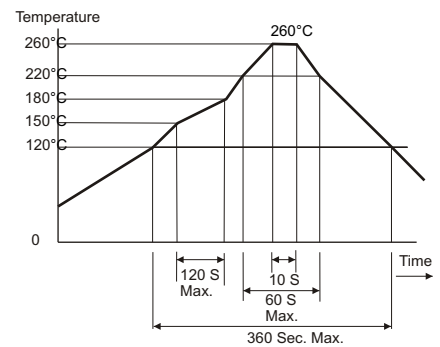
TABLE 7.0

Enable / Disable Function (Pad 2)	Outputs
No Connection	Enable
Low	Enable
High	Disable (High Impedance)

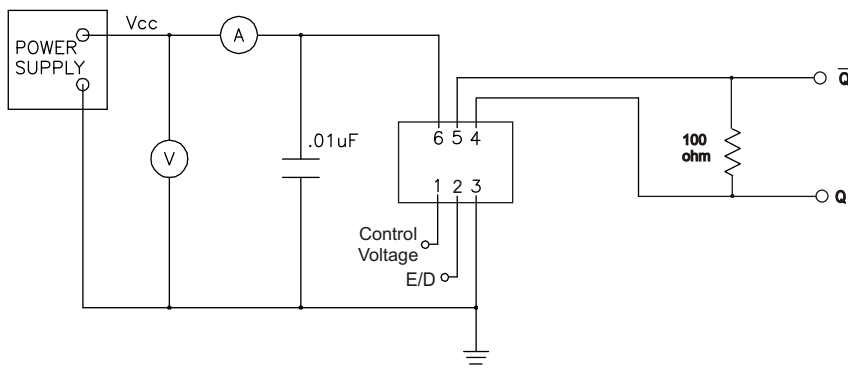
## Output Waveform



## Solder Profile



## Test Circuit



## Ordering Information

V503 - 130.0M  
 LVDS VCXO SERIES      CENTER FREQUENCY

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Bulletin	Vx594
Page	2 of 2
Revision	01
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