

# LVPECL VCXO Model VL734

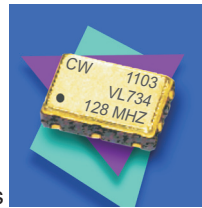
# CONNOR WINFIELD



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## Description:

The Connor-Winfield VL734 is a 5x7mm, 3.3 Vdc LVPECL, Surface Mount, Voltage Controlled Crystal Oscillator (VCXO) designed for phase lock loop applications requiring low jitter and tight frequency stability. The VL734 uses multiplication to achieve the final output frequencies. The RoHS compliant surface mount package is designed for high-density mounting and is optimum for mass production.



## Features:

- 3.3V Operation
- Absolute Pull Range:  $\pm 100$  ppm
- Temperature Range: 0 to 85°C
- Tri-State Enable/Disable Pad 2
- Low Jitter: <1ps RMS
- Differential LVPECL Outputs
- 5x7mm SMT Package
- Tape and Reel Packaging
- RoHS Compliant / Lead Free

## Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	4.6	Vdc	
Control Voltage (Vc)	-0.5	-	Vcc + 0.5	Vdc	

## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency: (Fo)	65	-	200	MHz	
Operating Temp Range:	0	-	85	°C	
Supply Voltage: (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current : (Icc)	-	70	80	mA	
Jitter:					
Period Jitter	-	4	7	ps RMS	
Integrated Phase Jitter	-	0.65	1.0	ps RMS	1
Typical SSB Phase Noise Fo = 128 MHz					
@ 100 Hz offset	-	-80	-	dBc/Hz	
@ 1 KHz offset	-	-105	-	dBc/Hz	
@ 10 KHz offset	-	-120	-	dBc/Hz	
@ 100 KHz offset	-	-125	-	dBc/Hz	
@ 1 MHz offset	-	-135	-	dBc/Hz	
Start-Up Time	-	-	10	ms	

## Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.3	1.65	3.0	Vdc	
Pull Slope @ Vc=1.65V	-	120	-	ppm/V	
Absolute Pull Range (APR)	$\pm 100$	-	-	ppm	2
Maximum Pull Range @ 25 °C	-	-	$\pm 225$	ppm	
Monotonic Linearity	-10	-	10	%	
Input Impedance	2M	-	-	Ohm	
Modulation Bandwidth (3dB)	18	-	-	KHz	
Enable Input Voltage (Low) (Vil)	-	-	0.3Vcc	V	3
Disable Input Voltage (High) (Vih)	0.7Vcc	-	-	V	

## LVPECL Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	50	-	Ohm	4
Voltage (High) Voh	2.275	-	-	V	
(Low) Vol	-	-	1.68	V	
Duty Cycle at 50% Level	45	50	55	%	
Rise / Fall Time: 20% to 80%	-	0.3	0.5	ns	

## Package Characteristics

Package Hermetically sealed ceramic surface mount package with case ground metal cover

### Notes:

- BW= 12 KHz to 20 MHz,
- Absolute Pull Range (APR) is the minimum guaranteed pull range of the VCXO under all conditions over lifetime operation including calibration @ 25°C, frequency stability vs. the change in temperature, frequency vs. change in supply voltage, frequency vs. change in load, shock and vibration and 10 years aging. The APR is referenced to (Fo). Positive transfer function.
- Oscillator output is enabled with no connection on pad 2. When the oscillator is disabled the differential outputs are at a high impedance state.
- Output terminated into 50 ohms into Vcc - 2.0 Vdc or Thevenin equivalent.

Specifications subject to change without notice. All dimensions in inches. © Copyright 2011 The Connor-Winfield Corporation



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Revision **00**  
Date **19 Jan 2011**



## Ordering Information

<b>VL7</b>	<b>3</b>	<b>4</b>	<b>128.0M</b>
Type: LVPECL VCXO 5x7 mm Package	Temperature Range 3 = 0 to 85°C	APR and Supply Voltage 4 = ±100 ppm APR Vcc = 3.3 Vdc Enabled = Low ("0")	Output Frequency - Frequency Format -xxx.xM Min. * -xxx.xxxxxM Max. * * Amount of numbers after the decimal point. M = MHz

**Example:**  
VL734-128.0M = 5x7mm, LVPECL, VCXO, 3.3 Vdc, 0 to 85°C, ±100 ppm APR, Output Frequency 128 MHz, Enabled Low ("0").

## Pad Connections

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

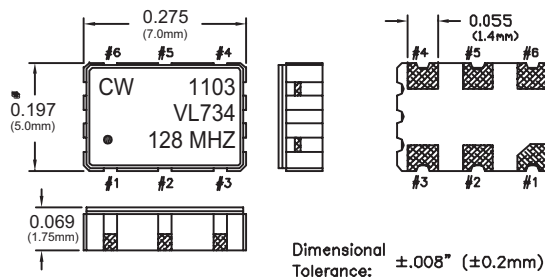
## Environmental Characteristics

Vibration: Vibration per Mil Std 883E Method 2007.3 Test Condition A.  
Shock: Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.  
Soldering Process: RoHS compliant lead free. See soldering profile on page 2.

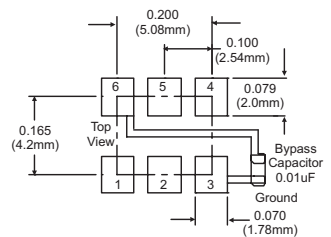
## Enable / Disable Function

Function: Outputs  
Low or Open Enabled  
High Disabled (High Impedance)

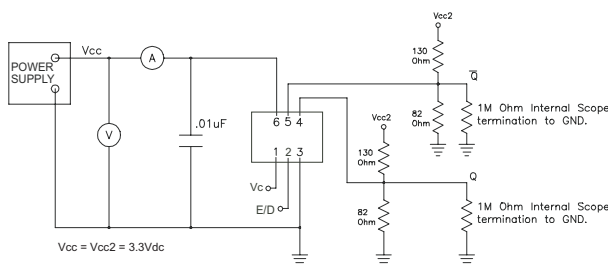
## Package Layout



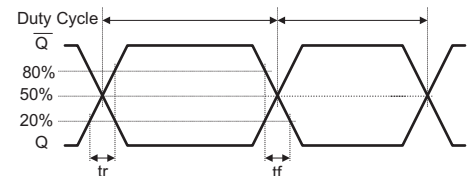
## Suggested Pad Layout



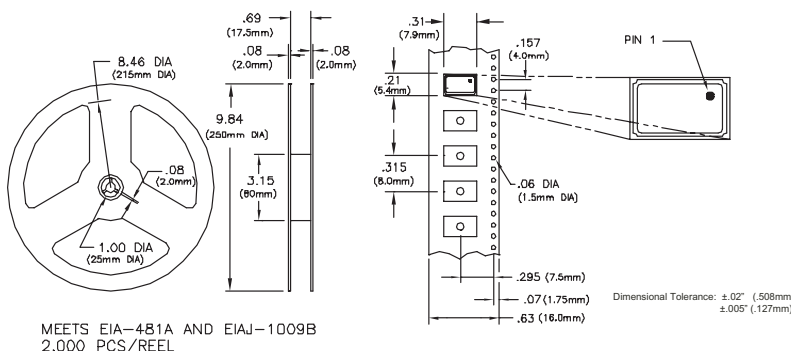
## Test Circuit



## Output Waveform



## Tape and Reel Dimensions



## Solder Profile

