3.3V Surface Mount Crystal Oscillator VPLB434J3E-S1

CONNOR WINFIELD

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VCXO

The Connor-Winfield VPLB434J3E-S1 is a 3.3V Voltage Controlled Crystal Oscillator (VCXO) with LVPECL Differential outputs. Based on fundamental strip crystal design, the VPLB434J3E-S1 is designed for use in Phased Lock Loop Fibre Channel systems requiring low jitter and tight stability. The VPLB434J3E-S1 has a selectable output: 132.8125 MHz, 142.2991 MHz, or 137.0968 MHz.

Features:

Selectable Outputs: 132.8125 MHz, 142.2991 MHz or 137.0968 MHz
Low Profile, Surface Mount Package
3.3V Supply Voltage
Low Jitter <1pS RMS
Frequency Tolerance ±34 ppm
Temperature Range -5° to 65°C
Differential LVPECL Outputs
Enable / Disable Function
Tape and Reel Packaging

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	-	7.0	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo) Output Select "0x" Output Select "10" Output Select "11"	-	 132.8125 142.2991 137.0968	-	MHz	
Frequency Calibration @25°C	-20	-	20	ppm	
Frequency vs Temperature	-34	-	34	ppm	
Frequency vs Supply Voltage	-4	-	4	ppm	
Frequency vs Load	-2	-	2	ppm	
Aging 1st year	-2	-	2	ppm	
Operating Temperature Range	-5	-	65	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	-	80	mA	
Jitter: (BW=10 Hz to 20 MHz) (BW=12 kHz to 80 MHz)	 - -	 - -	 5 <1	ps RMS	
SSB Phase Noise @ 100 Hz offset @1 kHz offset @ 10 kHz offset @100 kHz offset @ 1 MHz offset @ 10 MHz offset	 - - - - - -	 -80 -115 -140 -150 -150 -150	 - - - - - -	dBc/Hz	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.3	1.65	3.0	Vdc	
Absolute Pull Range (APR)	±50	-	±100	ppm	1
Monotonic Linearity	-20	-	20	%	
Input Impedance	-	50K	-	Ohm	
Modulation Bandwidth (3dB)	10	-	-	kHz	
Enable Input Voltage (High) (Vih) Disable Input Voltage (Low) ((Vil)	≥70% Vcc -	- -	- ≤30% Vcc	Vdc	2
Output "0" Select Voltage (Low) "0" Output "1" Select Voltage (High) "1"	- ≥70% Vcc	- -	≤30% Vcc -	Vdc	

Notes:

1. Absolute pull range (APR) is the minimum guaranteed pull range of the VCXO under all conditions over lifetime operation. The APR is referenced to Fo. Positive Transfer Function.
2. When the oscillator is disabled, the true output is in a low state (Vol), the complementary output is in the high state (Voh). The enable / disable input has an internal 75 k ohm pull-down resistor.
3. Output terminated into 50 ohms into Vcc - 2.0 Vdc or Thevenin equivalent.

Ordering Information

VPLB434J3E-S1 - 132.8125 MHz

VCXO SERIES — CENTER FREQUENCY

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

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Date	**21 June 2002**

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Low Voltage PECL Output Characteristics

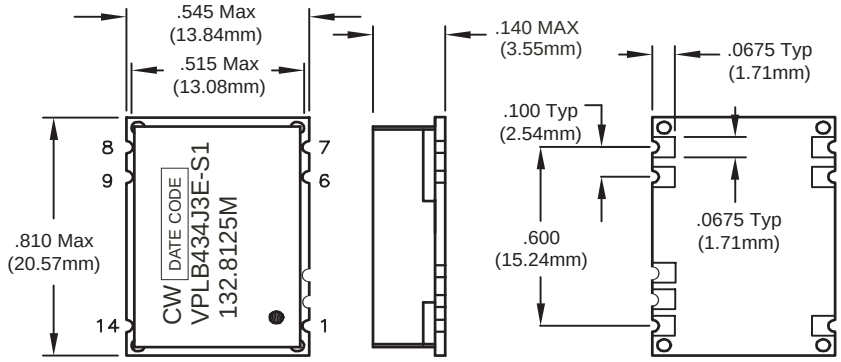
Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	50	Ohms	3
Voltage: High (Voh) Low (Vol)	2.275 -	- -	- 1.68	Vdc	
Duty Cycle at 50% Level	45	50	55	%	
Rise & Fall Times measured 20% to 80%	-	0.6	1.0	nS	

Process Recommendations

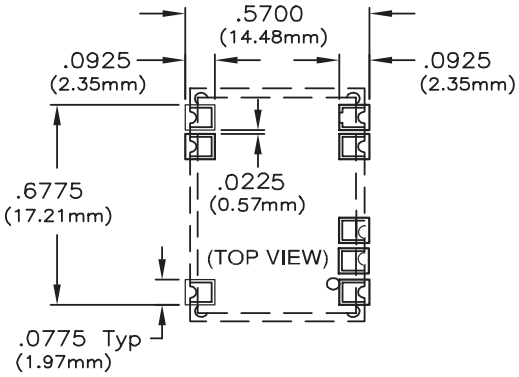
Solder Reflow	The component solder used internal to this device has a melting point of 221°C. The peak temperature inside the device should be less than or equal to 220°C for a maximum of 10 seconds.
Wash	Ultrasonic cleaning is not recommended

Package Characteristics

Package	Non-hermetic package consisting of an FR4 substrate with grounded metal cover

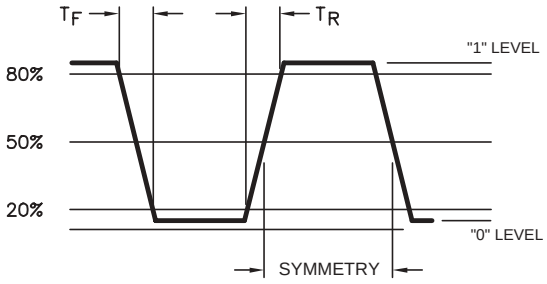


SUGGESTED PAD LAYOUT



Dimensional Tolerance: ±005 (.127mm)

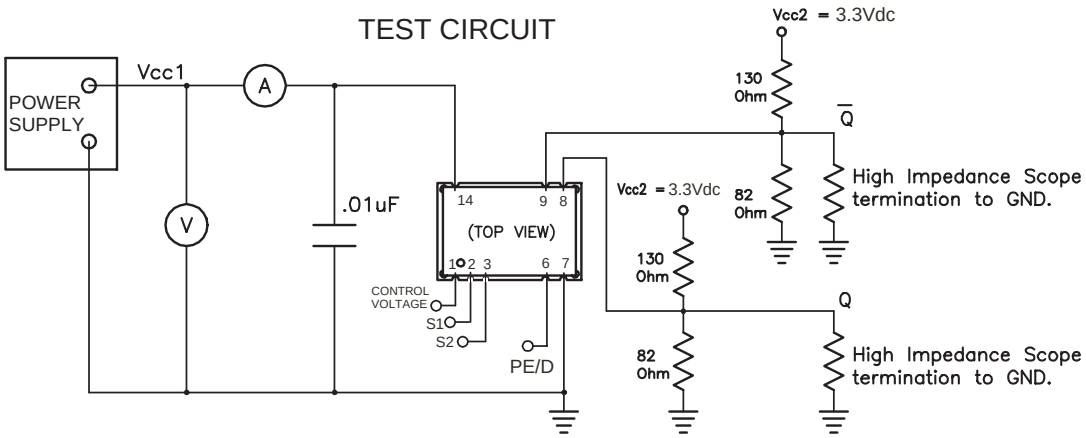
OUTPUT WAVEFORM



Output Frequency	Pin 2 (S1)	Pin 3 (S2)
132.8125 MHz	0	x
142.2991 MHz	1	0
137.0968 MHz	1	1

x = does not matter

TEST CIRCUIT



Pin Connections

1: Control Voltage
2: Output Select S1
3: Output Select S2
6: Enable / Disable
7: Ground
8: Q Output
9: Comp Output Q
14: Supply Voltage (Vcc)

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