

3.3V Surface Mount 5.0mm x 7.5mm Oscillators VKB61B2, VKB62B2, VKB63B2

CONNOR WINFIELD



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VCXO

The Connor-Winfield, RoHS compliant, VKB61B2, VKB62B2, and VKB63B2 are a hermetically sealed, Surface Mount, 3.3V Voltage Controlled Crystal Oscillator (VCXO) with the enable/disable function on pad 2. The VKB61B2, VKB62B2, and VKB63B2 are designed for phased lock loop applications requiring low jitter and tight frequency stability.

Features:

RoHS Compliant
3.3V Operation
Overall Frequency Tolerance:
VKB61B2: ± 25 ppm
VKB62B2: ± 50 ppm
VKB63B2: ± 100 ppm
Low Jitter <1pS RMS
Temperature Range -40° to 85°C
Enable / Disable Function Pad 2
Leadless Surface Mount Package
Tape and Reel Packaging

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	-	7.0	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequency Range (Fo)	1.0	-	52	MHz	
Frequency Tolerance					
Model VKB61B2	-25	-	25	ppm	1
Model VKB62B2	-50	-	50		
Model VKB63B2	-100	-	100		
Operating Temperature Range	-40	-	85	°C	
Supply Voltage (Vcc)	3.0	3.3	3.6	Vdc	
Supply Current (Icc)					
1.0 to 29.999 MHz	-	-	15	mA	
30 to 52 MHz	-	-	25		
Jitter:					
(BW=12kHz to 20 MHz)	-	-	1	ps RMS	
(BW=10Hz to 20 MHz)	-	-	5		

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.15	1.65	3.15	Vdc	
Frequency Pullability @ 25°C	± 100	-	-	ppm	2
Monotonic Linearity	-10	-	10	%	
DC Input Impedance	90K	100K	110K	Ohm	
Modulation Bandwidth (3dB)	10	-	-	kHz	
Enable Input Voltage - High (Vih)	2.7	-	-	Vdc	3
Disable Input Voltage - Low (Vil)	-	-	0.3		

HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	15	pf	
Voltage High (Voh)	2.7	-	-	Vdc	
Low (Vol)	-	-	0.33		
Current High (Ioh)	-4	-	-	mA	
Low (Iol)	-	-	4		
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	3	5	nS	

Notes:

1. Referenced to (Fo) measured with control voltage @ 1.65Vdc. Inclusive of frequency vs. temperature stability, supply voltage change, load change, shock and vibration, 15 years aging.
2. Referenced to Fo at T=25°C Positive Slope
3. The Output is enabled with no connection on the enable pin.

Specifications subject to change without notice. All dimensions in inches. © Copyright 1998 The Connor-Winfield Corporation



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Package Characteristics

Package	Hermetically sealed, ceramic leadless package.
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Environmental Characteristics

Temperature Cycle	The specimen shall meet electrical characteristics after tested 5 cycles of -55°C / 30 minutes and +125°C / 30 minutes
Hermetical	No bubbles appear in Flourinert (FC-43) at 125°C ±5°C for 5 minutes
Solvent Resistance	Marking will withstand immersion in Isopropyl Alcohol or Trichloroethylene

Soldering

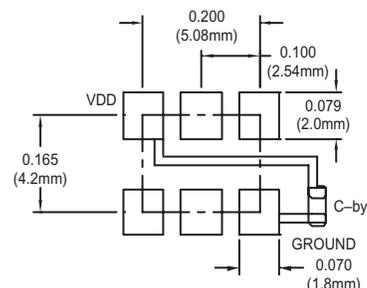
General Conditions	260°C max x 10 sec max x 2 times max or 230°C max x 180 sec max x 1 time
Typical Operation Data (Vapor phase reflow)	20 to 100 sec up to 215°C, 50 sec at 215°C, then down to room temperature per 1 to 5°C / sec

Mechanical Characteristics

Free Drop	The specimen shall meet electrical characteristics after tested 3 times, Free Drop testing on the hard wooden board from a height of 75 cm.
Vibration	The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000 Hz 20 G's, 2 hours for each plane
Thermal Shock	After applied Thermal Shock of 245°C max x 10 sec max x 2 times, or 215°C max x 180 sec max, the specimen shall meet electrical characteristics
Solderability	(EIAJ-RCX-0102/101 Condition 1a) 1) Flux: MIL-F-14256 (WW Rosin=25%, Isopropyl Alcohol = 75%) 2) Solder: QQ-S-571 (Sn = 63%, Pb = 37%) 3) Solder bath temperature: 235°C ±5°C 4) Depth of immersion: Up to electrical terminal 5) Immersing time: Within 2 sec ±0.5 sec into solder bath

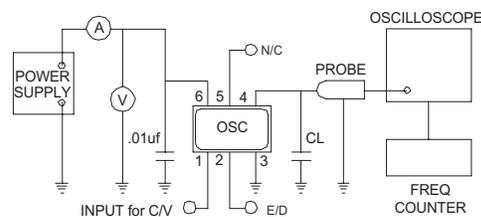
After performing the above procedures, a newly soldered coverage shall be greater than 90%

Suggested Pad Layout

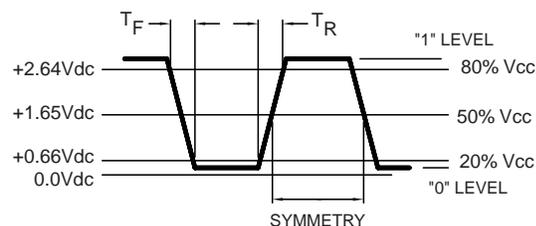


Bypass capacitor, C-by, should be ceramic capacitor ≥ .01uF.

Test Circuit

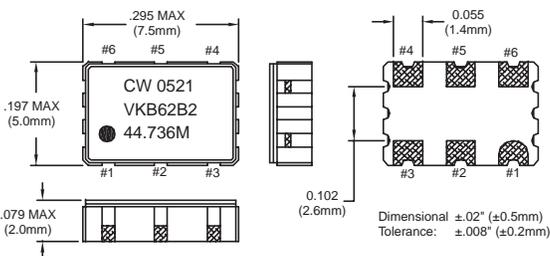


Output Waveform

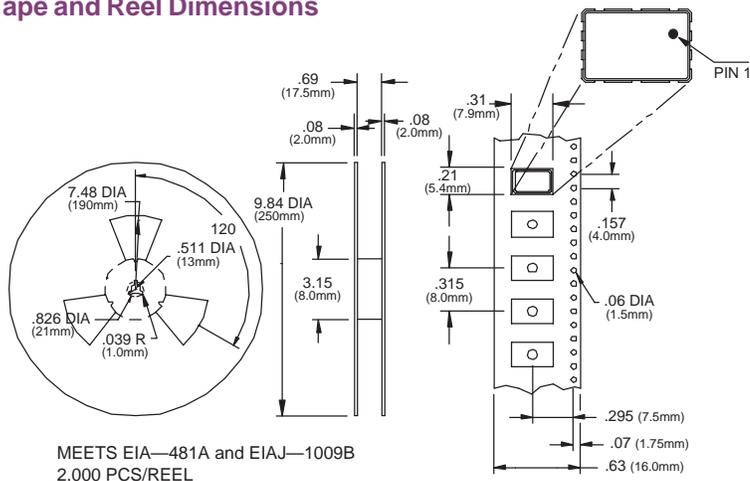


Pin Function

- 1: Control Voltage
- 2: Tri-State E/D
- 3: Ground
- 4: Output
- 5: N/C
- 6: VDD



Tape and Reel Dimensions



Dimensional Tolerance: ±.02" (.508mm), ±.005" (.127mm)

Ordering Information

VKB61B2 - 44.736 MHz

VCXO SERIES

CENTER FREQUENCY

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