

# 5.0V SURFACE MOUNT SINEWAVE OCVCXO

# CONNOR WINFIELD



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## Description

Connor-Winfield model OVC5DE1BA is a 5.0V Sinewave, Oven Controlled Voltage Controlled Crystal Oscillator (OCVCXO) in a 30.48x25.4mm surface mount package. The OVC5DE1BA is designed for use in applications that meet STRATUM 3E requirements, featuring very high frequency stability, low jitter and low phase noise.



## Features

**Model: OVC5DE1BA**

OCVCXO  
5.0V Operation  
30.48 x 25.4mm Surface Mount Package  
Meets STRATUM 3E Requirements  
Frequency Stability: +/-10ppb  
Temperature Range: 0 to 70°C  
Sinewave Output Logic  
Low Phase Noise  
RoHS 5/6 Compliant

## Specifications

### Absolute Maximum Ratings

Parameter	Units	Minimum	Nominal	Maximum	Units	Note
Storage Temperature		-40	-	85	°C	
Supply Voltage	(Vcc)	-0.5	-	7	Vdc	

### Operating Specifications

Parameter		Minimum	Nominal	Maximum	Units	Note
Center Frequency	(Fo)		10.0, 12.8, 13.0 or 26.0		MHz	1
Frequency Calibration		-0.2		0.2	ppm	2
Frequency vs. Temperature Stability		-10	-	10	ppb	3
Aging: Daily		-1	-	1	ppb/day	4
Aging: First Year		-30	-	30	ppb	
Aging: Short Term (1Sec.)		-	5.00E-11	-	RMS	5
Aging: Long Term (20 Years)		-	-	300	ppb	
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	4.75	5.00	5.25	Vdc	
Frequency vs. Voltage Stability (+/-1%)		-0.5	-	0.5	ppb	
Frequency vs. Load Stability (+/-20%)		-0.5	-	0.5	ppb	
Power Consumption: Turn On		-	-	3.25	W	6
Power Consumption: Steady-State		-	-	1.50	W	6
Start-Up Time				500	ms	7
Warm Up		-100	-	100	ppb	8
2G Tip-over		-	-	5	ppb/G	
TDEV at 300 seconds		-	-	5	ns	
TDEV at 40 seconds		-	-	1	ns	

### Input Characteristics

Parameter		Minimum	Nominal	Maximum	Units	Note
Control Voltage (Pad 1)	Vc	0.5	2.5	4.5	Vdc	
Deviation @ 25°C referenced to Fo		±0.3	-	±1.0	ppm	9
Input Impedance (Pad 1)		50K	-	-	Ohm	

### Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Note
LOAD	45	50	55	Ohms	
Output Power	0	3	-	dBm	
Spurious Output			-80	dBc	
SSB Phase Noise at 1Hz offset	-	-85	-	dBc/Hz	
SSB Phase Noise at 10Hz offset	-	-110	-	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-135	-	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-145	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-150	-	dBc/Hz	

### Restabilization Time

Off Time	Restabilization Time	Note
< 1 Hour	< 2 Hours	10
< 6 Hours	< 12 Hours	10
< 24 Hours	< 48 Hours	10
1 to 16 Days	48 Hours + ¼ Off Time	10
> 16 Days	< 6 Days	10



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## Notes:

- 1) Labels will include the calibration frequency at the time of ship.
- 2) Initial calibration @ 25 C at the time of shipment,  $V_c=2.5V_{dc}$ .
- 3) Overall frequency stability referenced to measurement at 25 C.
- 4) After ten days of continuous operation.
- 5) Allen Variance: 1 second, 100 average.
- 6)  $V_{cc} = 5.0V_{dc}$ .
- 7) From  $V_{cc}=90\%$  of final value. No more than 16 transitions at start-up before oscillator has started.
- 8) Measured @ 0 C, within 5 minutes, referenced one hour after turn-on.
- 9) Positive slope
- 10) For a given off time, the time required to meet daily aging, short-term stability and TDEV requirements.

## Package Characteristics

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

## Environmental Characteristics

Shock 100G's, 6mS, halfsine per MIL-STD-202F, Method 213B, Test Condition C

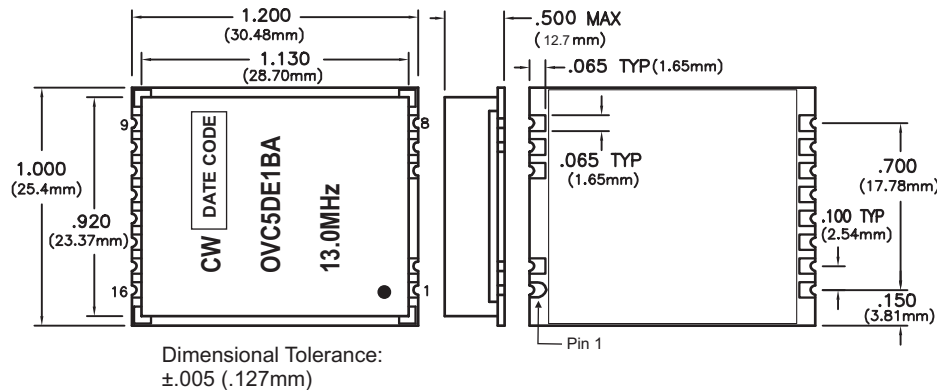
Vibration 0.06" D.A. or 10G peak 10 to 500 Hz, per MIL-STD-202F, Method 204D, Test condition A

## Process Recommendations

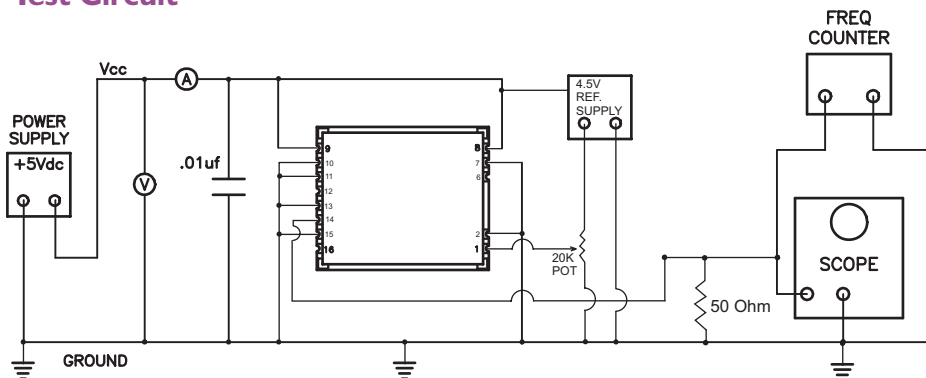
Soldering Process RoHS 5/6 compliant, see solder profile.

Wash Ultrasonic cleaning is not recommended.

## Package Outline



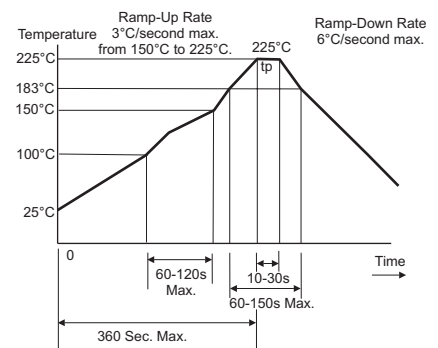
## Test Circuit



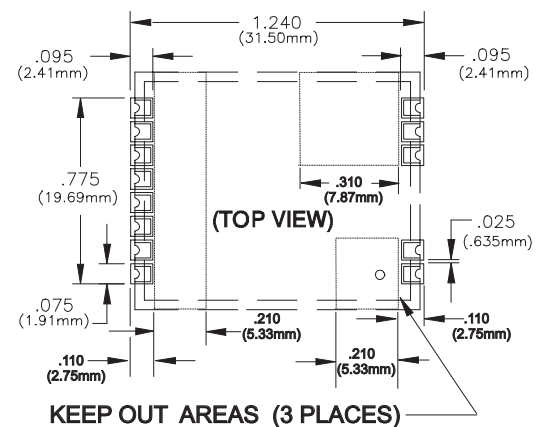
## Pad Connections

Pad	Function
1	Control Voltage ( $V_c$ )
2	Ground
6	N/C
7	Ground
8	$V_{cc}$
9	$V_{cc}$
10	Ground
11	Ground
12	N/C
13	Ground
14	Output
15	Ground
16	N/C

## Solder Profile



## Suggested Pad Layout



## Ordering Information

OVC5DE1BA - 013.0M

OCXO SERIES

CENTER FREQUENCY

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