

# Surface Mount 3.3V Stratum 3E BSOF3S3EG HCMOS

OCXO

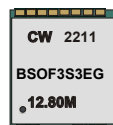
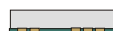
CONNOR  
WINFIELD



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## Description:

The Connor-Winfield BSOF3S3EG is a 3.3V Surface Mount Oven Controlled Crystal Oscillator (OCXO) with an HCMOS output. The BSOF3S3EG is designed for Stratum 3E applications requiring low jitter and tight frequency stability.



## Features:

- Surface Mount Package
- Fixed Frequency Ocxo
- Designed To Meet Stratum 3E Requirements
- Frequency Stability  $\pm 10$ Ppb
- 3.3V Operation
- Hcmos Output
- Tape And Reel Packaging
- RoHS Compliant / Lead Free

## Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-40	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	75	Vdc	

## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	-	10.0, 12.8	-	MHz	1
Frequency Calibration	-2.0	-	2.0	ppm	2
Frequency Stability	-10.0	-	10.0	ppb	3
Aging: Daily	-1.0	-	1.0	ppb/day	4
Aging: First Year	-30.0	-	30.0	ppb	
Aging: Short Term (1 Sec)	-	5.00E-11	-	RMS	5
Aging: Long Term (20 Years)	-	-	300	ppb	
Operating Temperature Range	0	-	70	°C	
Supply Voltage (Vcc)	3.13	3.30	3.47	Vdc	
Frequency vs. Voltage Stability ( $\pm 1\%$ )	-0.5	-	0.5	ppb	6
Frequency vs. Load Stability ( $\pm 20\%$ )	-0.5	-	0.5	ppb	7
Power Consumption: Turn On	-	-	2.75	W	8
Power Consumption: Steady-State	-	-	1.50	W	8
Start-Up Time	-	-	500	mS	9
Warm Up	-100	-	100	ppb	10
2G Tip-over	-	5	-	ppb/G	
TDEV at 300 seconds	-	-	5	nS	11
TDEV at 40 seconds	-	-	1	nS	11

## HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
LOAD	-	-	18	pF	12
Voltage (High) (Voh)	Vcc-0.2V	-	-	Vdc	
(Low) (Vol)	-	-	0.2	Vdc	
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	-	5	nS	
Spurious Output	-	-	-80	dBc	
Sub-Harmonics	-	-	-25	dBc	
SSB Phase Noise at 1Hz offset	-	-	-90	dBc/Hz	
SSB Phase Noise at 10Hz offset	-	-	-115	dBc/Hz	
SSB Phase Noise at 100Hz offset	-	-	-130	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-	-140	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-	-145	dBc/Hz	



Bulletin **Cx319**  
Page **1 of 3**  
Revision **01**  
Date **13 April 2022**



Attention: System Designers please review Application Note AN2093:  
System Design Information and Printed Circuit Board Layout Guidelines for OCXO Oscillators.  
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## Restabilization Time

Off Time	Restabilization Time	Notes
< 1 Hour	< 2 Hours	13
< 6 Hours	< 12 Hours	13
< 24 Hours	< 48 Hours	13
1 to 16 Days	48 Hours + ¼ Off Time	13
> 16 Days	< 6 Days	13

## Package Characteristics

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

Shock 1	00G'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

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

### Notes:

1. Labels will include the calibration frequency at the time of ship.
2. Initial calibration @ 25°C
3. Overall frequency stability, 0 70°C.
4. After ten days of continuous operation.
5. Allen Variance: 1 second, 100 average.
6. Frequency vs. Change in supply voltage.
7. Frequency vs. Change in load.
8. Vcc = 3.3Vdc.
9. From Vcc=90% of final value. No more than 16 transitions at start-up before oscillator has started.
10. Measured @ 0°C, within 5 minutes, referenced one hour after turn-on.
11. At time of delivery.
12. HCMOS load.
13. For a given off time, the time required to meet daily aging, short-term stability and TDEV requirements.

## Ordering Information

**BSOF3S3EG - 12.80MHz**

OCXO  
SERIES

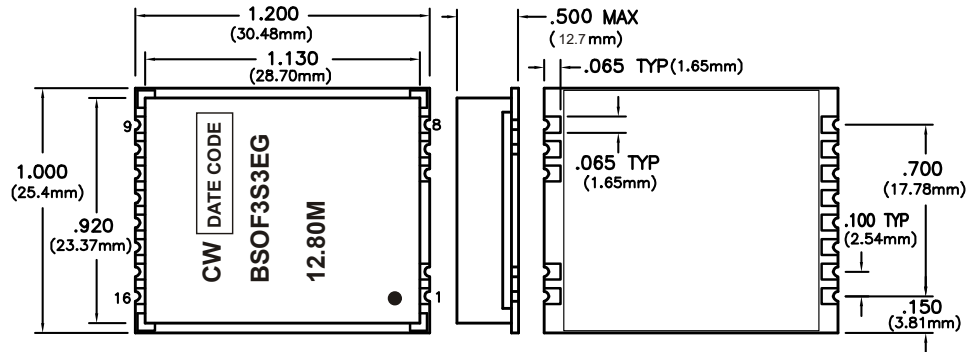
CENTER  
FREQUENCY



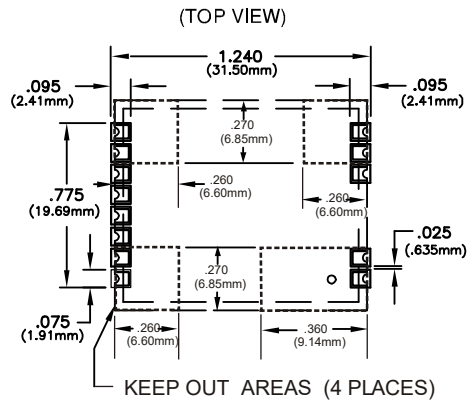
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Bulletin	<b>Cx319</b>
Page	<b>2 of 3</b>
Revision	<b>01</b>
Date	<b>13 April 2022</b>

## Package Dimensions

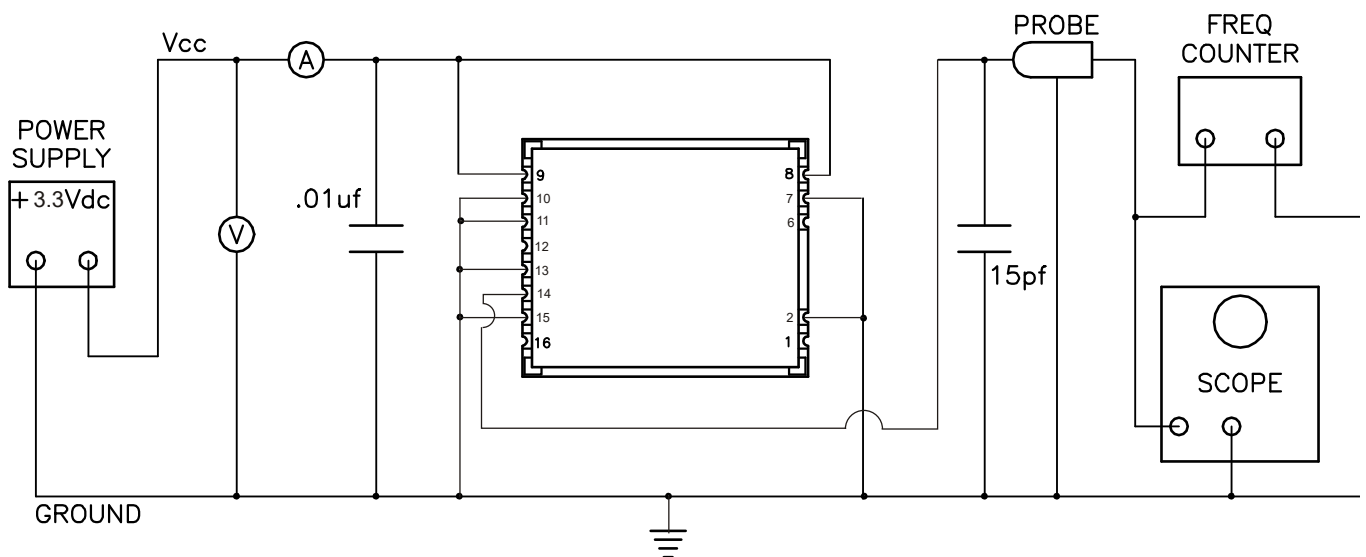


## Suggested Pad Layout



## Pin Connections

Pin	Connections
1	N/C
2	Ground
6	N/C
7	Ground
8	Vcc
9	Vcc
10	Ground
11	Ground
12	N/C
13	Ground
14	Output
15	Ground
16	N/C



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Bulletin	Cx319
Page	3 of 3
Revision	01
Date	13 April 2022