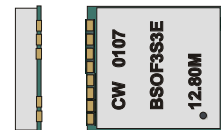


# CRYSTAL CONTROLLED OSCILLATORS

## SURFACE MOUNT 3.3V STRATUM 3E HCMOS OCXO



### BSOF3S3E

#### DESCRIPTION

The Connor-Winfield BSOF3S3E is a 3.3V Surface Mount Oven Controlled Crystal Oscillator (OCXO) with an HCMOS output. The BSOF3S3E 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

#### ORDERING INFORMATION

BSOF3S3E - 12.80MHz

OCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

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#### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-40	-	85	°C	
Supply Voltage	(Vcc)	-0.5	-	7	Vdc	

#### OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)		10.0 12.8		MHz	1
Frequency Calibration		-2		2	ppm	2
Frequency 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)	3.13	3.30	3.47	Vdc	
Frequency vs. Voltage Stability (+/-1%)		-0.5	-	0.5	ppb	6
Frequency vs. Load Stability (+/-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

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
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	

#### RESTALLIZATION TIME

TABLE 4.0

Off Time	Restabilization Time	NOTE
< 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

TABLE 5.0

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

TABLE 6.0

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

TABLE 7.0

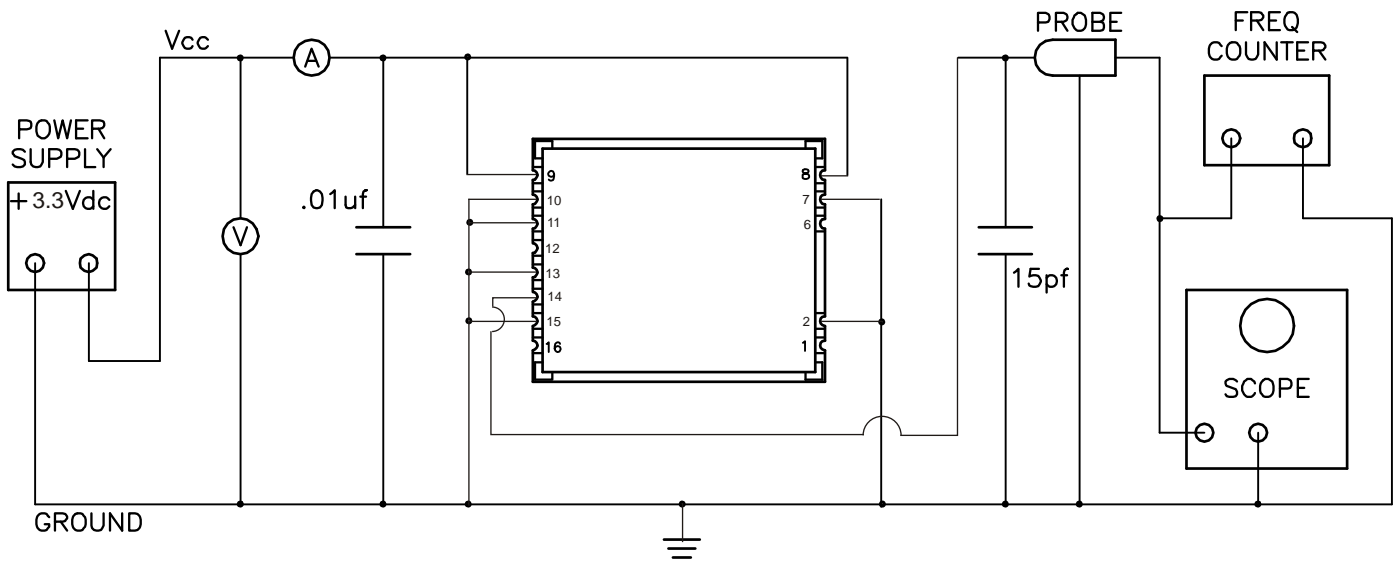
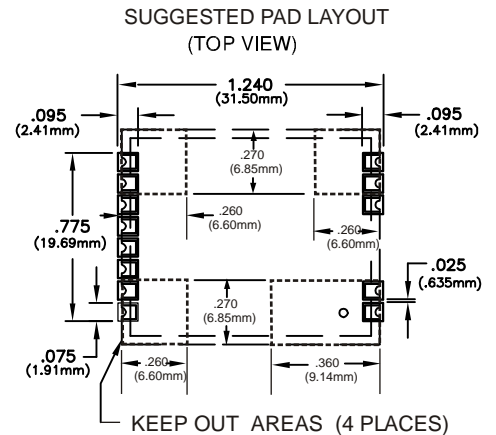
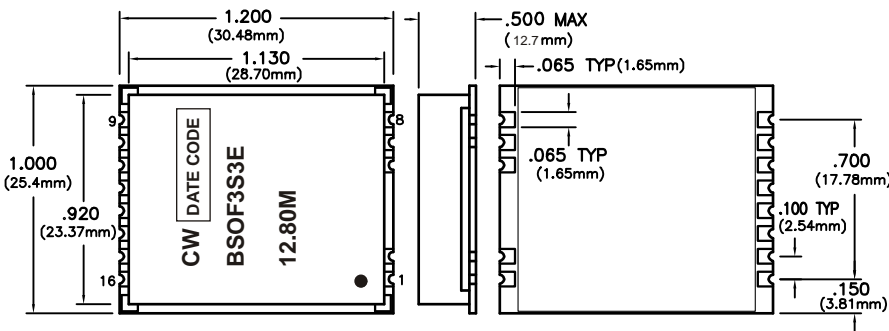
Solder Reflow	The component solder used internal to this device has a melting point of 221°C. The peak temperature inside the device should be less than or equal to 220°C for a maximum of 10 seconds
Wash	Ultrasonic cleaning is not recommended.

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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.

Pin	Function
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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