

# Surface Mount 3.3V LVCMOS Stratum 3 ASOF3S3

OCXO

CONNOR  
WINFIELD



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## Description

The Connor-Winfield ASOF3S3 is a true Surface Mount 3.3V Oven Controlled Crystal Oscillator (OCXO) with an LVCMOS output. The ASOF3S3 is designed for Stratum 3 applications requiring tight frequency stability and low jitter.



## Features

- Fixed Frequency OCXO
- 3.3V Operation
- Low Jitter <1ps RMS
- Frequency Stability:  $\pm 0.25$ ppm
- Temperature Range: 0 to 70°C
- Frequency Tolerance of  $\pm 4.6$ ppm over 20 years
- Surface Mount Package
- Tape and Reel Packaging
- RoHS Compliant / Lead Free

## Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	4.5	Vdc	

## Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	1.544	-	20.0	MHz	
Frequency Calibration	-1.5	-	1.5	ppm	1,4
Frequency Stability	-0.25	-	0.25	ppm	2
Total Frequency Tolerance	-4.6	-	4.6	ppm	3
Aging (Daily)	-30	-	30	ppb	4
Aging (20 years)	-3.0	-	3.0	ppm	
Operating Temperature Range	0	-	70	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	-	450	mA	
Phase Jitter (BW = 12KHz to 20MHz)	-	-	1	ps RMS	
Phase Jitter (BW = 10Hz to 20MHz)	-	-	3	ps RMS	
Period Jitter	-	-	3	ps RMS	
Allan Variance (1 Second)	-	5.00 E-10	-		
SSB Phase Noise at 10Hz offset	-	-90	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-130	-	dBc/Hz	
Start-Up Time: Oscillator	-	-	10	mS	
Warm Up Time	-	-	5	Minutes	5
TDEV at 1.0 seconds	-	-	1	ns	
TDEV at 4.0 seconds	-	-	2	ns	

## LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
LOAD	-	-	15	pF	
Voltage (High) (Voh)	2.6	-	-	Vdc	
(Low) (Vol)	-	-	0.4	Vdc	
Current (High) (Ioh)	-4	-	-	mA	
(Low) (Iol)	-	-	4	mA	
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	-	6	ns	

## Package Characteristics

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

### Notes:

- 1) Initial calibration @ 25°C
- 2) Frequency vs. temperature stability
- 3) Inclusive of calibration, operating temperature range, supply voltage change, shock and vibration and aging (20 years).
- 4) Specifications at time of shipment after 48 hours of operation.
- 5) Measured @ 25°C, within 5 minutes, the unit will be within  $\pm 0.1$ ppm of its reference frequency, measured after 30 minutes of continuous operation at a stable 25°C.



## Environmental Characteristics

Temperature Cycle: Per MIL-STD-883, Method 1010, Condition B. -55°C to 125°C, 20 cycles, 10 minute dwell, 1 minute transition.

## Soldering

Pad Solderability: Per MIL-STD-883, Method 200. 8 hour steam age prior to 254°C ±5°C Solder pot dip, 95% Coverage.

Solder Reflow: RoHS Compliant, lead free. See recommended solder reflow profile below.

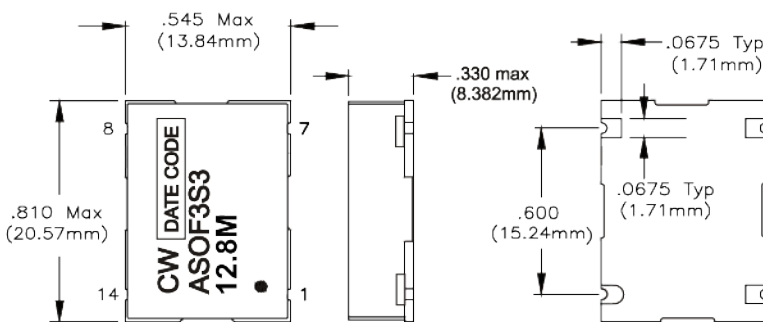
## Mechanical Characteristics

Vibration: Per MIL-STD-202, Method 204, Condition A. 10G's peak, 10Hz to 500Hz, 15 minute cycles 12 times each perpendicular axis.

Shock: Per MIL-STD-202, Method 213, Condition D. 500G's, 1ms, half sine, 3 shocks per direction.

Moisture Resistance: Per MIL-STD-202, Method 106. 95% RH @ 65°C, 10 cycles 10°C to 65°C.

## Package Outline

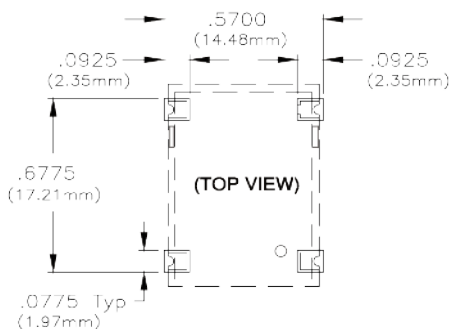


## Pin Connections

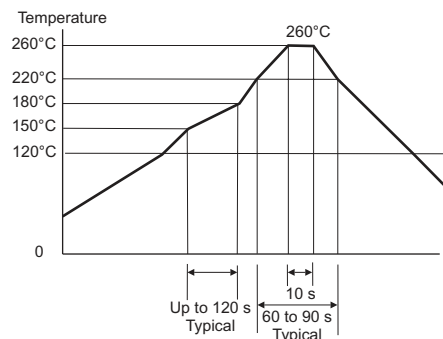
Pin	Function
1:	N/C
7:	Ground (Case)
8:	Output
14:	Vcc

Dimensional Tolerance: ±.005 (.127mm)

## Suggested Pad Layout

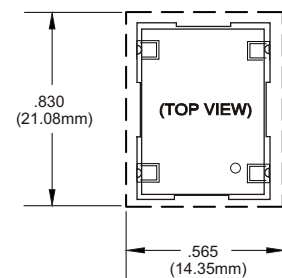


## RoHS Solder Profile



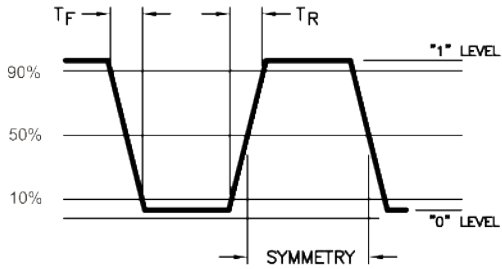
Meets IPC/JEDEC J-STD-020C

## Keep Out Area



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Date	<b>06 Nov 2018</b>

## Output Waveform



## Ordering Information

**ASOF3S3 - 012.8M**

OCXO  
SERIES

CENTER  
FREQUENCY

## Test Circuit

