

ASOV5S3E HCMOS VCOCXO STRATUM 3E

CONNOR WINFIELD



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Description:

The Connor-Winfield ASOV5S3E is a 5V Surface Mount Voltage Controlled Oven Controlled Crystal Oscillator (VCOCXO) with an HCMOS output. The ASOV5S3E is designed for Stratum 3E applications requiring low jitter and tight frequency stability.



Features:

- Variable Frequency, VCOCXO
- Meets Stratum 3E Requirements
- Frequency Stability ± 10 ppb
- 5.0V Operation
- HCMOS Output
- Surface Mount Package
- RoHS 5/6 Compliant

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-40	-	85	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	-	10 - 12.8	-	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 (1 Sec.)	-	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 ($\pm 1\%$)	-0.5	-	0.5	ppb	
Frequency vs. Load Stability ($\pm 20\%$)	-0.5	-	0.5	ppb	
Power Consumption: Turn On	-	-	2.75	W	6
Power Consumption: Steady-State	-	-	1.50		
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		

Input Characteristics

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

HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	12	15	18	pF	10
Voltage (High) (Voh)	Vcc-0.2V	-	-	Vdc	
(Low) (Vol)	-	-	0.2		
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise /Fall Time 10% to 90%	-	-	5	nS	
Spurious Output	-	-	-80	dBc	
SSB Phase Noise at 1Hz offset	-	-	-90		
SSB Phase Noise at 10Hz offset	-	-	-115		
SSB Phase Noise at 100Hz offset	-	-	-130	dBc/Hz	
SSB Phase Noise at 1KHz offset	-	-	-135		
SSB Phase Noise at 10KHz offset	-	-	-140		

Restabilization Time

Off Time	Restabilization Time	Notes
< 1 Hour	< 2 Hours	11
< 6 Hour	< 12 Hours	11
< 24 Hour	< 48 Hours	11
1 to 16 Days	48 Hours + ¼ Off Time	11
> 16 Days	< 6 Days	11



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: See solder profile
Wash: Ultrasonic cleaning is not recommended.

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, 0 to 70°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. HCMOS load.
11. For a given off time, the time required to meet daily aging, short-term stability and TDEV requirements

Pin Connections

1	Control Voltage
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

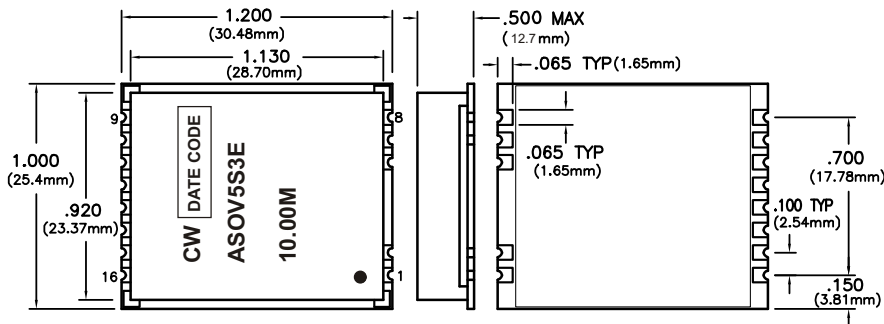
Ordering Information

ASOV5S3E - 10.00MHz

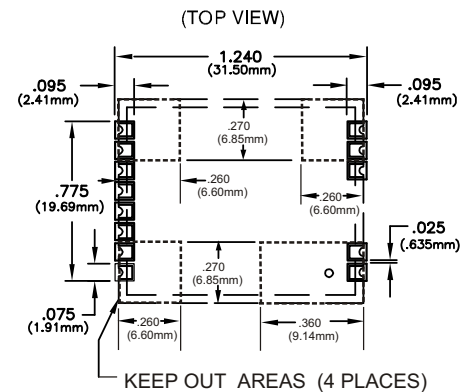
OCXO SERIES CENTER FREQUENCY

Dimensional Tolerance: $\pm .005$ (.127mm)

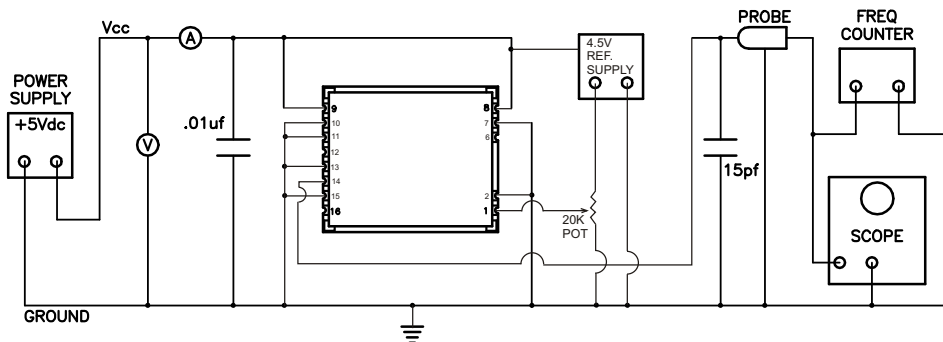
Package Layout



Suggested Pad Layout



Test Circuit



Solder Profile

