

CRYSTAL CONTROLLED OSCILLATORS

SURFACE MOUNT 3.3V HCMOS STRATUM 3 OCXO

CW 0632
CSOV3S3
80M



CSOV3S3

DESCRIPTION

The Connor-Winfield CSOV3S3 is a true Surface Mount 3.3V Oven Controlled Crystal Oscillator (OCXO) with an LVC MOS output. The CSOV3S3 is designed for Stratum 3 applications requiring tight frequency stability and low jitter.

FEATURES

VOLTAGE CONTROLLED
FREQUENCY ADJUST

3.3V OPERATION

LOW JITTER <1pS RMS

TEMPERATURE STABILITY
±0.25ppm

TOTAL FREQUENCY TOLERANCE:
±4.6ppm OVER TEN YEARS

TEMPERATURE RANGE: 0 to 70C

SURFACE MOUNT PACKAGE

TAPE AND REEL PACKAGING

RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

CSOV3S3 - 77.76MHz

OCXO
SERIES

CENTER
FREQUENCY

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-40	-	85	°C	
Supply Voltage	(Vcc)	-0.5	-	4.5	Vdc	
Control Voltage	(Vc)	-0.5	-	4.5	Vdc	

OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	40.0	-	80.0	MHz	
Frequency Calibration, Vc=1.48 Vdc		-1.0	-	1.0	ppm	1
Frequency Stability		-0.25	-	0.25	ppm	2
Aging (Daily)		-30	-	30	ppb	1
Aging (10 Years)		-3.0	-	3.0	ppm	1
Total Frequency Tolerance		-4.6	-	4.6	ppm	3
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	450	mA	
Steady State Supply Current @ 25°C		-	200	-	mA	
Phase Jitter (BW=12KHz to 20MHz)		-	-	1	ps rms	
Phase Jitter (BW=10Hz to 20MHz)		-	-	3	ps rms	
Period Jitter		-	-	3	ps rms	
SSB Phase Noise at 10Hz offset		-	-70	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-140	-	dBc/Hz	
Start Up Time: Oscillator		-	-	10	ms	
Warm Up Time		-	-	5	Minutes	4
TDEV @ 1.0 Sec.		-	-	1	ns	
TDEV @ 4.0 Sec.		-	-	2	ns	

INPUT CHARACTERISTICS

TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Control Voltage Range	(Vc)	0.3	1.48	3.0	Vdc	
Frequency at Vc=0.3 Vdc		-	-	-7	ppm	5
Frequency at Vc=3.0 Vdc		7	-	-	ppm	5
Slope of Frequency Adjust		5	-	-	ppm/V	
Input Impedance		100k	-	-	Ohm	

HCMOS OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
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

TABLE 5.0

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

TABLE 6.0

Soldering Process	See solder profile page 2.
Wash	Ultrasonic cleaning is not recommended

Notes:

- At the time of shipment after 48 hours of operation.
- Initial calibration referenced at 25°C, Vc=1.48 Vdc.
- Inclusive of calibration, operating temperature range, supply voltage change, load change, shock and vibration, 10 years aging, Vc=1.48 Vdc.
- Measured @ 25°C, within 5 minutes, the unit will be within +/-0.1ppm of its reference frequency, measured after 30 minutes of continuous operation at a stable 25°C
- Referenced to Fo @ 25°C, Positive Transfer Characteristic

Specifications subject to change without notice.

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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.

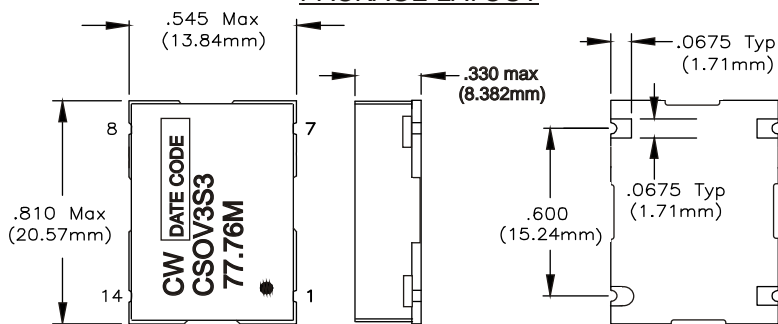
SOLDERING

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: The component solder 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.

MECHANICAL CHARACTERISTICS

Vibration: Per MIL-STD-202, Method 204, Condition A. 10G's peak, 10Hz to 500Hz, 15minute cycles 12 times each perpendicular axis.
Shock: Per MIL-STD-202, Method 213, Condition D. 500G's, 1ms, halfsine, 3 shocks per direction.
Moisture Resistance: Per MIL-STD-202, Method 106. 95% RH @ 65°C, 10 cycles 10°C to 65°C.

PACKAGE LAYOUT

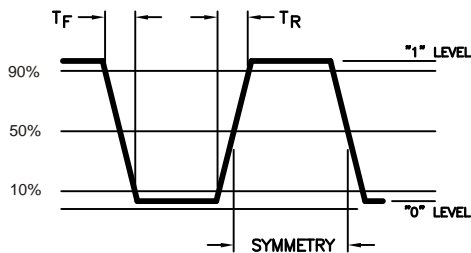


PIN CONNECTIONS

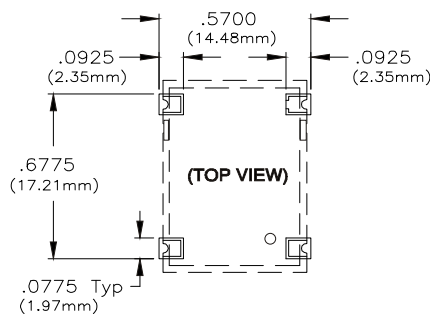
Pin	Connection
1	Control Voltage
7	Ground (Case)
8	Output
14	Vcc

Dimensional Tolerance:
±.005 (.127mm)

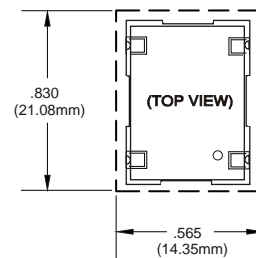
OUTPUT WAVEFORM



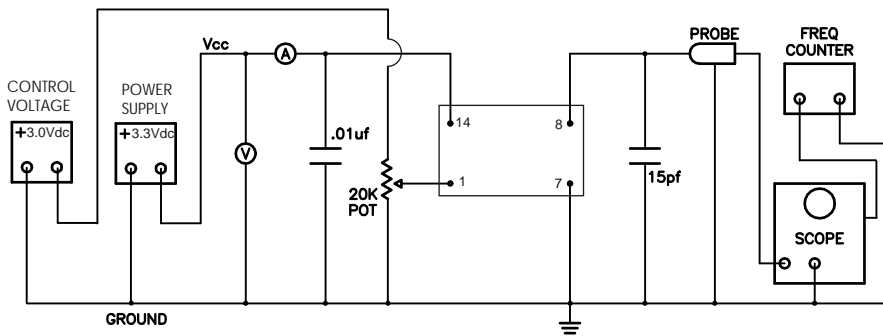
SUGGESTED PAD LAYOUT



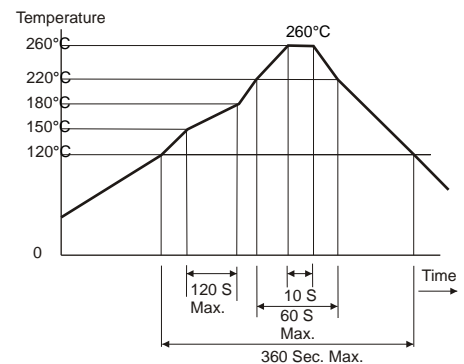
KEEP OUT AREA



TEST CIRCUIT



SOLDER PROFILE



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