

CRYSTAL CONTROLLED OSCILLATORS

3.3V SURFACE MOUNT LVC MOS STRATUM 3 VCOCXO



OVA3BA2AA

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)	1.544	-	20.000	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 (10 years)		-2.7	-	2.7	ppm	
Operating Temperature Range		-40	-	85	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	700	mA	
Steady State Supply Current @ 85°C	(Icc)	-	110	-	mA	
Steady State Supply Current @ 25°C	(Icc)	-	290	-	mA	
Steady State Supply Current @ -40°C	(Icc)	-	550	-	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	

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		-22.5	-	-13.5	ppm	6
Frequency at Vc=3.0 Vdc		13.5	-	22.5	ppm	6
Slope of Frequency Adjust		10	-	-	ppm/V	
Input Impedance		100k	-	-	Ohm	

LVC MOS 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	

DESCRIPTION

The Connor-Winfield OVA3BA2AA is a true Surface Mount 3.3V Voltage Controlled Oven Stabilized Crystal Oscillator (VCOCXO) with a LVC MOS logic output. The OVA3BA2AA is designed for STRATUM 3 applications requiring tight frequency stability, low jitter over the industrial temperature range.

FEATURES

- VCOCXO
- 3.3V OPERATION
- LOW JITTER <1pS RMS
- FREQUENCY STABILITY: ±0.25ppm
- TEMPERATURE RANGE: -40 to 85°C
- FREQUENCY TOLERANCE OF ±4.6ppm OVER TEN YEARS
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

OVA3BA2AA - 20MHz

OCXO
SERIES

CENTER
FREQUENCY

Specifications subject to change without notice.

CRYSTAL CONTROLLED OSCILLATORS

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

Solder Reflow	See solder profile.
Wash	Ultrasonic cleaning is not recommended

Pin Connections

TABLE 7.0

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

Notes:

- 1) Initial calibration @ 25 C, Vc = 1.48 Vdc.
- 2) Frequency vs. temperature stability referenced to 25 C.
- 3) Inclusive of calibration, operating temperature range, supply voltage change, shock and vibration and aging (10 years).
- 4) Specifications at time of shipment after 48 hours of operation.
- 5) 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.
- 6) Referenced to Fo @ 25°C, Positive Transfer Characteristic.

ENVIRONMENTAL CHARACTERISTICS

Temperature Cycle: Per MIL-STD-883, Method 1010, Condition B. -55°C to 125°C, 300 cycles, 10 minute dwell, 1 minute transition.

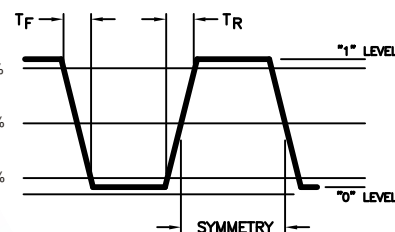
MECHANICAL CHARACTERISTICS

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

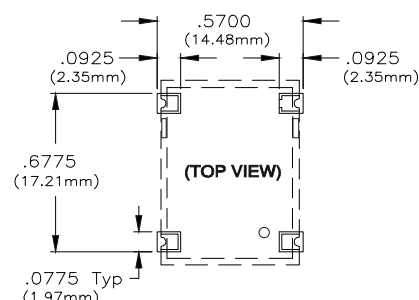
Shock: Per MIL-STD-202, Method 213, Condition F. 1500G's, 1.0ms, half sine, 3 shocks per direction.

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

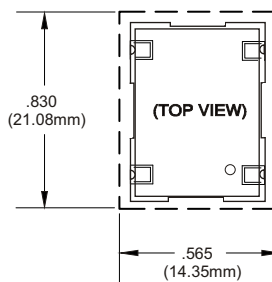
Output Waveform



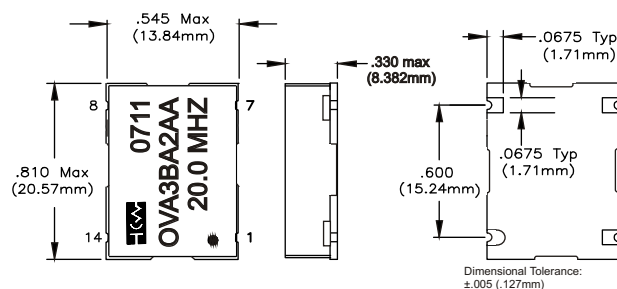
Suggested Pad Layout



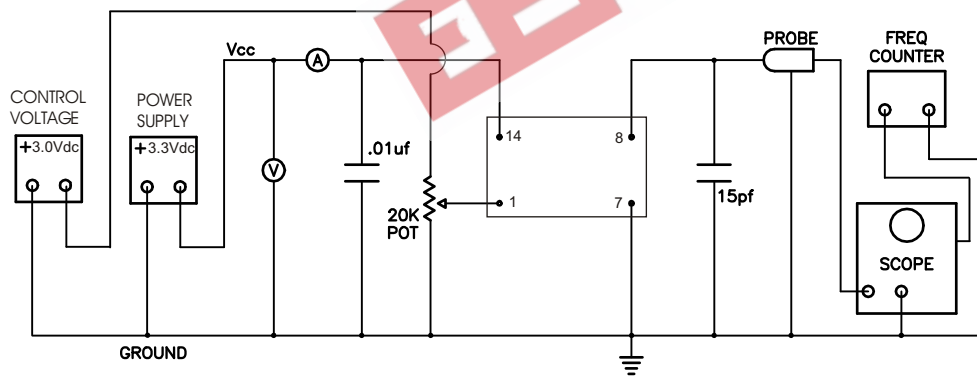
Keep Out Area



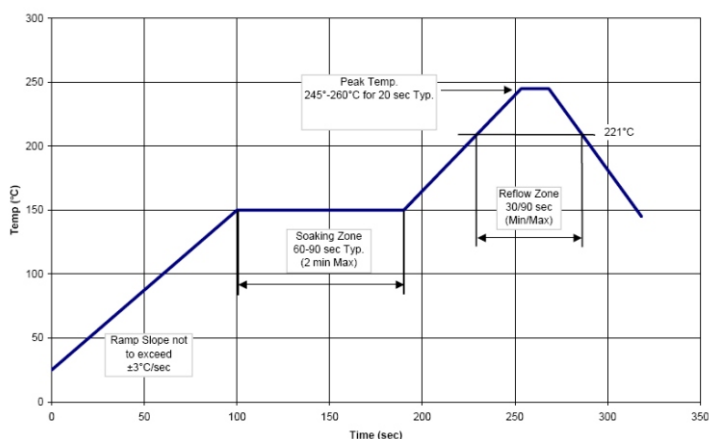
Package Outline



Test Circuit



Solder Profile



Specifications subject to change without notice.