

# CRYSTAL CONTROLLED OSCILLATORS

## SURFACE MOUNT 5.0V SINEWAVE OCVCXO

CW 0650  
OVA5BB1BA  
20MHZ



### OVA5BB1BA

#### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	7.0	Vdc	
Control Voltage	(Vc)	-0.5	-	7.0	Vdc	

#### OPERATING SPECIFICATIONS

TABLE 2.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Center Frequency	(Fo)	6.4	-	25	MHz	
Frequency Calibration		-1.5	-	1.5	ppm	1, 4
Frequency Stability		-	-	0.25	ppm	2
Frequency vs. Change in Supply Voltage		-0.05	-	0.05	ppm	3
Aging (Daily)		-30	-	30	ppb	4
Aging (20 years)		-2.5	-	2.5	ppm	
Total Frequency Tolerance		-4.6	-	4.6	ppm	5
Operating Temperature Range		0	-	70	°C	
Supply Voltage	(Vcc)	4.75	5.00	5.25	Vdc	
Supply Current	(Icc)	-	-	300	mA	
Steady State Supply Current @ 25°C		-	150	-	mA	
Phase Jitter (BW =10KHz to Fo/2)		-	-	1	ps RMS	
Phase Jitter (BW =10Hz to Fo/2)		-	-	3	ps RMS	
Period Jitter		-	-	3	ps RMS	
Start-Up Time: Oscillator		-	-	35	ms	
Warm Up Time		-	-	5	Minutes	6
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)	0.5	1.5	4.1	Vdc	
Frequency at Vc=0.5 Vdc		-	-	-5	ppm	7
Frequency at Vc=4.1 Vdc		5	-	-	ppm	7
Slope of Frequency Adjust		2.8	-	-	ppm/V	
Input Impedance		100k	-	-	Ohm	

#### SINEWAVE OUTPUT CHARACTERISTICS

TABLE 4.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		45	50	55	Ohms	
Output Power		0	3	-	dBm	
Spurious Output		-	-	-80	dBc	
SSB Phase Noise at 1Hz offset		-	-60	-	dBc/Hz	
SSB Phase Noise at 10Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 100Hz offset		-	-120	-	dBc/Hz	
SSB Phase Noise at 1KHz offset		-	-140	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-150	-	dBc/Hz	

#### 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

#### DESCRIPTION

The Connor-Winfield OVA5BB1BA is a true Surface Mount 5.0V Oven Stabilized Voltage Controlled Crystal Oscillator (OCVCXO) with a Sinewave output. The OVA5BB1BA is designed for applications requiring tight frequency stability and low jitter.

#### FEATURES

- 5.0V OPERATION
- OCVCXO
- SINEWAVE OUTPUT
- LOW JITTER <1pS RMS
- TEMPERATURE STABILITY: 0.25ppm ABSOLUTE
- TOTAL FREQUENCY TOLERANCE: ±4.6ppm OVER TWENTY YEARS
- TEMPERATURE RANGE: 0 to 70C
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

#### ORDERING INFORMATION

OVA5BB1BA - 20 MHz

OCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.



# CRYSTAL CONTROLLED OSCILLATORS

**Notes:**

- 1) Initial calibration @ 25 C, Vc = 1.5 Vdc.
- 2) Frequency stability, absolute over the temperature range of 0 to 70 C.
- 3) Frequency stability per 5% change in supply voltage.
- 4) At the time of shipment after 48 hours of operation.
- 5) Inclusive of calibration, operating temperature range, supply voltage change, shock and vibration and aging (20 years).
- 6) 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.
- 7) Referenced to Fo @ 25°C, Positive Transfer Characteristic.

PIN CONNECTIONS

TABLE 7.0

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

**ENVIRONMENTAL CHARACTERISTICS**

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

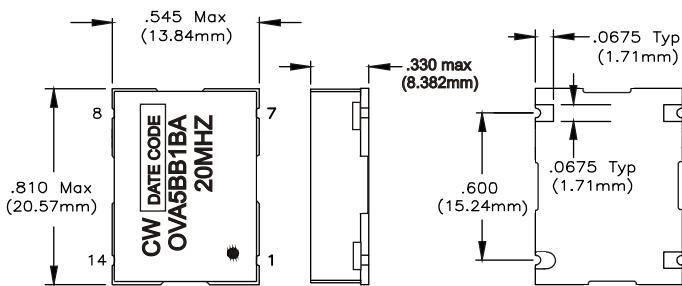
**MECHANICAL CHARACTERISTICS**

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

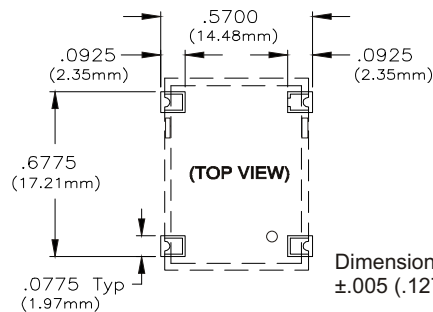
Shock: Per MIL-STD-202, Method 213, Condition F. 1500G's, 0.5ms, half sine, 3 shocks per direction.

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

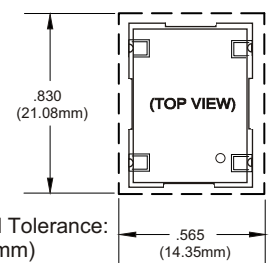
PACKAGE LAYOUT



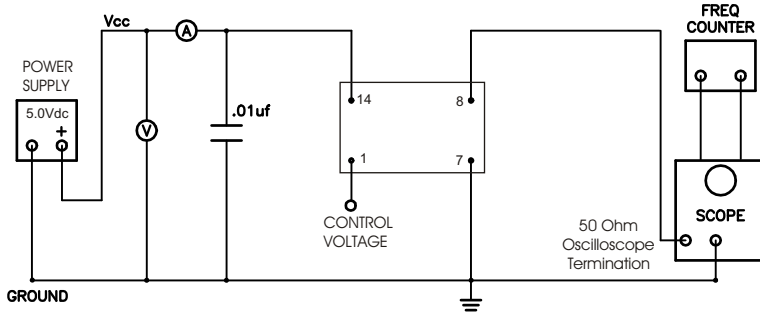
SUGGESTED PAD LAYOUT



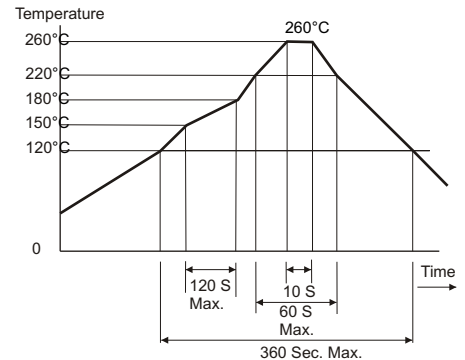
KEEP OUT AREA



TEST CIRCUIT



SOLDER PROFILE



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