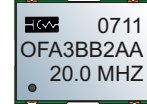


CRYSTAL CONTROLLED OSCILLATORS

3.3V SURFACE MOUNT LVCMOS STRATUM 3 OCXO



OFA3BB2AA

DESCRIPTION

The Connor-Winfield OFA3BB2AA is a true Surface Mount 3.3V Oven Controlled Crystal Oscillator (OCXO) with an LVCMOS logic output. The OFA3BB2AA is designed for STRATUM 3 applications requiring tight frequency stability, low jitter over the industrial temperature range.

FEATURES

- OCXO
- 3.3V OPERATION
- LOW JITTER <1pS RMS
- FREQUENCY STABILITY: 0.25ppm ABSOLUTE.
- 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

OFA3BB2AA - 20MHz

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	

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	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 Fo/2)		-	-	1	pS RMS	
Phase Jitter (BW =10Hz to Fo/2)		-	-	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		-	-140	-	dBc/Hz	
Start-Up Time: Oscillator		-	-	35	mS	
Warm Up Time		-	-	5	Minutes	5
TDEV at 1.0 seconds		-	-	1	nS	
TDEV at 4.0 seconds		-	-	2	nS	

LVCMOS OUTPUT CHARACTERISTICS

TABLE 3.0

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 4.0

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

TABLE 5.0

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

Specifications subject to change without notice.

CRYSTAL CONTROLLED OSCILLATORS

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.

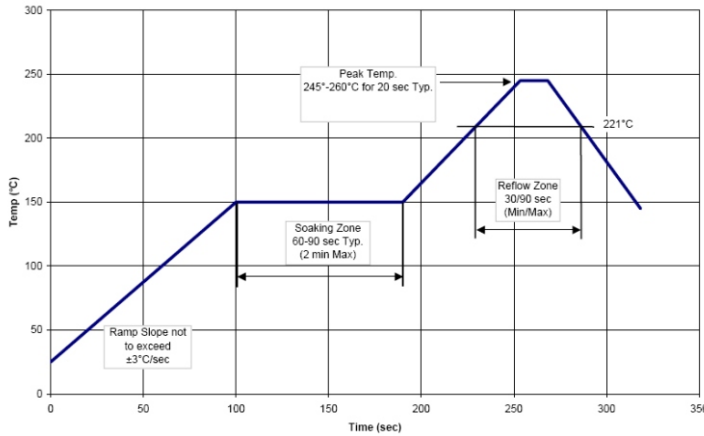
Shock: Per MIL-STD-202, Method 213, Condition F. 1500G's, 1.0ms, half sine, 3 shocks per direction.

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

Notes:

- 1) Initial calibration @ 25 C.
- 2) Frequency vs. temperature stability overall, -40 to 85 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.

Solder Profile

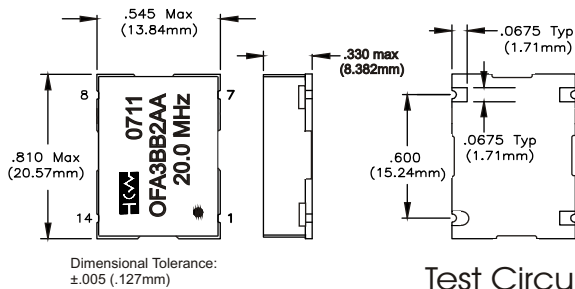


Pin Connections

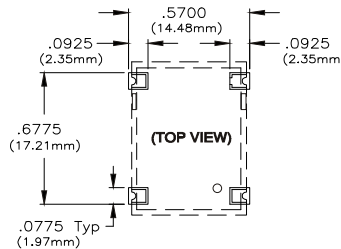
TABLE 6.0

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

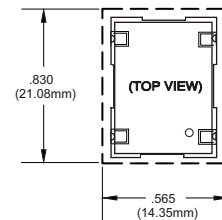
Package Outline



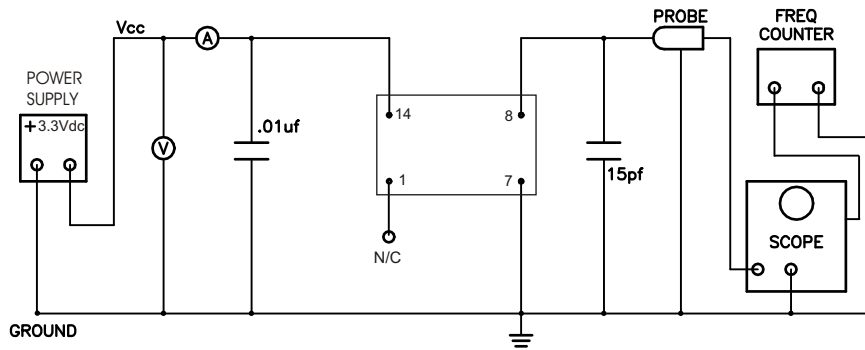
Suggested Pad Layout



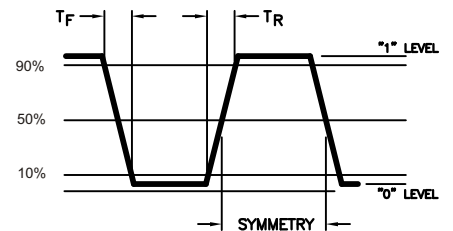
Keep Out Area



Test Circuit



Output Waveform



Specifications subject to change without notice.