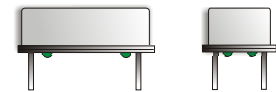


# CRYSTAL CONTROLLED OSCILLATORS

## 3.3V 14 PIN DIP STRATUM 3 LVCMOS VCOCXO



### BGOV3S3G

#### DESCRIPTION

The Connor Winfield BGOV3S3G is a hermetically sealed 14 Pin DIP, 3.3V Voltage Controlled Oven Stabilized Crystal Oscillator (VCOCXO) with a LVCMOS output. The BGOV3S3G is designed for higher stability Stratum 3 applications requiring low jitter and tight frequency stability over the industrial temperature range.

#### FEATURES

- VCOCXO
- 3.3V OPERATION
- LOW JITTER <1pS RMS
- FREQUENCY STABILITY:  $\pm 0.25$ ppm
- TEMPERATURE RANGE: -40 to 85°C
- FREQUENCY TOLERANCE OF  $\pm 4.6$ ppm OVER TWENTY YEARS
- HERMETICALLY SEALED PACKAGE
- RoHS COMPLIANT / LEAD FREE

#### ORDERING INFORMATION

BGOV3S3G - 20.0MHZ

OCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

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#### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	100	°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)	1.5	-	20	MHz	
Frequency Calibration		-1.5	-	1.5	ppm	1, 4
Frequency vs. change in Temperature		-0.25	-	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		-40	-	85	°C	
Supply Voltage	(Vcc)	3.135	3.3	3.465	Vdc	
Supply Current	(Icc)	-	-	700	mA	
Jitter (BW=10Hz to 20MHz)		-	-	3	ps rms	
Jitter (BW=12KHz to 20MHz)		-	-	1	ps rms	
SSB Phase Noise at 10Hz offset		-	-90	-	dBc/Hz	
SSB Phase Noise at 10KHz offset		-	-150	-	dBc/Hz	
Start Up Time: Oscillator		-	-	35	mS	
Warm Up Time		-	-	5	Minutes	6
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		-22.5	-	-13.5	ppm	7
Frequency at Vc=3.0 Vdc		13.5	-	22.5	ppm	7
Slope of Frequency Adjust		10	-	-	ppm/V	
Input Impedance		100k	-	-	Ohm	

#### LVCMOS 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	14 pin DIP, hermetically sealed, grounded case, welded package
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#### Notes:

- 1) Initial calibration @ 25 C, Vc=1.48V.
- 2) Frequency stability, -40 to 85 C, referenced to 25°C.
- 3) Frequency stability per 5% change in supply voltage.
- 4) At the time of shipment after 48 hours of operation.
- 5) Inclusive of operating temperature range, supply voltage change, load change, shock and vibration, 20 years aging, Vc=1.48V, and initial calibration.
- 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.

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## ENVIRONMENTAL CHARACTERISTICS

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

**Gross Leak Test:** Per MIL-STD-202, Method 112, Condition D. No Bubbles in flourinert (FC-43) at 125°C ±5°C for 20 seconds.

## SOLDERING

**Pin Solderability:** Per MIL-STD-883, Method 200. 8 hour steam age prior to 254°C ±5°C Solder pot dip, 95% Coverage.

**Resistance to Solder Heat:** Per MIL-STD-202, Method 210, Condition C. Wave: Topside board-mount product, 260°C ±5°C for 20 seconds.

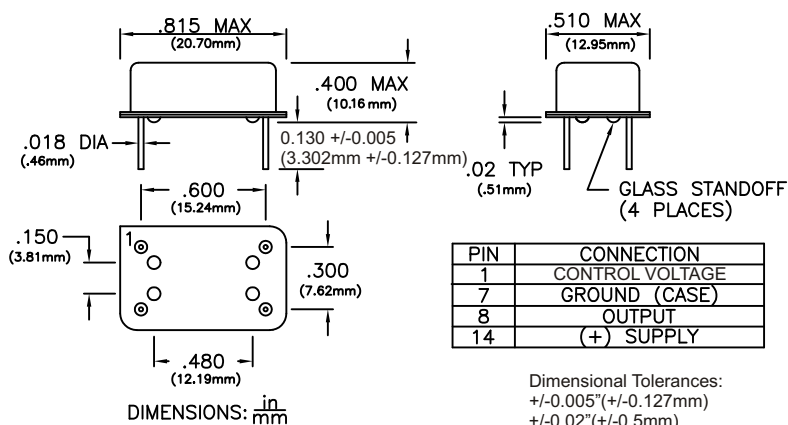
## MECHANICAL CHARACTERISTICS

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

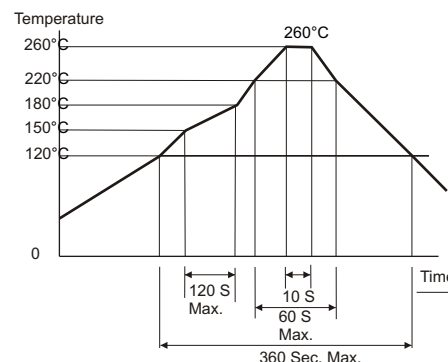
**Shock:** Per MIL-STD-202, Method 213, Condition F. 1500G's, 0.5ms, half sine, 3 shocks per direction.

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

## PACKAGE OUTLINE



## SOLDER PROFILE



## TEST CIRCUIT

