Precision OCXO Specification Model: OFC5EF3AB

CONNOR WINFIELD

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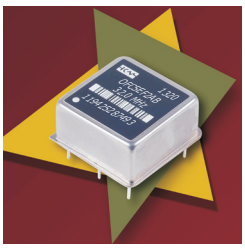
Description:

Connor-Winfield's model OFC5EF3AB is a 3.3 Vdc, Oven Compensated Crystal Oscillators (OCXO) in a 25.4 x 25.4 mm through hole package. The OFC5EF3AB is designed for STRATUM 3E applications requiring very high frequency stability and low phase noise.



Features:

Model: OFC5EF3AB
Frequency Range: 3.2 to 38.88 MHz
5.0 Vdc Operation
Frequency Stability: ±10 ppb
Temperature Range: -20 to 70°C
HCMOS Output
25.4 x 25.4 mm Package
Low Jitter / Low Phase Noise
RoHS Compliant / Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	100	°C	
Supply Voltage	-0.5	-	7.0	Vdc	
Operating Supply Voltage (Vcc)	4.75	5.00	5.25	Vdc	

Absolute Ratings: Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only. The functional operation of the device at those or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to conditions outside the "recommended operating conditions" for any extended period of time may adversely impact device reliability and result in failures not covered by warranty.

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Frequency (Fo)	3.2	-	38.88	MHz	
Frequency Calibration @ 25°C:	-0.6	-	0.6	ppm	1
Freq. Stability vs. Temperature:	-10	-	10	ppb	2
Frequency vs. Supply Voltage	-1	-	1	ppb	3
Frequency vs. Load	-2	-	2	ppb	
Operating Temperature	-20	-	70	°C	
Supply Voltage (Vcc)	4.25	5.00	5.25	Vdc	±5%
Power Consumption					
Turn On:	-	-	3.0	W	4
Steady State @ 25°C:	-	-	1.5	W	5
Aging					
Daily, at time of shipment	-	-	±2.0	ppb/day	
First Year	-	-	±100	ppb	
Short Term Stability (1 sec)	-	5.00E-11	-	rms	6
Phase Jitter: (BW: 10Hz to Fo/2)	-	-	2.0	ps rms	
Period Jitter:	-	-	2.0	ps rms	
SSB Phase Noise Fo = 32 MHz					
@ 1 Hz	-	-	-70	dBc/Hz	
@ 10 Hz	-	-	-100	dBc/Hz	
@100 Hz	-	-	-120	dBc/Hz	
@1 KHz	-	-	-140	dBc/Hz	
@10 KHz	-	-	-140	dBc/Hz	
@100 KHz	-	-	-140	dBc/Hz	
Warm-up	-100	-	100	ppb	7
2G Tip-over	-	-	5	ppb/G	

HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units
Load:	12	15	18	pF
Voltage: (High) Voh	4.2	-	-	V
Voltage: (Low) Vol	-	-	0.4	V
Rise / Fall Times @ 10% to 90%	-	-	5	ns
Duty Cycle: measured @ 50%Vcc	45	50	55	%
Spurious Output	-	-	-100	dBc

Package Characteristics

Package	Hermetically sealed welded package.

Ordering Information

OFC5EF2AB-032.0M

RoHS COMPLIANT

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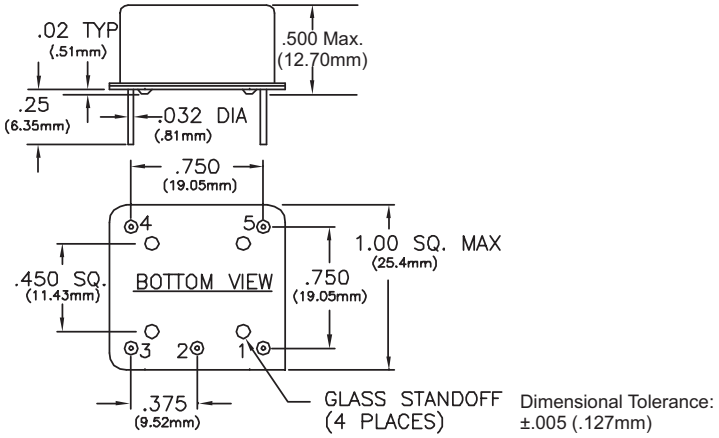
Notes:

1. *Initial calibration frequency measured @ 25°C at time of shipment.*
2. *Frequency stability vs. change in temperature , referenced to 25°C.*
3. *Frequency vs. change in supply voltage (±1.0%), referenced to 5.0 Vdc.*
4. *Measured with Vcc = nominal, in calm air.*
5. *Measured at 25°C*
6. *Allan Variance: 1 second, 100 average.*
7. *Measured at -20°C, within 10 minutes, referenced one hour after turn-on.*

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.
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.
Pin Solderability:	Per MIL-STD-883, Method 200. 8 hour steam age prior to 254°C ±5°C Solder pot dip, 95% Coverage.
Shock	Per MIL-STD-202, Method 213, Condition D. 500G's, 1ms, halfsine, 3 shocks per direction.
Vibration	Per MIL-STD-202, Method 204, Condition A. 10G's peak, 10Hz to 500Hz, 15minute cycles 12 times each perpendicular axis.
Moisture	Per MIL-STD-202, Method 106. 95% RH @ 65°C, 10 cycles 10°C to 65°C
Marking Permanency	Per MIL-STD-202F, Method 215J.
Attachment Method PCB	Through Hole Mounted
Resistance to Solder Heat	Per MIL-STD-202, Method 210, Condition C. Wave: Topside board-mount product, 260°C ±5°C for 20 Seconds.
Solder Process	RoHS compliant, lead free. See solder profile.

Package Outline



Dimensional Tolerance: ±.005 (.127mm)

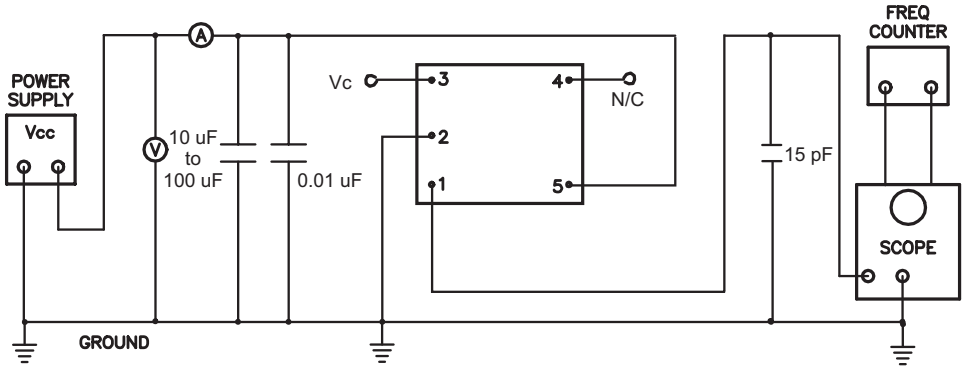
Pin Connections

Pin	Connection
1:	Output
2:	Ground (Case)
3:	N/C
4:	N/C
5:	Supply Voltage (Vcc)

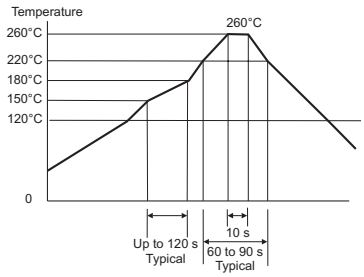
Marking Diagram

Date Code (YYWW)
Model Number
Output Frequency
Serial # Barcode
Serial Number

Test Circuit



Solder Profile



Meets IPC/JEDEC J-STD-020C

Attention: System Designers please review Application Note AN2093:
System Design Information and Printed Circuit Board Layout Guidelines for OCXO Oscillators.
@ www.conwin.com/technologies.html

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