



OH100-71005SV-100.0M OCVCXO

CONNOR WINFIELD



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Description:

Connor-Winfield's model OH100-71005SV-100.0M is a 5.0 Vdc, Sinewave output, Oven Compensated Voltage Controlled Crystal Oscillator (OCVCXO) in a 1-inch square metal thru-hole package. The OH100-71005SV is designed for applications requiring very high frequency stability and low phase noise.



Features:

- Output Frequency: 100.0 MHz
- 5.0 Vdc Operation
- 1.0"x1.0"x0.5" thru-hole package
- Frequency Stability: ± 10 ppb
- Temperature Range: -20 to 70°C
- Sinewave Output
- Low Jitter / Low Phase Noise
- RoHS Compliant / Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	
Control Voltage (Vc)	-1.0	-	7.0	Vdc	
Operating Supply Voltage	4.75	5.0	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
Center Frequency (Fo)	-	100.0	-	MHz	
Operating Temperature	-20	-	70	°C	
Frequency Calibration @ 25°C	-0.1	-	0.1	ppm	
Frequency Stability vs. Temperature	-10	-	10	ppb	1
Frequency vs. Supply Voltage	-5.0	-	5.0	ppb	Vcc $\pm 5\%$
Frequency vs. Load	-2.0	-	2.0	ppb	Load $\pm 5\%$
Aging: Daily	-5.0	-	5.0	ppb/day	2
Aging: First Year	-300	-	300	ppb	
Lifetime Tolerance: (20 years)	-800	-	800	ppb	3
Supply Voltage (Vcc)	4.75	5.0	5.25	Vdc	4
Power Consumption: Vcc = 5.0 Vdc					
Steady State, @ 25°C	-	-	1.25	W	5
Turn On @ -20°C	-	-	2.75	W	5
Integrated Phase Jitter (BW: 12kHz to 20MHz)	-	-	0.5	ps rms	
Short Term Allan Deviation: (1s)	-	5.0E-11	-		
Start-Up Time:	-	-	500	ms	
Warm Up Time: @ 25°C	-	-	5	minutes	6

Phase Noise

Parameter	Minimum	Nominal	Maximum	Units	Notes
SSB Phase Noise at 1Hz offset	-	-65	-	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	-	-135	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-145	-	dBc/Hz	
SSB Phase Noise at 100KHz offset	-	-150	-	dBc/Hz	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range	0.5	2.5	4.5	V	7
Pull Range	± 0.6	-	-	ppm	
Input Impedance	100K	-	-	Ohm	

Ordering Information

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System Design Information: Printed Circuit Board Layout Guidelines for OCXO Oscillators.
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Sinewave Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Output Load	-	50	-	Ohm	
Output Power:	+5	-	-	dBm	
Harmonics:	-	-	-30	dBc	
Spurious Output	-	-	-80	dBc	

Notes:

1. Referenced to the frequency measured @ 25°C, Control voltage (Vc) = 2.5Vdc.
2. At time of shipment after 48 hours of operation.
3. Inclusive of Calibration, Operating Temperature, Supply Voltage change, Load change, and 20 Year Aging.
4. Supply voltage must reach Vcc levels monotonically within a ramp-up time of <12 ms.
5. Measured with Vcc = Nominal in calm air.
6. Measured @ 25°C, within ±100 ppb, referenced one hour after turn-on.
7. To ensure proper operation of this VCOCXO, the control voltage must be biased at the nominal value, 2.5Vdc. Failure to bias the Vc input will result in unstable operation

Re-Stabilization Time

Off Time	Re stabilization Time
<1 Hour	<2 Hours *
<6 Hour	<12 Hours *
<24 Hour	<48 Hours *
1 to 16 Days	48 Hours + 1/4 Off Time *
>16 Days	<6 Days *

* For a given off time, the time required to meet daily aging, short term stability requirements.

Package Characteristics

OH100 Package	Hermetically sealed, resistive welded package with grounded case.
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Environmental Characteristics

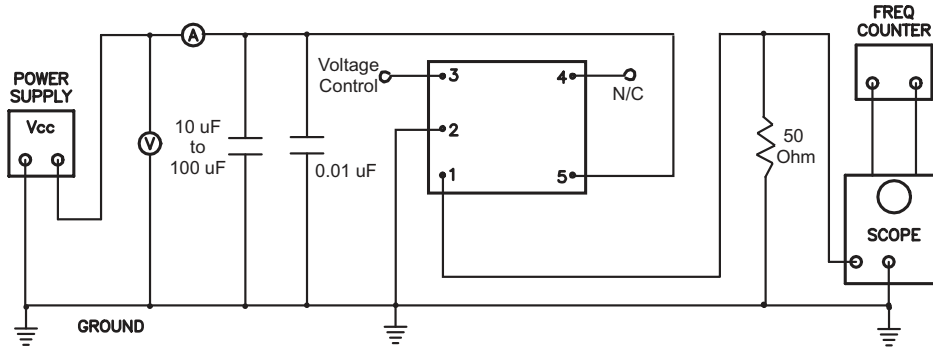
Shock	500 G's 1ms, Halfsine, 3 shocks per direction, per MIL-STD 202G, Method 213B Test Condition D.
Sinusoidal Vibration	0.06" D.A. or 10G's Peak, 10 to 500 Hz, per MIL-STD-202G, Method 204D, Test Condition A.
Random Vibration	5.35 G's rms. 20 to 2000 Hz per MIL-STD-202G, Method 214, Test Condition 1A, 15 minutes each axis.
Moisture	10 cycles, 95% RH, Per MIL-STD-202G, Method 112.
Marking Permanency	Per MIL-STD-202G, Method 215J.
Attachment Method PCB	Through Hole Mounted
Resistance to Solder Heat	Per MIL-STD-202G, Method 210, Condition E.
Solder Process	RoHS compliant, lead free. See solder profile.



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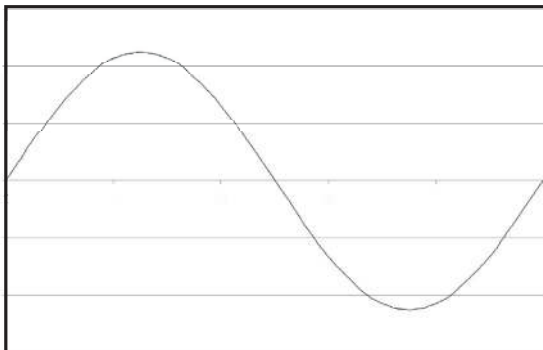
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Test Circuit

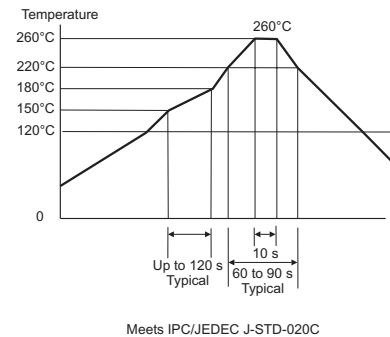


Output Waveform

Sinewave Output, +5 dBm minimum into 50 Ohms



Solder Profile



Revision History

Revision	Date	Changes
00	02/14/17	Initial Release



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