

OCXO Specification Model OH300-SRC2

CONNOR WINFIELD



Description:

Connor-Winfield's model OH300-SRC2 is a 5V, Oven Compensated Crystal Oscillator (OCXO) in a 22 x 25.4 mm surface mount package. The OH300-SRC2 is designed for applications requiring very high frequency stability and low phase noise.



Features:

- Output Frequency: 100.0 MHz
- 5.0 Vdc Operation
- 22 x 25.4 mm SMT Package
- Frequency Stability: ± 20 ppb
- Temperature Range: -20 to 70°C
- LVCMOS Output Level
- Low Jitter / Low Phase Noise
- RoHS Compliant / Lead Free

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Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	
Recommended Operating 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:	-0.2	-	0.2	ppm	
Frequency Stability vs. Temperature	-20.0	-	20.0	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	-2.0	-	2.0	ppb/day	2
Aging: First Year	-100	-	100	ppb	
Lifetime Tolerance: (20 Years)	-500	-	500	ppb	3
Supply Voltage (Vcc)	4.75	5.00	5.25	Vdc	$\pm 5\%$, 4
Power Consumption: Vcc = 5.0 Vdc					
Turn On	-	-	2.75	W	
Steady State @ 25 °C	-	-	1.25	W	
Phase Jitter: (BW: 10 Hz to Fo/2)	-	-	1.0	ps rms	
Short Term Allan Deviation: (1s)	-	5.0E-11	-		
Start-Up Time:	-	-	500	ms	
Warm Up Time: @ 25°C	-	-	5	minutes	5

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	-	-140	-	dBc/Hz	
SSB Phase Noise at 10KHz offset	-	-150	-	dBc/Hz	
SSB Phase Noise at 100KHz offset	-	-150	-	dBc/Hz	

Ordering Information

OH300-SRC2-100.0M

Notes:

1. Referenced to the frequency measured @ 25°C.
2. At time of shipment after 48 hours of operation.
3. Inclusive of calibration, operating temperature, supply voltage change, load change and 20 years aging.
4. Supply voltage must reach Vcc levels monotonically within a ramp-up time of <12 ms.
5. Measured @ 25°C, within ± 100 ppb, referenced one hour after turn-on.



Attention: System Designers please review Application Note AN2093:
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LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	
Output Voltage: High (Voh)	2.4	-	-	V	
Low (Vol)	-	-	0.4	V	
Output 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	
Spurious Output	-	-	-80	dBc	

Package Characteristics

OH300 Package	Package consisting of a FR-4 substrate and Ryton-R-4 cover. Water Resistant package, non-hermetic seal. (Engineering Properties of Ryton R-4 Application Note AN2100)
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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.
Solder Process Recommendations:	RoHS compliant, lead free. See solder profile on page 6.
In-line reflow:	Refer to recommended reflow pre-heat and reflow temperatures on page 6. Package material consist of Ryton R-4 high temperature cover with FR4 substrate. Component solder is Pb free high temperature eutectic alloy with a melting point of 221°C.
In-line oven profile:	We recommend using KIC profiler or similar device placing one of the thermocouples on the device to insure that the internal package temperature does not exceed 221°C.
Removal of device:	If for any reason the device needs to be removed from the board, use a temperature controlled repair station with profile monitoring capabilities. Following a monitored profile will insure the device is properly pre-heated prior to reflow. Refer to IPC 610E for inspection guidelines.
Recommended Cleaning Process: (If required)	Device is non-hermetic, water resistance with four weep holes, one in each corner to allow moisture to be removed during the drying cycle. We recommend in-line warm water wash with air knife and drying capabilities. If cleaner does not have drying capability, then use hot air circulated oven. Boards should be placed in the oven vertically for good water runoff. Device must be dried properly prior to use!
Note: If saponifier is used make sure the device is rinsed properly to insure all residues are removed. PH of saponifier should not exceed 10.	
Drying Temperature:	Between 85 to 100°C.
Drying Time:	Time will vary depending on the board size.
Caution: Do not submerge the device!	

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.

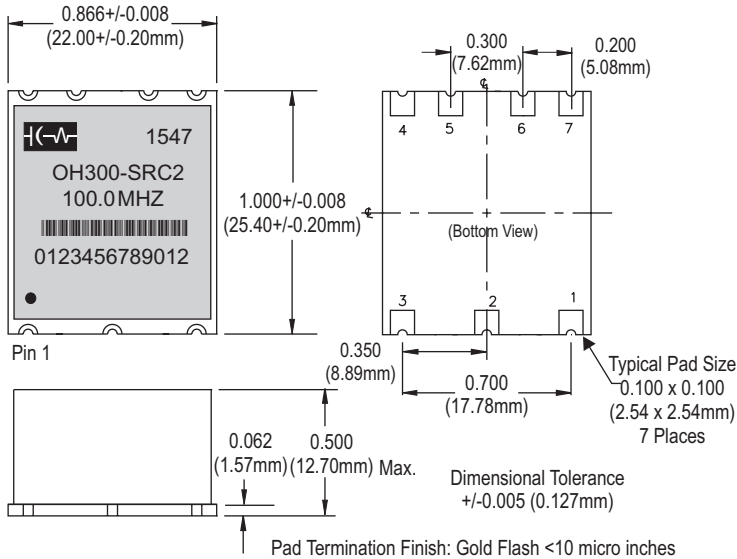


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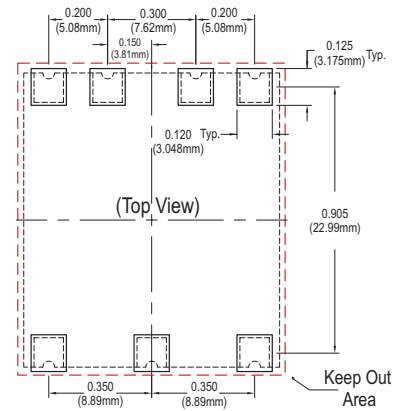
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Package Outline



Suggested Pad Layout



* Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

Marking Information



Date Code (YYWW)

Model Number

Output Frequency

Serial # Barcode

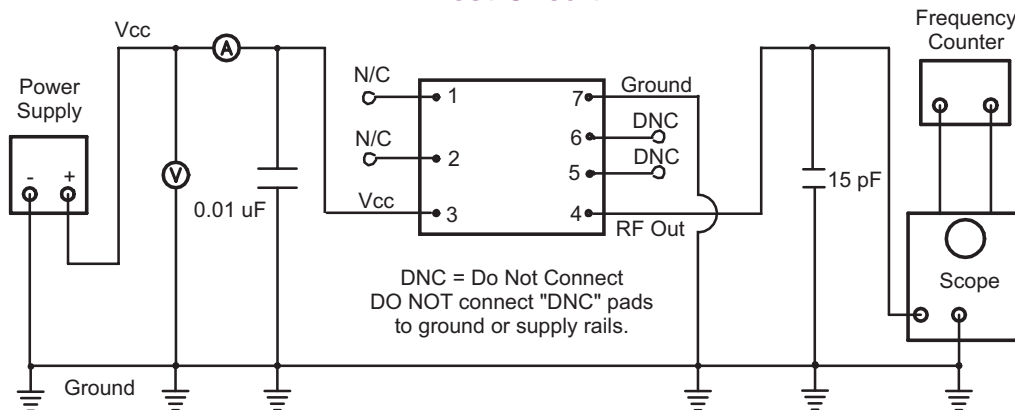
Serial Number

Pad Connections

Pad	Connection
1	N/C
2	N/C
3	Supply Voltage (Vcc)
4	RF Output
5	Do Not Connect
6	Do Not Connect
7	Ground

DO NOT connect "DNC" pads to ground or supply rails.

Test Circuit

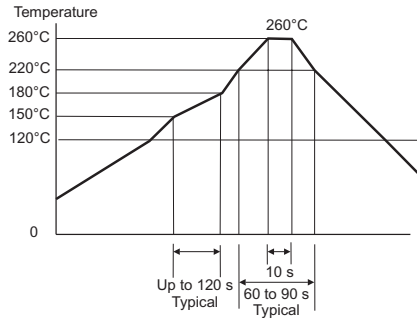


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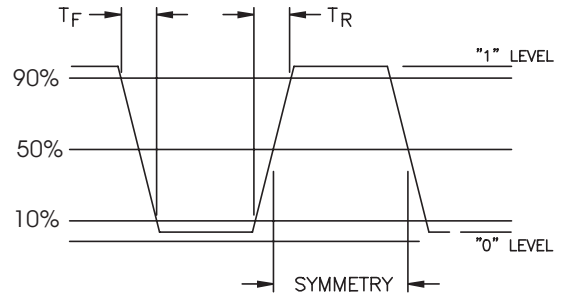


Solder Profile

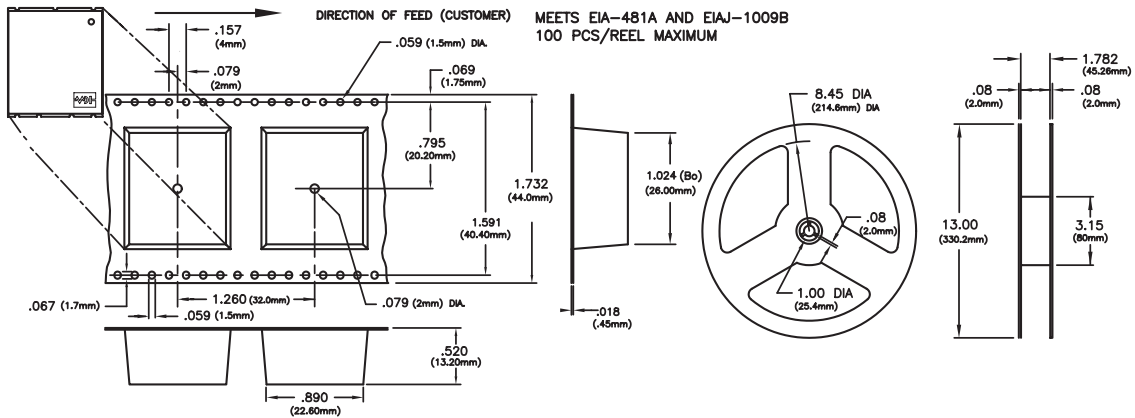


Meets IPC/JEDEC J-STD-020C

LVCMOS Output Waveform



Tape and Reel Information



Revision History

Revision	Date	Description
00	11/18/15	Release of OH300-SRC2



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