

Free-Running Oscillators

50 Years of
Excellence

NHO Series High Performance Dielectrically Stabilized Oscillators (DROs)



Features

- **6 GHz to 18 GHz**
any frequency
- **Drop-in Capable**
- **Limited pulling**
operates into 3:1 load
- **Built-in regulator**
excellent pushing characteristics
- **Low harmonic content**
internal filter
- **-90 dBc spurious**
- **-54°C to +85°C operation**
- **Reverse voltage protection**

Options Available Based On Standard Designs

- **Improved pulling characteristics**
- **High operating temperatures**
up to 115°C

Special Models Available

- **Internal amplifier**
to reduce pulling, increase power
- **Hermetic sealing**
- **Other package sizes**



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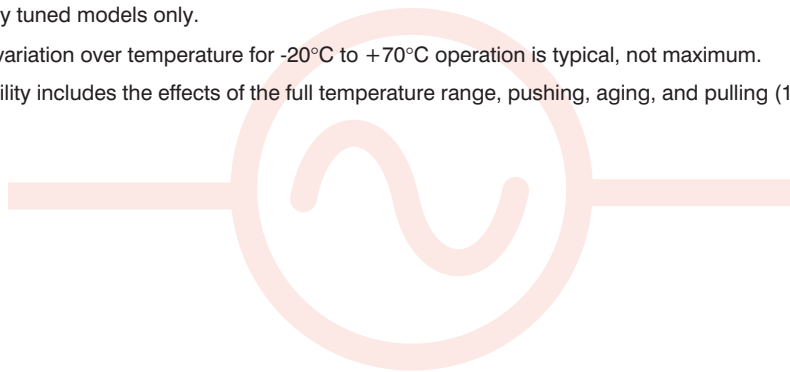
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MODEL SERIES	NHO-C	NHO-X	NHO-Ku	CONDITIONS
FREQUENCY				
Operating	6,000-7,999 MHz	8,000-13,499 MHz	13,500-18,000 MHz	Note 1
Accuracy (initial) ²	±0.05%	±.03%	±.03%	Set at +25°C
Tuning Range (max) ³	±10 MHz	±15 MHz	±15 MHz	All Conditions
Variation Over	±0.02%	±0.02%	±0.02%	-20°C to +70°C
Temperature (max) ⁴	±0.04%	±0.03%	±0.03%	-54°C to +85°C
Pulling (max)	±0.02%	±0.02%	±0.02%	1.5:1, all phases
	±0.04%	±0.04%	±0.04%	3.0:1, all phases
Pushing (max)	0.02 MHz/Volt	0.02 MHz/Volt	0.02 MHz/Volt	11-19 VDC
Stability (max)	±0.06%	±0.06%	±0.06%	Note 5
POWER				
Output (min)	14 dBm	14 dBm	13 dBm	At +25°C, 50 Ohm load
Variation Over	±1.5 dB	±1.5 dB	±1.5 dB	-20°C to +70°C
Temperature (max)	±2.0 dB	±2.0 dB	±2.0 dB	-54°C to 85°C
Load VSWR (max)	3.0:1	3.0:1	3.0:1	All phases
SPECTRAL PURITY				
Phase Noise (typ)	-90 dBc	-90 dBc	-85 dBc	10 kHz from carrier, 1Hz BW
Spurious Output (max)	-90 dBc	-90 dBc	-90 dBc	All conditions
Harmonics (max)	-25 dBc	-25 dBc	-25 dBc	All conditions
INPUT POWER				
Voltage	+15 ±4 VDC	+15 ±4 VDC	+15 ±4 VDC	All conditions
Current (max)	125 ma	125 ma	125 ma	At 15 VDC

Notes:

1. Center frequency is customer specified to the MHz.
2. Initial center frequency accuracy for fixed tuned models is ±10 MHz
3. Mechanically tuned models only.
4. Frequency variation over temperature for -20°C to +70°C operation is typical, not maximum.
5. Overall stability includes the effects of the full temperature range, pushing, aging, and pulling (1.5:1 maximum load VSWR).



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Ordering Information:

1. Select series.
2. Determine if fixed tuned (F) or mechanically tuned (M).
3. Add frequency in MHz.

Example:

NHO-XM-12550

This describes a mechanically tunable model with a center frequency of 12,550 MHz (12.55 GHz.)

Environmental Specifications

TEMPERATURE

Operating -54°C to +85°C
Storage -65°C to +125°C

HUMIDITY

Per MIL-STD-202F, method 103B, condition B
(96 hours at 95% R.H.)*

SHOCK

Per MIL-STD-202F, method 213B, condition B
(75G, 6 msec)

ALTITUDE

Per MIL-STD-202F, method 105C, condition B
(50,000 feet)

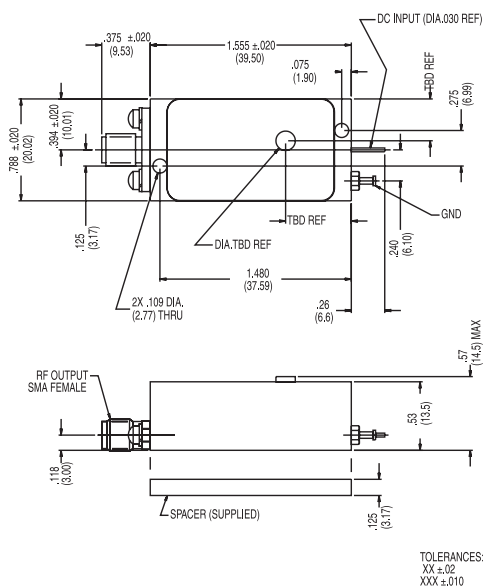
VIBRATION

Per MIL-STD-202F, method 204D, condition B
(.06" double amplitude or 15G, whichever is less).

THERMAL SHOCK

Per MIL-STD-202F, method 107D, condition A
(5 cycles)

Outline Drawings



Dimensions in parentheses are in millimeters and for reference only.



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