PHASE LOCKED OSCILLATOR

MODEL MDR5100-2500 (2500 MHz)

Features

- **Low Phase Noise: -124 dBc/Hz @ 100 kHz**
- **Low Spurious: -80 dBc Typical**
- **Internal Reference Design**
- **Environmental Screening Available**

Specifications[1]

CHARACTERISTIC	TYPICAL Ta= 25 ºC	MIN/MAX Ta = -20 ºC to +65 ºC
Frequency (MHz)[2]	2500	2500
Mechanical Tuning Bandwidth (MHz)[3]	+/- 10	+/- 10 Min.
Output Power (dBm)[4]	+13	+12
Variation Over Temperature (dBm)	+/- 0.75	+/- 1
Spurious (dBc)	-80	-70
Phase Noise (dB)[5]	-102 dBc/Hz @ 1 KHz -118 dBc/Hz @ 10 KHz -124 dBc/Hz @ 100 KHz -140 dBc/Hz @ 1 MHz	
VSWR	1.5	2.0
Harmonics (dBc)	-20	-15
Lock Indicator	TTL (High=Locked)	TTL (Low=Unlocked)
Supply Power DC[6] mA	+12 265	+12 275
Phase Voltage Set to (nom.) Lock Range (min.)	 +5.0 VDC +2 to +9 VDC	
Phase-Lock Alarm Locked Unlocked[7]	Transistor Collector (NPN) Open Vc = 30 VDC max. Saturated to Ground Vce = +0.5 VDC max. Ic = 50 mA max.	

Description

Spectrum Microwave's Series MDR5100 Phase Locked Oscillators use a Dielectric Resonator in the resonant circuit. The circuit is lightly loaded to obtain the lowest phase noise possible.

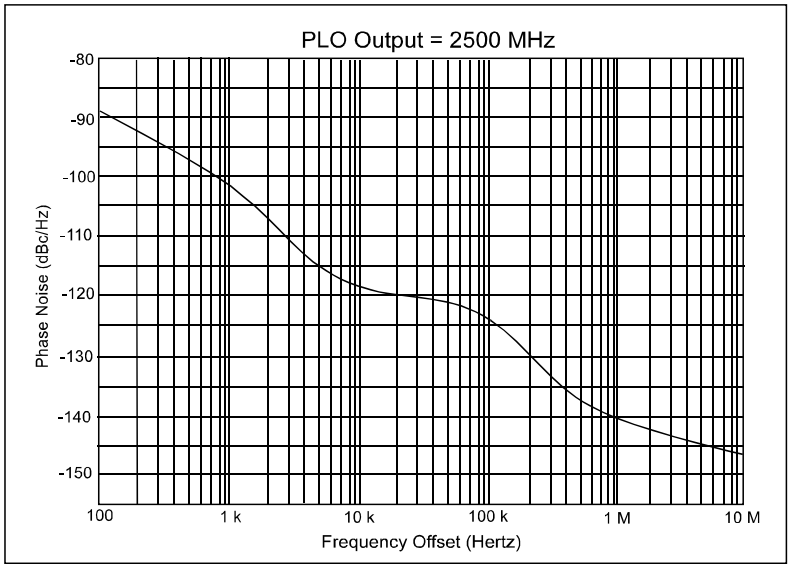
The resonator is epoxied to a printed circuit board and well grounded to minimize modulation sidebands during shock and vibration.

Buffer amplifiers are used to provide isolation from load VSWRs; Regulators filter noise on the DC input voltage.

External reference models are also available. A lock indicator circuit is provided to signal an out-of-lock condition.

Notes:

1. Specifications labeled "min." or "max." are guaranteed in a 50 Ohm system over the specified temperature range.
2. Output frequency must be specified, and it is an integer multiple of the internal crystal reference frequency.
3. Mechanical tuning of PLO in unlocked mode.
4. Higher output power is available.
5. Phase Noise at offsets <100 kHz is dependent on external reference and can be approximated as follows: *Phase Noise (dB) = 20log(N) +3 dB above the external reference phase noise, where N = multiple of reference.*
6. Other input voltages are available.
7. Actual or impending loss of lock.
8. Package must be verified by Spectrum Microwave.



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Rev.
10/30/08

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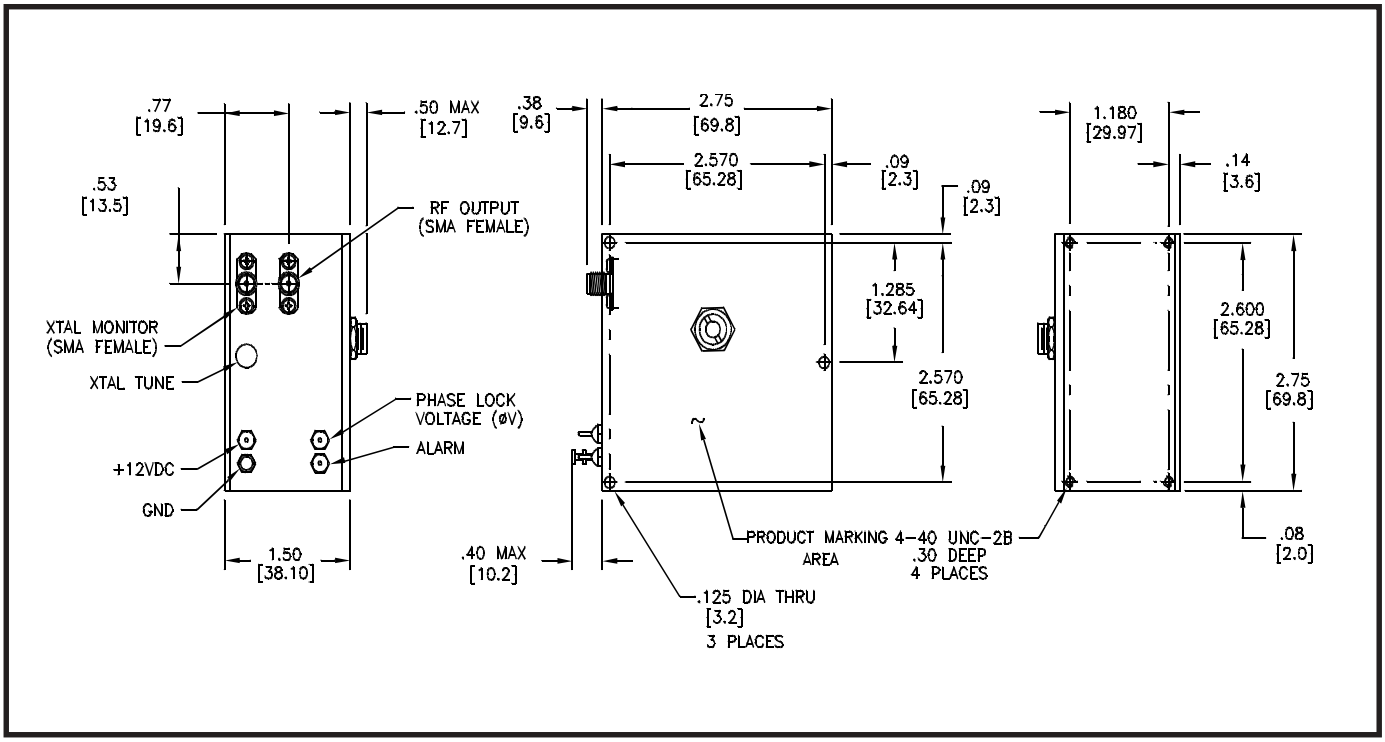
Outline Drawing



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