# PHASE LOCKED OSCILLATOR

**MODEL MDR6100-8000** (8000 MHz)



#### **Features**

- Low Phase Noise: -118 dBc/Hz @ 100 kHz
- Low Spurious: -80 dBc Typical
- External Reference
- Environmental Screening Available

#### **Specifications**<sup>1</sup>

CHARACTERISTIC	TYPICAL		MIN/MAX	
	Ta= 25 °C		Ta = -20 °C to +65 °C	
Frequency (MHz) <sup>2</sup>	8000		8000	
Mechanical Tuning				
Bandwidth (MHz) <sup>3</sup>	+/- 20		+/- 20 Min.	
Output Power (dBm)4	+13		+12	
Variation Over				
Temperature (dBm)	+/- 0.75		+/- 1	
Spurious (dBc)	-80		-70	
Phase Noise (dB) <sup>5</sup>	-102 dBc/Hz @ 1 KHz			
	-112 dBc/Hz @ 10 KHz			
	-118 dBc/Hz @ 100 KHz			
	-133 dBc/Hz @ 1 MHz			
VSWR	1.5		2.0	
Harmonics (dBc)	-20		-15	
External Reference	100 MHz		1 / 200 MHz	
Lock Indicator	TTL (High=Locked)		TTL (Low=Unlocked)	
Supply Power DC <sup>6</sup>	+12		+12	
mA	265		275	
Phase Voltage				
Set to (nom.)		+5.0 VDC		
Lock Range (min.)		+2 to +9 VDC		
Phase-Lock Alarm		Transistor Collector (NPN)		
Locked		Open Vc = 30 VDC max.		
Unlocked <sup>7</sup>		Saturated to Ground		
			Vce = +0.5 VDC max.	
		Ic = 50 mA max.		

#### **Description**

Spectrum Microwave's Series MDR6100 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.

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

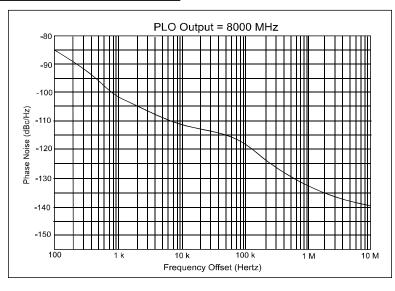
#### Notes:

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.
- Mechanical tuning of PLO in unlocked mode.
  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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### **Outline Drawing**

