



Phase Locked Oscillator, 114.98 GHz, +13 dBm, Combined Internal and External

Description:

Model SOP-12401113-06-B1-2 is a phase locked oscillator with a typical output frequency of 114.98 GHz and a nominal output power of +13 dBm. The oscillator utilizes state-of-art planar circuits, a high performance three terminal device, a dielectric resonator, an active multiplier, and filter and power amplifier to generate high-quality millimeter-wave signals. The oscillator has a built-in 100 MHz internal reference crystal oscillator. The oscillator is designed and fabricated to be phase locked to the internal reference oscillator automatically if the 10 MHz external reference is absent. The oscillator delivers signal with a nominal harmonic and spurious levels of -15 dBc and -60 dBc, respectively.



Features:

- Low Phase Noise
- Low Harmonic Components

Applications:

- Radar Systems
- Communication Links
- Transmitters and Receivers

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency		114.98 GHz	
Output Power		+13 dBm	
Phase Noise (Internal Reference)*		-70 dBc/Hz @10 kHz	
		-75 dBc/Hz @100 kHz	
		-100 dBc/Hz @1 MHz	
Internal Reference Frequency		100 MHz	
External Reference Frequency		10 MHz	
External Reference Input Power	-3 dBm	0 dBm	+3 dBm
Harmonics		-15 dBc	
Spurious		-60 dBc	
Phase Locked Indicator (LOCK)		TTL "High"	
Phase Error Voltage (V_T)		0 to + 10 V_{DC}	
Bias (PLO)		+12 V_{DC} / 500 mA	+15 V_{DC}
Bias (Active Frequency Multiplier)	+6 V_{DC}	+8 V_{DC} / 350 mA	+15 V_{DC}
Bias (Amplifier)		+9 V_{DC} / 450 mA	
Frequency Stability		±5 ppm	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

*Phase noise specified is based on estimation. It will not be tested.



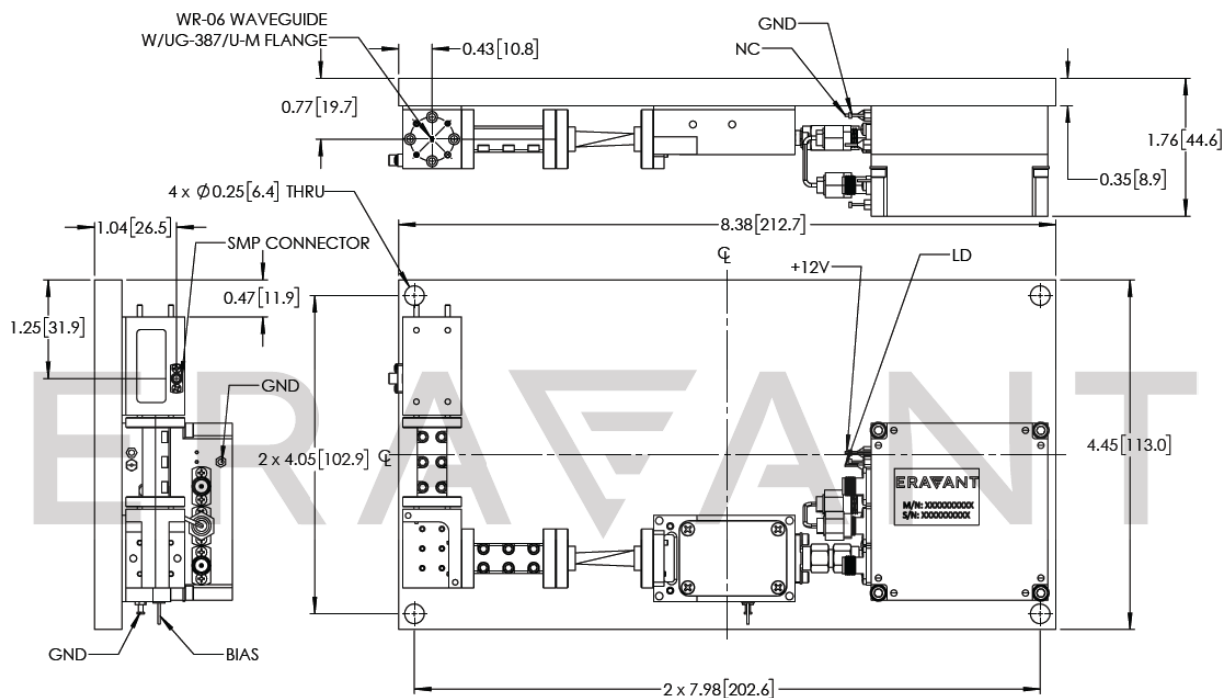


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Mechanical Specifications:

Item	Specification
RF Output	WR-06 Waveguide with UG-387/U-M Flange
REF Input	SMA(F) Connector
REF Output	SMA(F) Connector
Bias Port (PLO and Multiplier)	Feedthru Pin
Bias Port (Amplifier)	SMP (M) Connector
Phase Lock Indicator Port (LD)	Feedthru Pin
Phase Error Voltage (V_T)	Feedthru Pin
Case Material	Aluminum
Size	8.38" (W) X 4.45" (L) X 1.76" (H)
Outline	OP-BD-2

Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])





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Note:

- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.
- Other mechanical configurations are available under different model number.

Caution:

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- The case temperature of the device shall never exceed **+50 °C**. Use additional heatsink or fan if necessary.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

