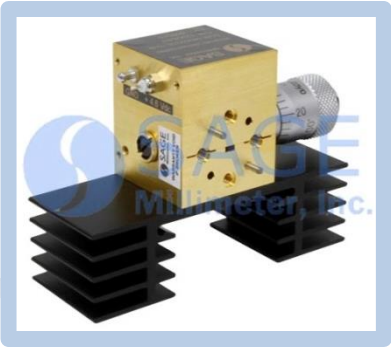
SOM-79302313-10-M1

Rev. 1.0

W-Band Mechanically Tuned Gunn Oscillator, 2 GHz Tuning Bandwidth

Description:



Model SOM-79302313-10-M1 is a W-Band, mechanically tuned Gunn oscillator that utilizes a high-performance GaAs Gunn diode and proprietary cavity design to deliver +13 dBm typical power. The oscillator features a frequency tuning range of 78 to 80 GHz and delivers low AM/FM noise and harmonic emissions. Compared to its counterparts, such as multiplier based sources, the Gunn oscillator is a lower cost and cleaner source. The Gunn oscillator's frequency can also be tuned by varying the bias voltage, which is useful for phase-locking and electrical-tuning applications. The Gunn oscillator is equipped with a micrometer for quick frequency tuning and test bench applications. Models with a self-locking set screw for system integration are available under a different model number. The performance of the oscillator can be further enhanced by adding an optional isolator, Gunn oscillator modulator/regulator and temperature heater.

Features:

- Low AM/FM Noise and Harmonics
- Bias Tunable

Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency		79 GHz	
Power Output	+10 dBm	+13 dBm	
Mechanical Tuning Range		±1.0 GHz	
Bias Tuning Range (+4.0 to +5.0 V_{DC})		±100 MHz	
Bias Voltage		+4.5 V_{DC}	+5.2 V_{DC}
Bias Current		350 mA	
Specification Temperature		+25˚C	
Operating Temperature	0˚C		+50˚C

Mechanical Specifications:

Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Flange
DC Bias	Solder Pin
Mechanical Tuning	Micrometer
Body Material	Aluminum
Finish	Gold Plated
Weight	3.6 Oz
Outline	OM-MW

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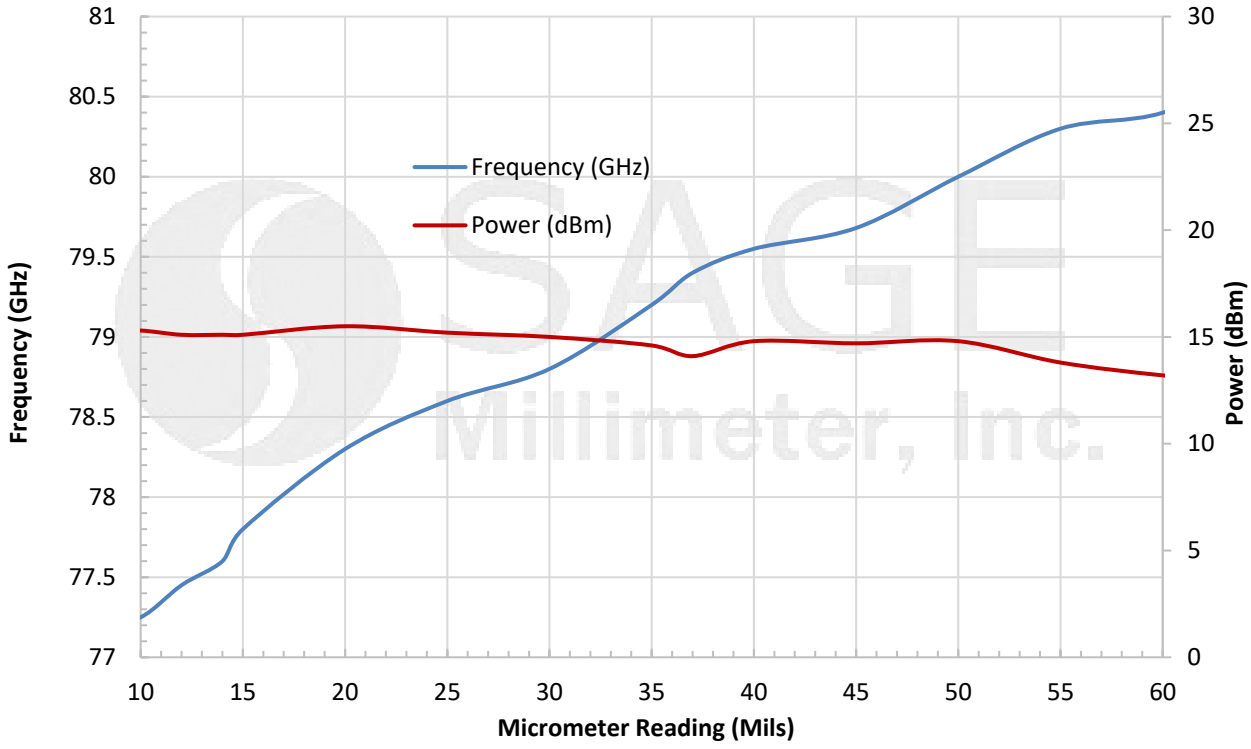
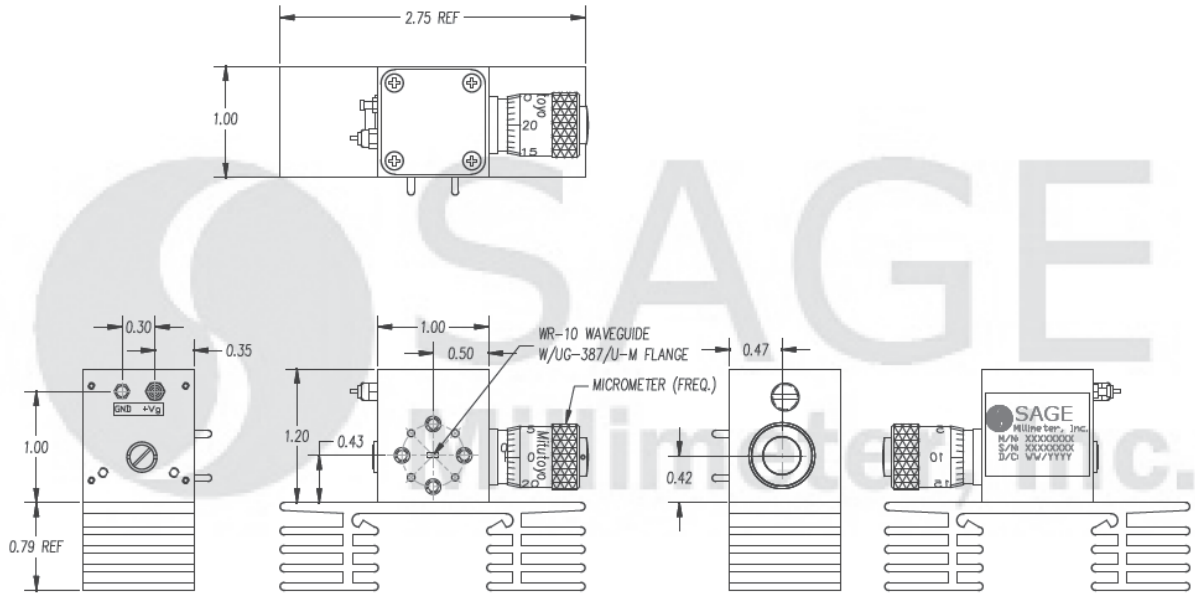
Frequency and Power Output vs. Micrometer Reading

Bias: +4.5VDC/350 mA



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



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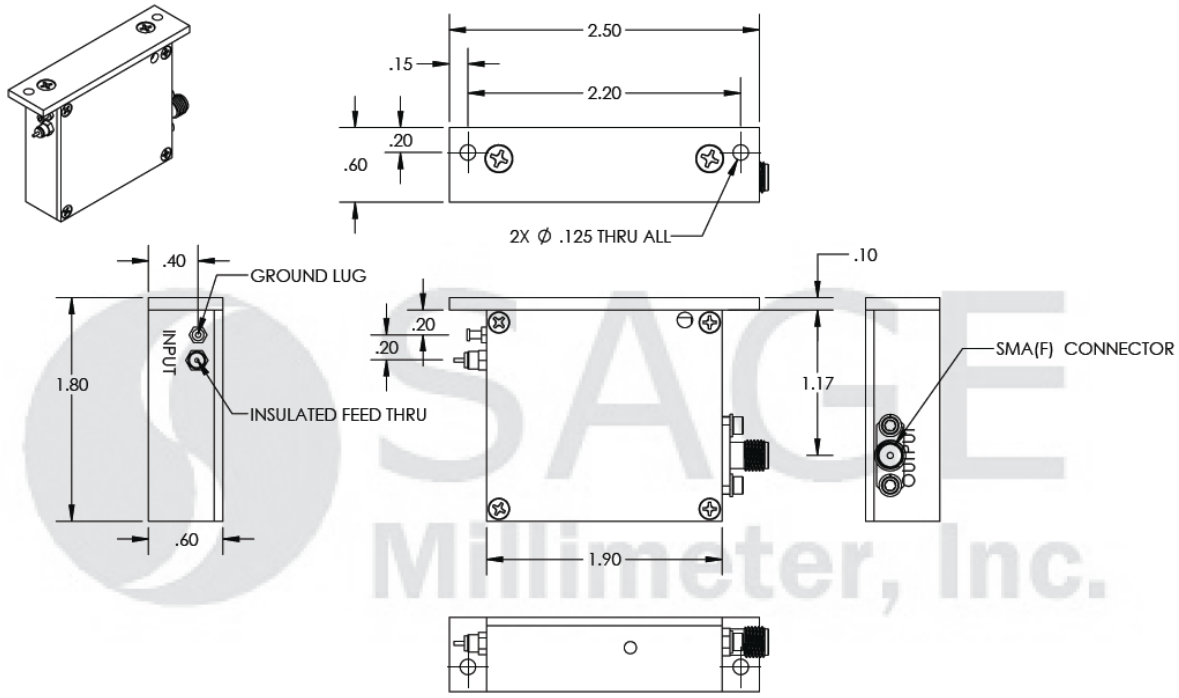
Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit.
- The data given above was tested under case temperature **+25 ˚C**.
- Always set micrometer reading to approximately **79.0 GHz** when turning on the oscillator to avoid wrong mode operation.
- The SAGE Millimeter Gunn oscillator regulator **SOR-R3** is highly recommended for over voltage and reverse bias protection. The outline of the model SOR-R3 is shown in below.
- The bias tuning feature can be used for electrical tuning and phase lock loop applications.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Reversing polarity will destroy the device.
- Bias voltage should never exceed **+5.2 Volts**.
- The case temperature of the device should never exceed **+50 ˚C**. Use an additional heatsink or fan if necessary.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will destroy the device.

Appendix: The Outline of the Gunn Oscillator Regulator Model SOR-R3



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