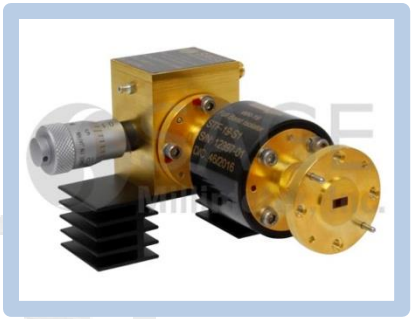
SOM-50314317-19-MI

Rev. 1.2

U-Band Mechanically Tuned Gunn Oscillator with Isolator, 44 to 56 GHz

Description:



Model SOM-50314317-19-MI is a U-Band, mechanically tuned Gunn oscillator that utilizes a high-performance GaAs Gunn diode and proprietary cavity design to deliver +17 dBm typical power. The oscillator features a frequency tuning range of 44 to 56 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. In addition, this model features an integrated isolator to achieve a more stable performance. 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 a Gunn oscillator modulator/regulator and temperature heater.

Features:

- Low AM/FM Noise and Harmonics
- Broad Mechanical Tuning Bandwidth
- Integrated Isolator

Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency		50 GHz	
Output Power		+17 dBm	
Mechanical Tuning Range		±6 GHz	
Bias Tuning Range (+4.0 to +5.0 V_{DC})		±10 MHz	
Bias Voltage		+4.2 V_{DC}	+5.2 V_{DC}
Bias Current		650 mA	
Specification Temperature		+25°C	
Case Temperature	0°C		+50°C

Mechanical Specifications:

Item	Specification
RF Port	WR-19 Waveguide with UG-383/U-M Flange
Bias Port	SMA (F)
Mechanical Tuning	Micrometer
Case Material	Aluminum
Finish	Gold Plated
Weight	9.5 Oz
Outline	OM-MU-C-I

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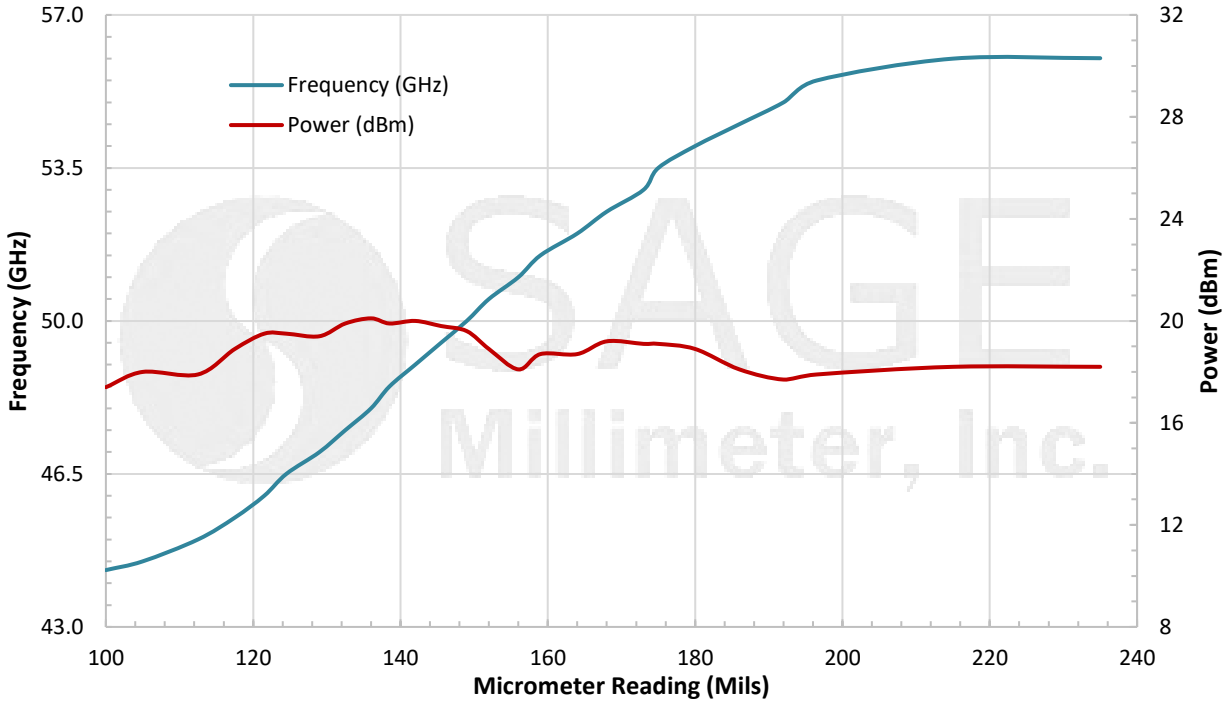
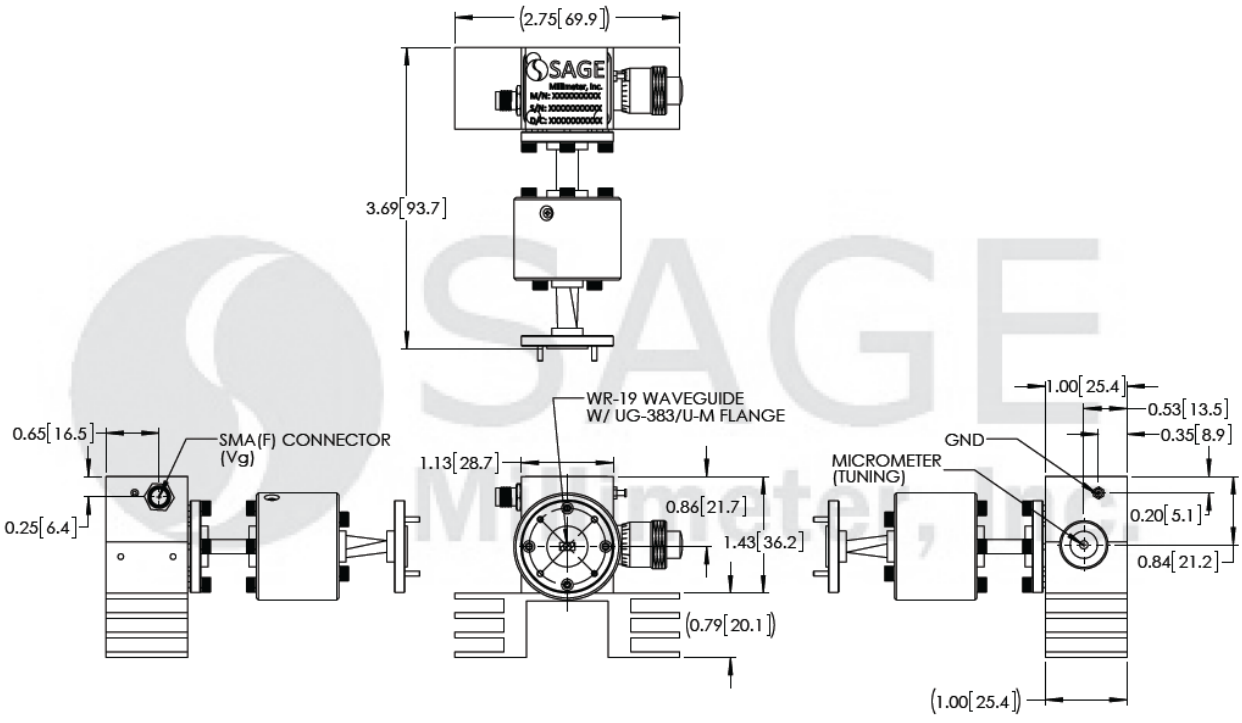
Frequency and Power Output vs. Micrometer Reading

Bias: +4.2 V_{DC}/700 mA



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



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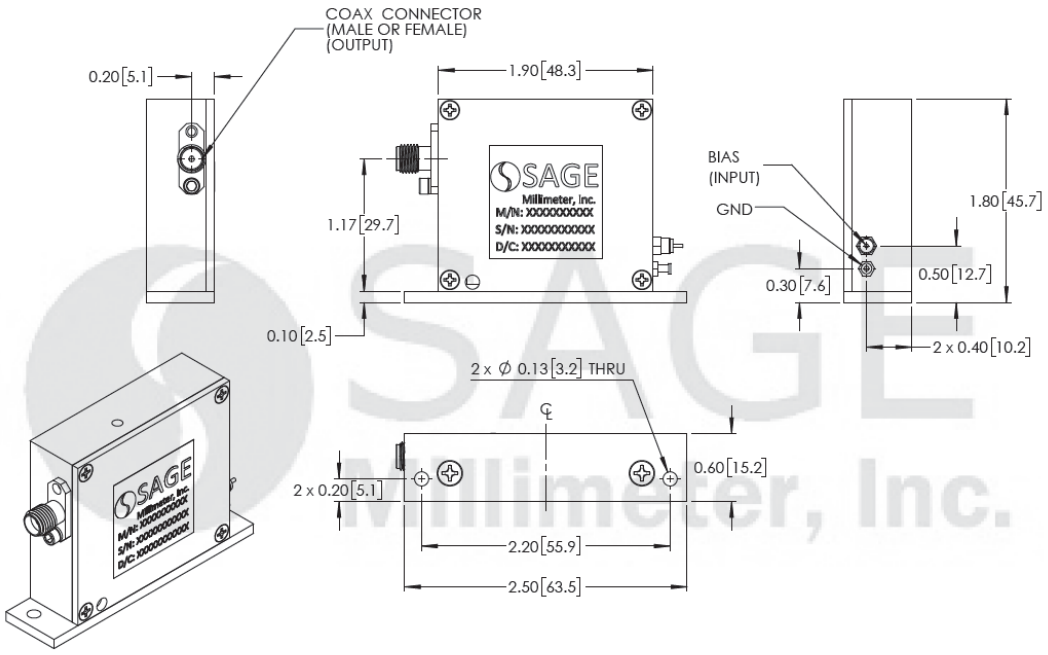
Note:

- All data is presented using a limited sample lot, actual data may vary unit to unit.
- The data given above was tested under case temperature **35°C**.
- Always set micrometer reading to approximately **50.0 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 ± 0.4 inch-pounds (0.90 ± 0.02 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: Outline of Gunn Oscillator Regulator, Model SOR-R3



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