

W-Band Mechanically Tuned Gunn Oscillator, 4 GHz Tuning Bandwidth

Description:

Model SOM-94304316-10-S1-H is a W-band, mechanically tuned Gunn oscillator that utilizes a high-performance GaAs Gunn diode and proprietary cavity design to deliver +16 dBm typical power. The oscillator features a frequency tuning range of 92 to 96 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 self-locking set screw for frequency trimming and a heater for temperature stability. Models with a micrometer for lab and test bench applications are available under a different model number. The performance of the oscillator can be further enhanced by adding an optional isolator and Gunn oscillator modulator/regulator.



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	92 GHz	94 GHz	96 GHz
Power Output	+13 dBm	+16 dBm	
Mechanical Tuning Range		±2.0 GHz*	
Bias Tuning Range (+4.0 to +5.0 V _{DC})		±100 MHz	
Bias Voltage		+4.5 V _{DC}	+5.5 V _{DC}
Heater Bias		+15 V _{DC} /100 mA	+15 V _{DC} /550 mA
Bias Current		850 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

*Note: Actual tuning bandwidth is wider.

Mechanical Specifications:

Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange
External Bias	SMA (F)
Mechanical Tuning	Self-Locking Set Screw
Body Material	Aluminum
Finish	Gold Plated
Weight	3.0 Oz
Outline	OM-SW-A-C-H

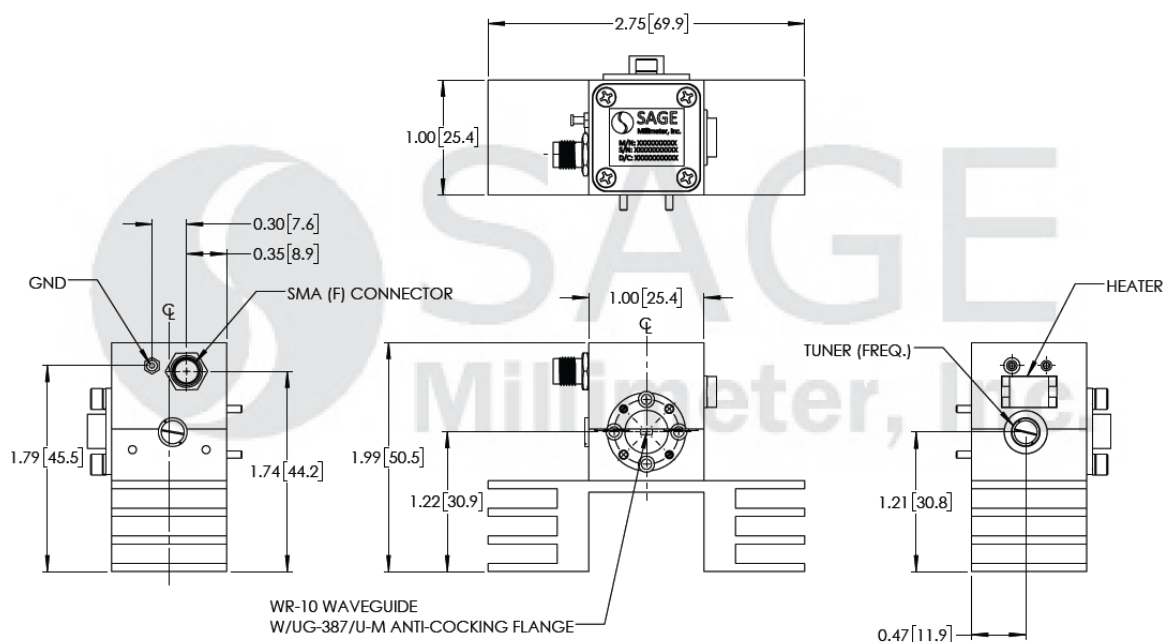


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Typical Measured Data:

Tuner Position	Frequency (GHz)	Power (dBm)
C.W. 7/8 Turn	92.000	17.5
Factory Set	94.000	15.2
C.C.W. 2 Turns	96.000	14.2

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



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- The data given above was tested under case temperature **35 °C**.
- 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 **+5.5 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 (0.90 ± 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.



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

