SOM-11401312-10-S2

Rev. 1.1

W-Band Mechanically Tuned Gunn Oscillator, 105 GHz, ±0.5 GHz Tuning

Description:

Model SOM-11401312-10-S2 is a W-band, mechanically tuned Gunn oscillator that utilizes a high performance InP Gunn diode and proprietary cavity design to deliver +12 dBm typical power. The oscillator features a frequency tuning range of 104.5 to 105.5 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. 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, 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	104.5 GHz	105.0 GHz	105.5 GHz
Power Output		+12 dBm	
Mechanical Tuning Range		±0.5 GHz*	
Bias Tuning Range (+9. to +10.2 V_{DC})		±100 MHz	
Bias Voltage		+10.0 V_{DC}	+10.5 V_{DC}
Bias Current		250 mA	
Specification Temperature		+25˚C	
Operating Temperature	0˚C		+50˚C

*Note: Actual tuning bandwidth could be wider, ±1.0 GHz typical.

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

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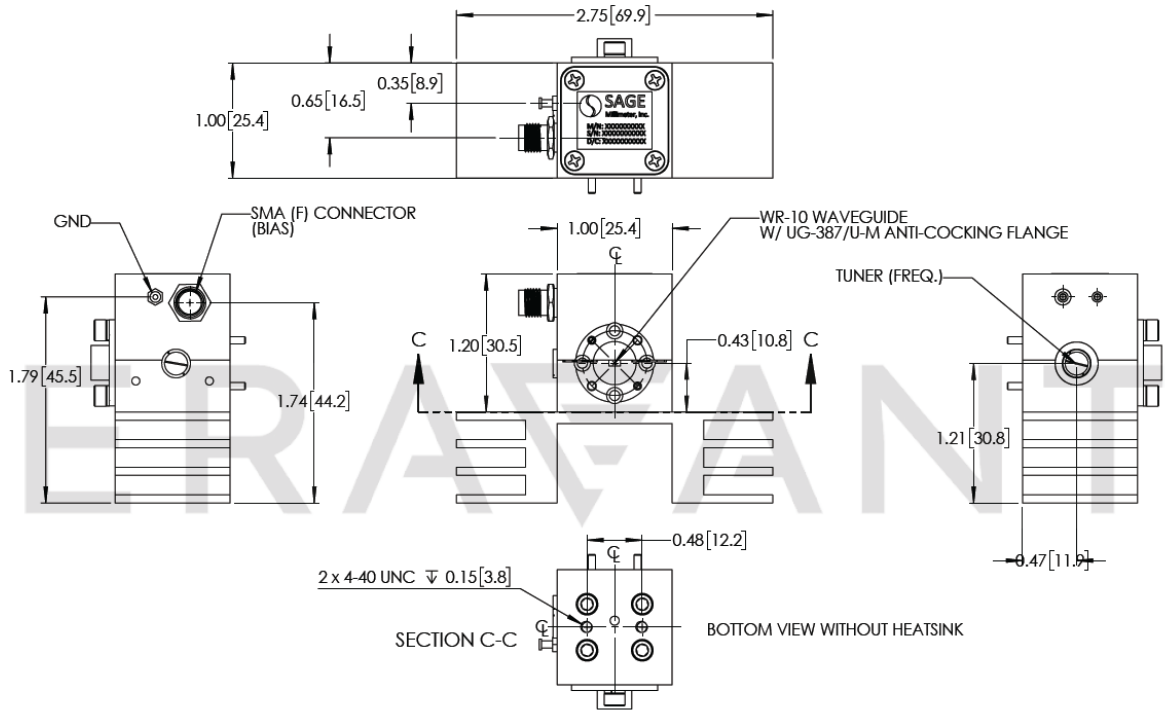
Typical Measured Data:

Tuner Position	Frequency (GHz)	Power (dBm)
1/4 Clockwise	104.5	11.8
Factory Set	105.0	12.0
1/2 Counter Clockwise	105.6	12.1

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



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**.
- The Eravant 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.
- Eravant reserves the right to change the information presented without notice.

Caution:

- Reversing polarity will destroy the device.
- Bias voltage should never exceed **+10.5 Volts**.
- The case temperature of the device should never exceed **+50 ˚C**. Use an additional heatsink or fan if necessary.

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- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **Eravant 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