



## V-Band Mechanically Tuned Gunn Oscillator, $\pm 250$ MHz Tuning Bandwidth

### Description:

**Model SOM-65305215-15-S1** is a V-band, mechanically tuned Gunn oscillator that utilizes a high-performance GaAs Gunn diode and proprietary cavity design to deliver +15 dBm typical power. The oscillator features a frequency tuning range of 64.75 to 65.25 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	64.75 GHz	65.0 GHz	65.25 GHz
Power Output		+15 dBm	
Mechanical Tuning Range		$\pm 250$ MHz*	
Bias Tuning Range (+4.5 to +5.5 V <sub>DC</sub> )		$\pm 100$ MHz	
Bias Voltage		+5.0 V <sub>DC</sub>	+5.5 V <sub>DC</sub>
Bias Current		750 mA	
Specification Temperature		+25°C	
Operating Temperature	0°C		+50°C

\*Note: Actual tuning bandwidth may wider.

### Mechanical Specifications:

Item	Specification
RF Port	WR-15 Waveguide with UG-385/U Anti-Cocking Flange
Bias Port	SMA (F)
Mechanical Tuning	Self-Locking Set Screw
Body Material	Aluminum
Finish	Gold Plated
Weight	3.0 Oz
Outline	OM-SV-A-C

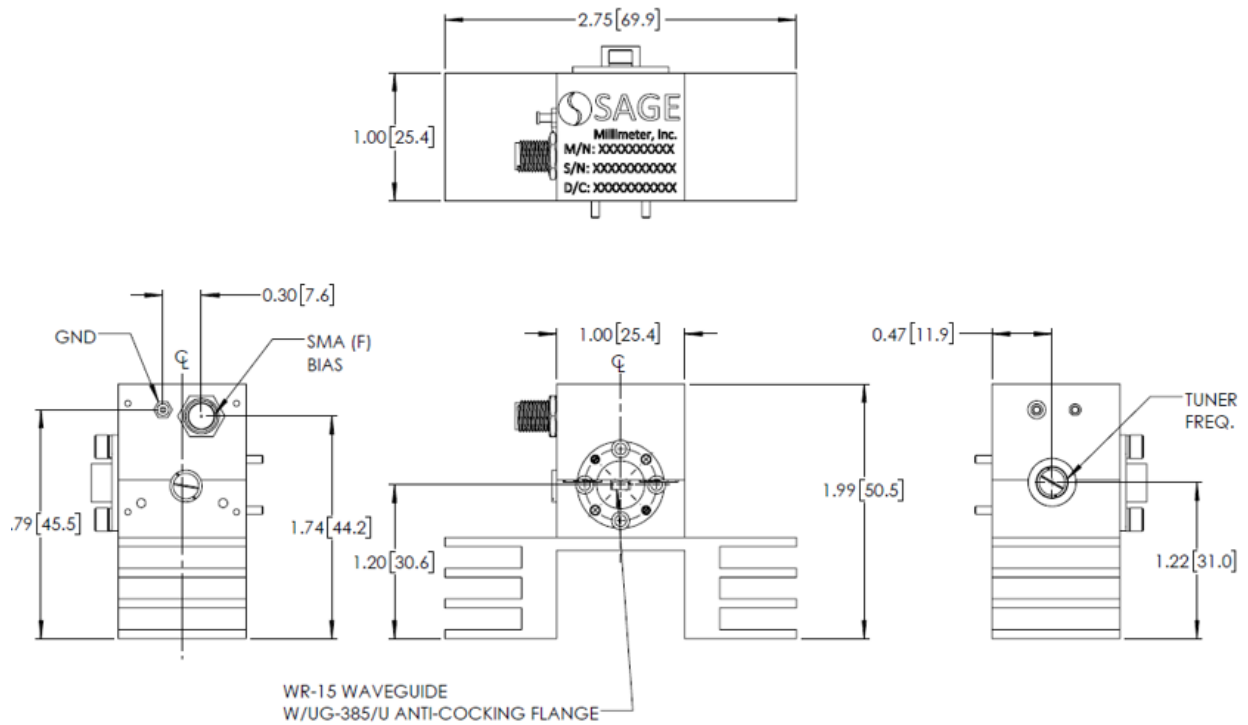


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**Typical Mechanical Tuning Data:** (Bias: +5.0 V<sub>DC</sub>/750 mA)

Tuner Position	Frequency (GHz)	Power (dBm)
1/2 Clockwise	64.68	15.3
Factory Set	65.00	15.7
3/4 Counter Clockwise	65.27	15.8

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





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### Note:

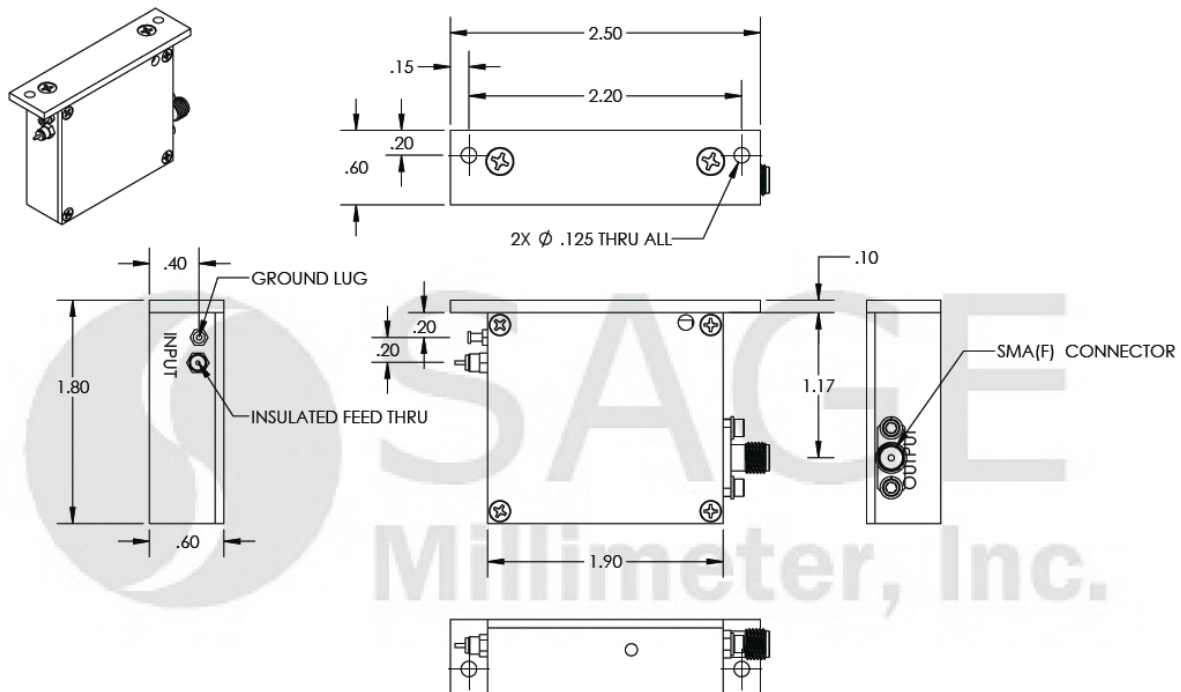
- All data is presented using a limited sample lot, actual data may vary unit to unit.
- The data given above was tested under case temperature **35° C**.
- The SAGE Millimeter Gunn oscillator regulator **SOR-R3** is highly recommended for over voltage and reverse bias protection. The outline of the model SOR-R3 is shown in the appendix.
- The optional AM/FM Modulator **SOR-M3** can be ordered separately to further enhance the functionality of the Gunn oscillator. The outline of the modulator is also shown in the appendix.
- 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,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  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



## V-Band Mechanically Tuned Gunn Oscillator, $\pm 250$ MHz Tuning Bandwidth

The Outline of the Gunn Oscillator Regulator Model SOR-M3.

