

V-Band Mechanically Tuned Gunn Oscillator, 2.0 GHz Tuning Bandwidth

Description:

Model SOM-59302316-15-S1 is a V-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 58 to 60 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		59 GHz	
Output Power		+16 dBm	
Mechanical Tuning Range		±1.0 GHz	
Bias Tuning Range (+5.0 to +6.0 V _{DC})		±100 MHz	
Bias Voltage		+5.5 V _{DC}	+6.0 V _{DC}
Bias Current		650 mA	
Specification Temperature		+25°C	
Case Temperature	0°C		+50°C

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 Oz
Outline	OM-SV-A-C

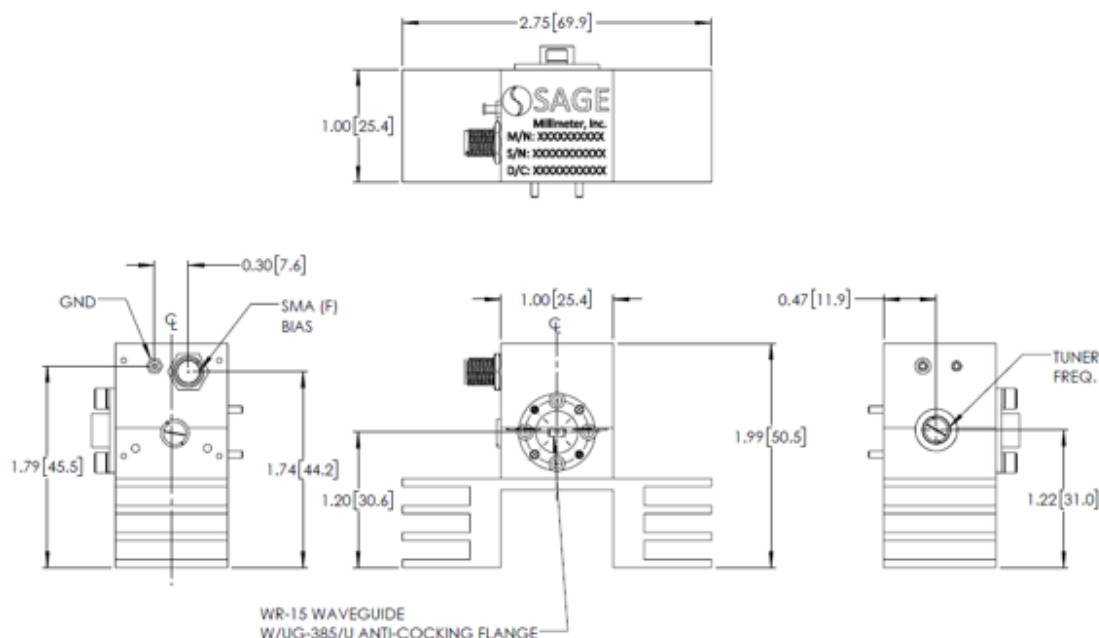


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Typical Measured Data: Bias: +8.0 V_{DC}/650 mA

Tuner Position	Frequency (GHz)	Power (dBm)
1/2 Clockwise	58.25	16.3
Factory Set	59.00	16.3
3/4 Counter Clockwise	59.88	15.7

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



Note:

- The SAGE Millimeter Gunn oscillator regulator **SOR-R3** is highly recommended for over voltage and reverse bias protection. To add AM/FM functionalities, add model **SOR-M3** modulator.
- 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.

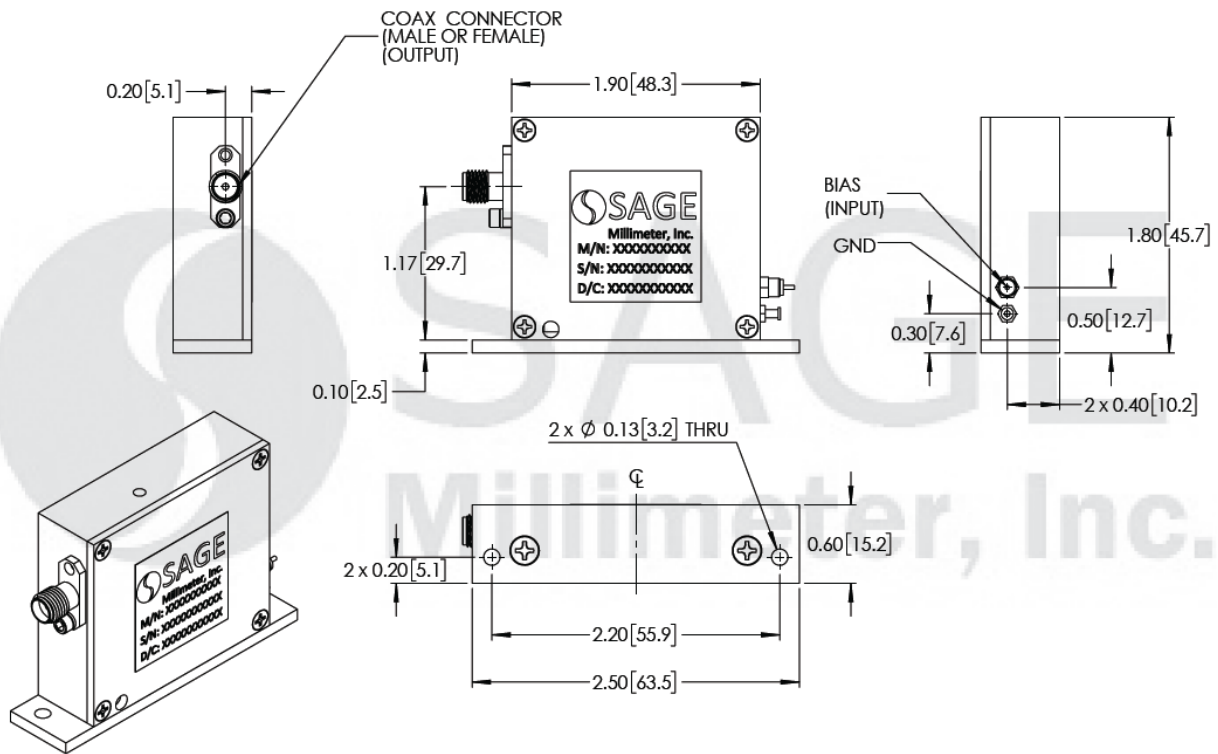
Caution:

- Reversing polarity will destroy the device.
- Bias voltage should never exceed **+6.0 Volts**.
- The oscillator is factory set to operate around **60 GHz**. The self-locking set screw is for frequency trimming only. It is not designed for frequent frequency tuning.
- 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.



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



Appendix II: The Outline of the Gunn Oscillator Modulator Model SOR-M3

