



## E-Band Varactor Tuned Gunn Oscillator, 75 GHz, 500 MHz Bandwidth

### Description:

**Model SOV-75305217-12-G1** is an E-Band, Varactor 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 Varactor tuning range of  $\pm 250$  MHz 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 center frequency of the oscillator can be mechanically trimmed within  $\pm 250$  MHz using the self-locking set screw. The performance of the oscillator can be further enhanced by adding an isolator, Gunn oscillator modulator/regulator and temperature heater.



### Features:

- Low AM/FM Noise and Harmonics
- Mechanical Frequency Trimming

### Applications:

- Test Sources
- Signal Generation
- FMCW Radar Systems
- Communication Systems

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency	74.75 GHz	75.00 GHz	75.25 GHz
Power Output	+15 dBm	+17 dBm	
Mechanical Tuning Range		$\pm 250$ MHz	
Varactor Tuning Range		$\pm 250$ MHz	
Bias Voltage		+5.0 V <sub>DC</sub>	+5.2 V <sub>DC</sub>
Bias Current		750 mA	
Varactor Tuning Voltage Range	0 V <sub>DC</sub>		+25 V <sub>DC</sub>
Specification Temperature		+25°C	
Operating Temperature	+0°C		+50°C

### Mechanical Specifications:

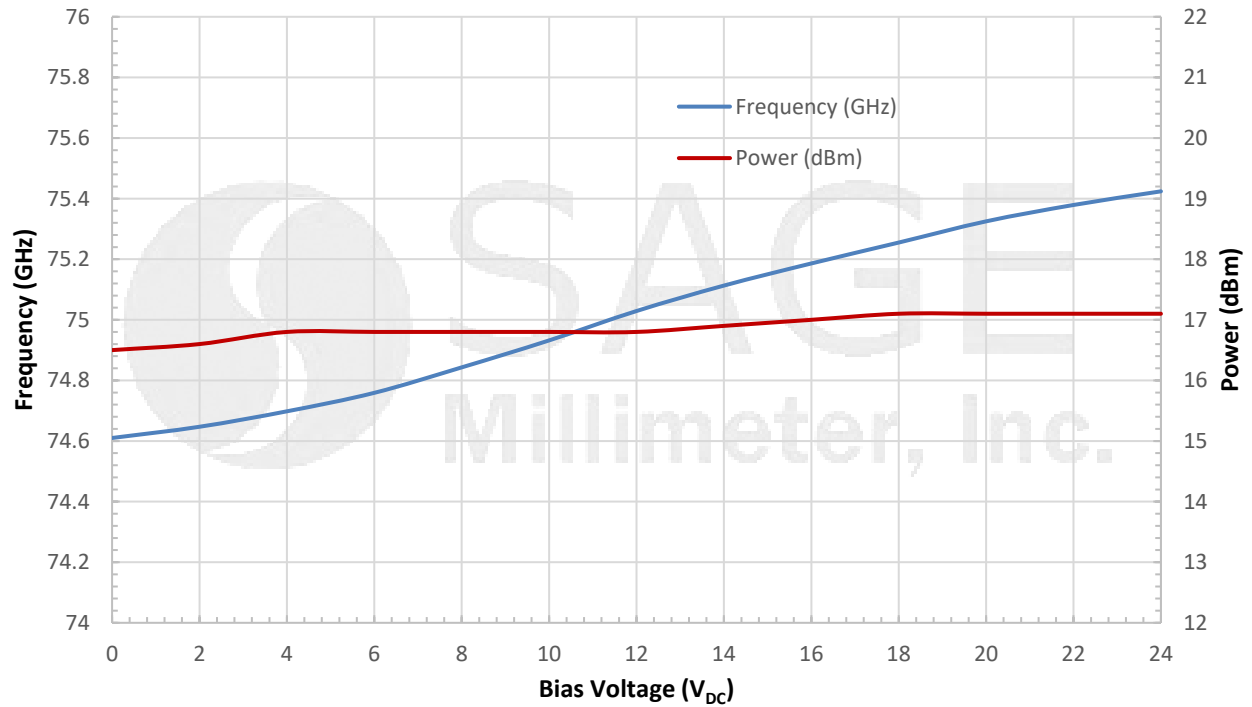
Item	Specification
RF Port	WR-12 Waveguide with UG-387/U Flange
Bias Port	Soldered Pins
Tuning Port	SMA (F)
Mechanical Trimming Mechanism	Self-Locking Set Screw
Housing Material	Aluminum
Finish	Gold Plated
Weight	3.0 Oz
Outline	OV-SVEW



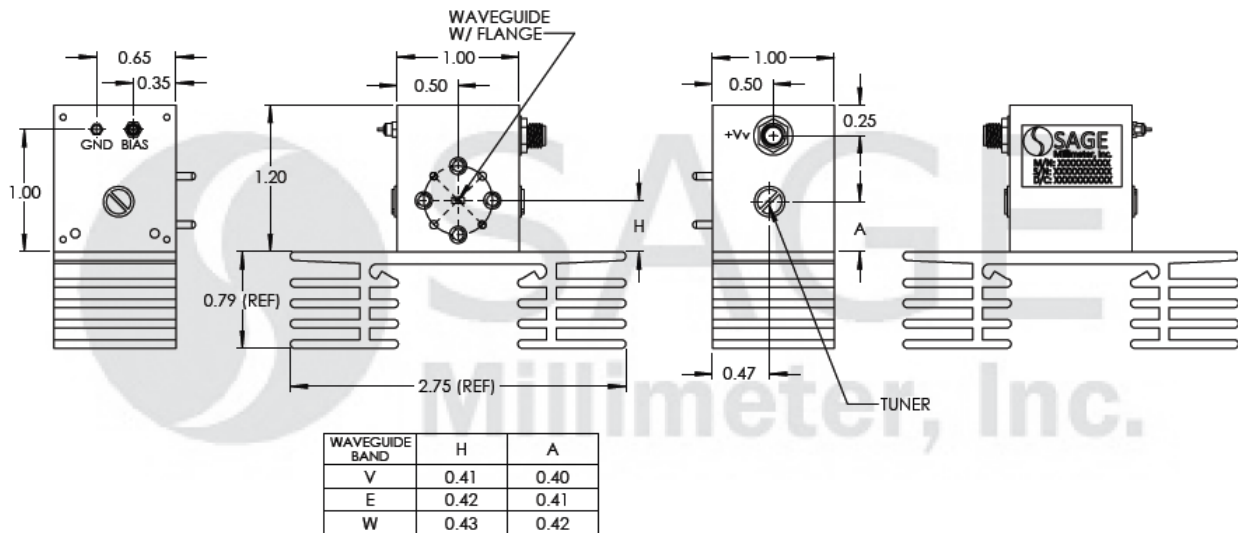
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### Typical Frequency and Power Output vs. Bias Voltage

Bias: +5.0 V<sub>DC</sub>/750 mA



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





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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 below.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

### Caution:

- Reversing polarity will destroy the device.
- Gunn diode bias voltage should never exceed **+5.2 Volts** and Varactor bias voltage should never exceed **+25 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

