SOV-49305210-19-G1

Rev. 1.0

U-Band Varactor Tuned Gunn Oscillator, 49 GHz, 500 MHz Bandwidth

Description:

Model SOV-49305210-19-G1 is a U-Band, Varactor tuned Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +10 dBm typical power. The oscillator features a Varactor tuning range of ±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 ±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	48.75 GHz	49.00 GHz	49.25 GHz
Power Output		+10 dBm	
Mechanical Tuning Range		±250 MHz	
Varactor Tuning Range		±250 MHz	
Bias Voltage		+4.0 V_{DC}	+5.0 V_{DC}
Bias Current		800 mA	
Varactor Tuning Voltage Range	0 V_{DC}		+25 V_{DC}
Specification Temperature		+25˚C	
Operating Temperature	+0˚C		+50˚C

Mechanical Specifications:

Item	Specification
RF Port	WR-19 Waveguide with UG-383/U-M Flange
Bias Port	Solder Pins
Tuning Port	SMA (F)
Mechanical Trimming Mechanism	Self-Locking Set Screw
Housing Material	Aluminum
Finish	Gold Plated
Weight	4.0 Oz
Size	1.13” (W) 1.00” (L) X 1.43” (H)
Outline	OV-SU

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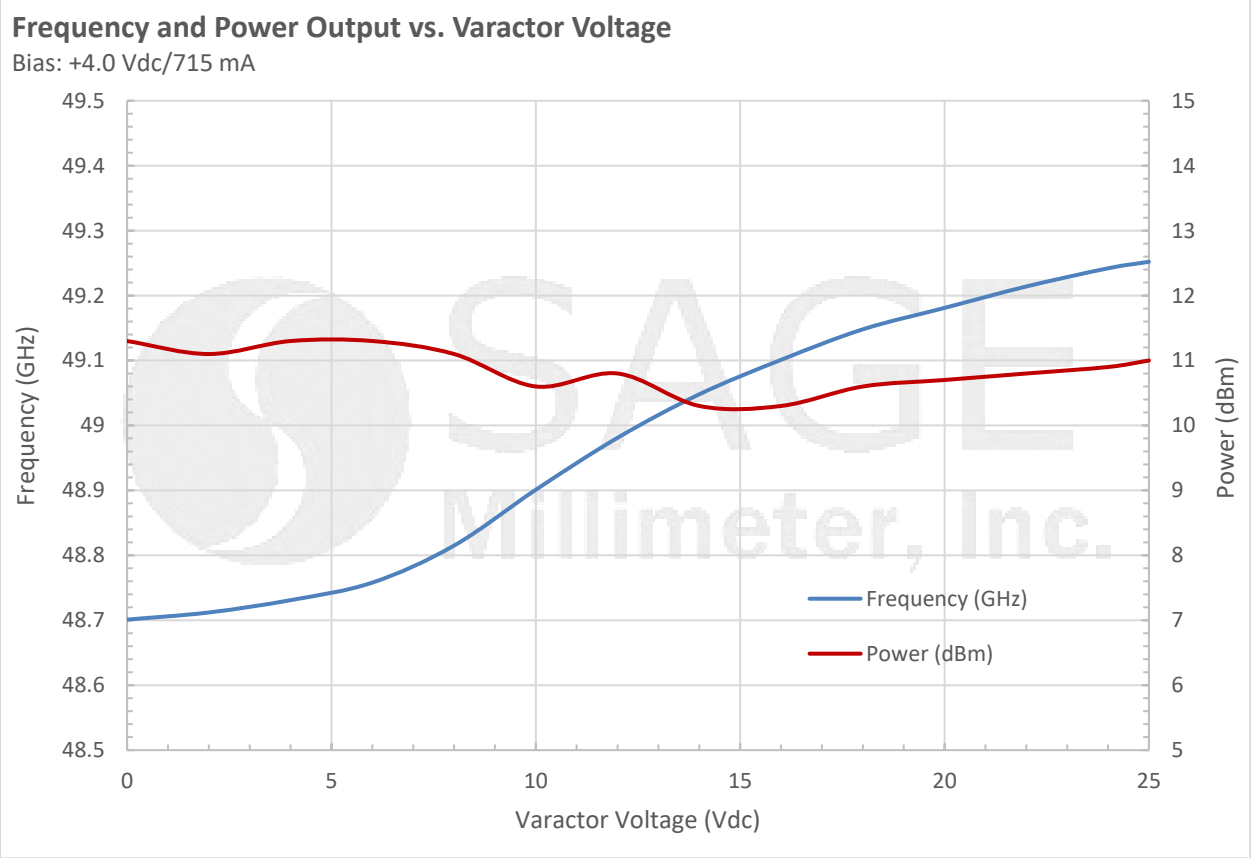
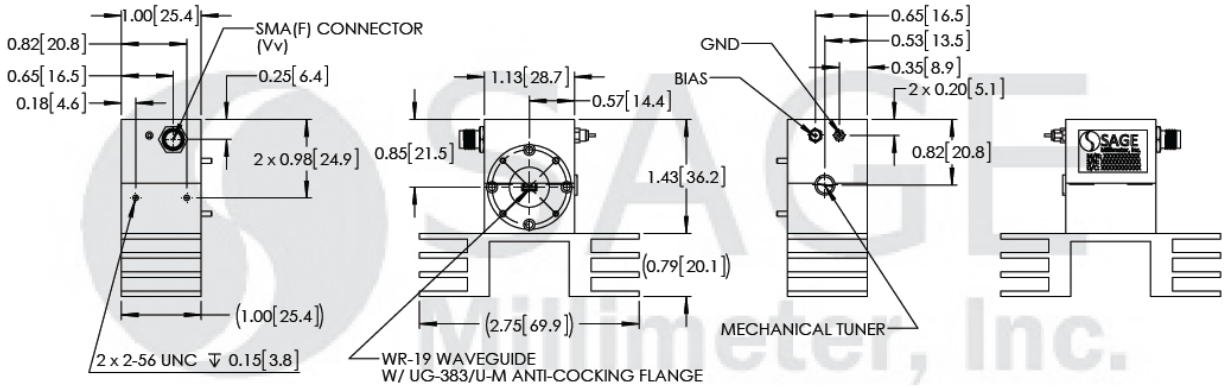


Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeter])



Note:

- All data presented is collected by using a 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.

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Caution:

- Reversing polarity will destroy the device.
- Gunn diode bias voltage should never exceed **+4.5 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 ± 0.15 inch-pounds (0.92 ± 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