



## WR-90 Mechanically Tuned Gunn Oscillator, 0.5 GHz Tuning Bandwidth

### Description:

**Model SOM-11305210-90-S1** is an X-band, mechanically tuned Gunn oscillator that delivers +12 dBm typical power. The oscillator features a frequency tuning range of 10.275 to 10.775 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
- System Integration

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency		10.525 GHz	
Power Output		+12 dBm	
Mechanical Tuning Range		±250 MHz	
Bias Voltage		+8.5 V <sub>DC</sub>	+10.0 V <sub>DC</sub>
Bias Current		200 mA	
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

### Mechanical Specifications:

Item	Specification
RF Port	WR-90 Waveguide with UG-39/U Flange
Bias Port	Solder Pin
Material	ZaMAK, Die Cast
Finish	Clear Chem Film
Weight	4.0 Oz
Outline	OM-SX



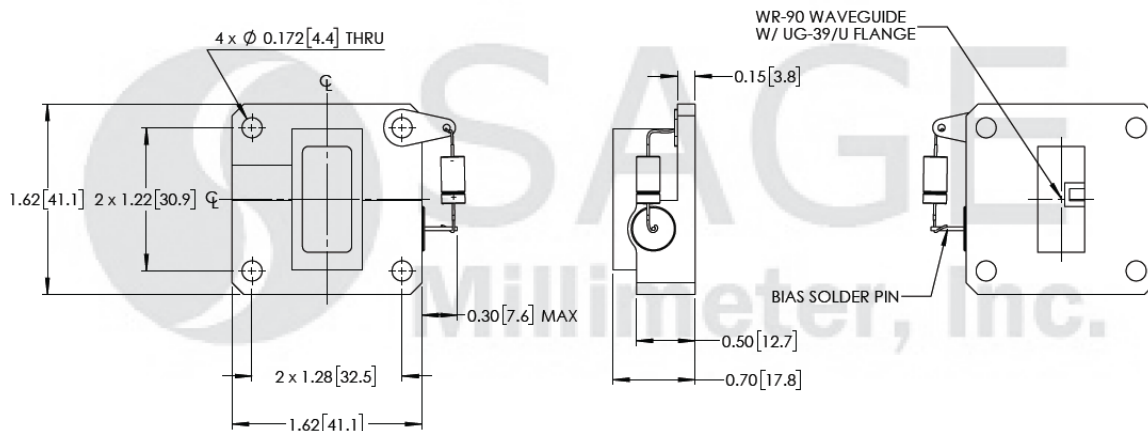


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Typical Measured Data (Bias: +8.5 V<sub>DC</sub>/100 mA)

Tuner Position	Frequency (GHz)	Power (dBm)
1/4 Clockwise	10.200	13.0
Factory Set	10.525	13.2
1/2 Counter Clockwise	10.803	13.5

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



**Note:**

- 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.
- 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 **+10.0 Volts**.
- The oscillator is factory set to operate around **10.525 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 **+85 °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:** The Outline of the Gunn Oscillator Regulator Model SOR-R3

