# SOV-94202210-90-G1

Rev. 1.0

## X-Band Varactor Tuned Gunn Oscillator, 9.375 GHz, 0.2 GHz Bandwidth

### Description:



**Model SOV-94202210-90-G1** is an X-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 ±100 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 ±50 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 | | 9.375 GHz | |
| Power Output | +8 dBm | +10 dBm | +15 dBm |
| Mechanical Tuning Range | | ±50 MHz | |
| Varactor Tuning Range | ±50 MHz | ±100 MHz | |
| Bias Voltage | | +10.5 $V_{DC}$ | +12.0 $V_{DC}$ |
| Bias Current | | 150 mA | 200 mA |
| Varactor Tuning Voltage | 0 | +15.0 $V_{DC}$ | +20.0 $V_{DC}$ |
| Specification Temperature | | +23 ˚C | |
| Operating Temperature | -40˚C | | +85˚C |

### Mechanical Specifications:

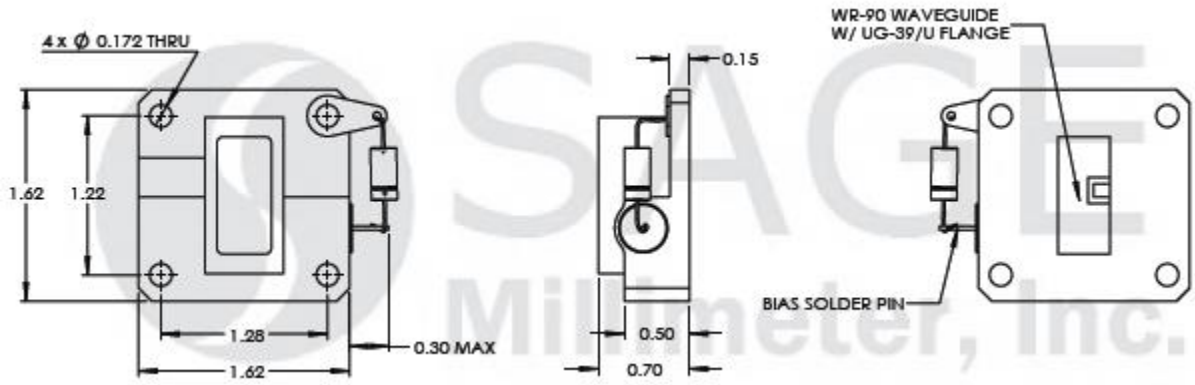
| Item | Specification |
|---|---|
| RF Port | WR-90 Waveguide with UG-39/U Flange |
| Bias Port | Solder Pin |
| Material | ZaMAK, Die Cast |
| Finish | Clear Chem Film |
| Weight | 4.0 Oz |
| Outline | OM-SX |

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




**Note:**

- All data presented is collected from 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.

**Caution:**

- Reversing polarity will destroy the device.
- Gunn diode bias voltage should never exceed **+12.0 Volts** and Varactor bias voltage should never exceed **+20 Volts**.
- The case temperature of the device should never exceed **+85˚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.

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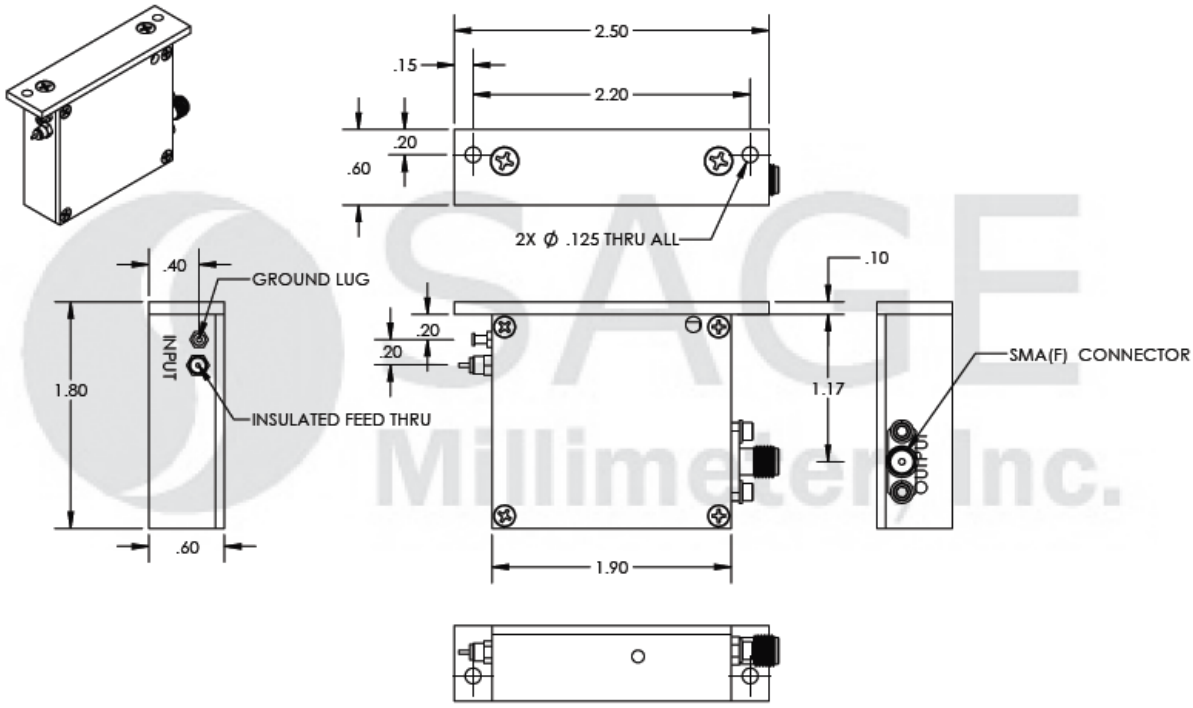
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**Appendix:** The Outline of the Gunn Oscillator Regulator Model SOR-R3




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