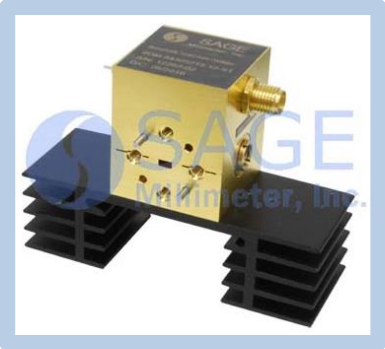
# SOM-94304316-10-S1

Rev. 1.1

## W-Band Mechanically Tuned Gunn Oscillator, 4 GHz Tuning Bandwidth

### Description:



**Model SOM-94304316-10-S1** is a W-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 92 to 96 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 | 92 GHz | 94 GHz | 96 GHz |
| Power Output | | +16 dBm | |
| Mechanical Tuning Range | | ±2.0 GHz* | |
| Bias Tuning Range (+4.0 to +5.0 $V_{DC}$) | | ±100 MHz | |
| Bias Voltage | | +4.5 $V_{DC}$ | +5.5 $V_{DC}$ |
| Bias Current | | 850 mA | |
| Specification Temperature | | +25˚C | |
| Operating Temperature | 0˚C | | +50˚C |

*Note: Actual tuning bandwidth is wider.

### Mechanical Specifications:

| Item | Specification |
|---|---|
| RF Port | WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange |
| External Bias | SMA (F) |
| Mechanical Tuning | Self-Locking Set Screw |
| Body Material | Aluminum |
| Finish | Gold Plated |
| Weight | 3.0 Oz |
| Outline | OM-SW-A-C |

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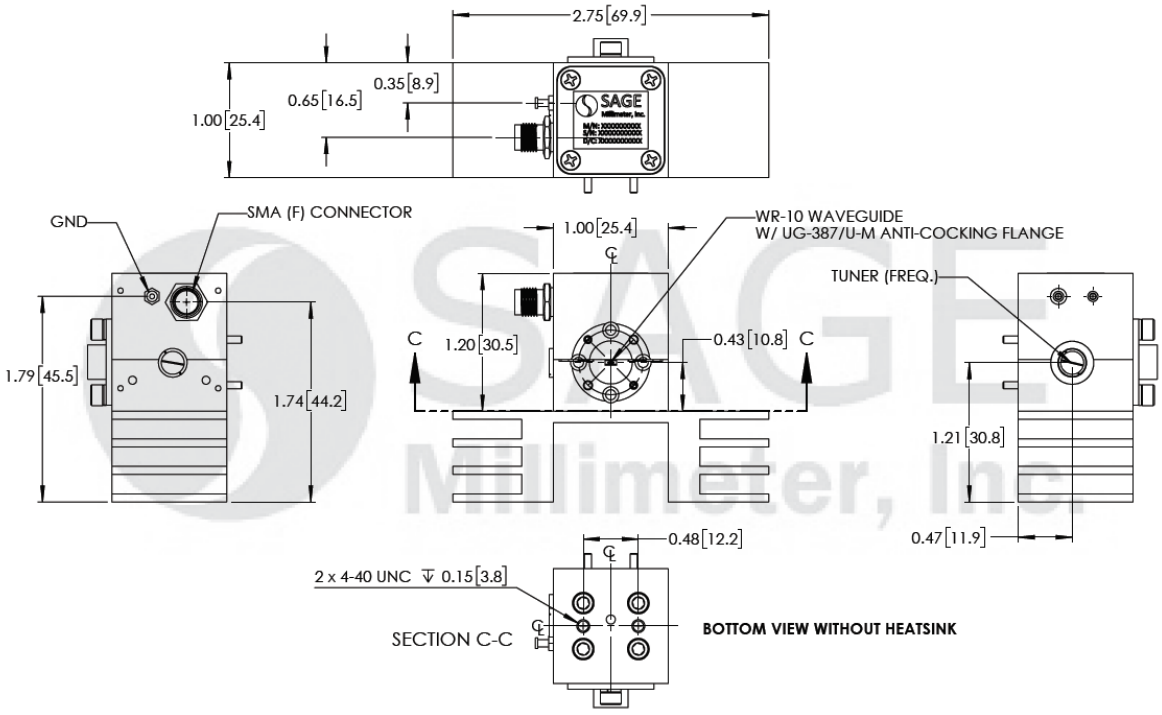
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## W-Band Mechanically Tuned Gunn Oscillator, 4 GHz Tuning Bandwidth

### Typical Measured Data:

| Tuner Position | Frequency (GHz) | Power (dBm) |
|---|---|---|
| 2 Clockwise | 92.005 | 16.3 |
| Factory Set | 94.000 | 17.0 |
| 3 Counter Clockwise | 96.068 | 17.6 |

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




**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.
- 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.

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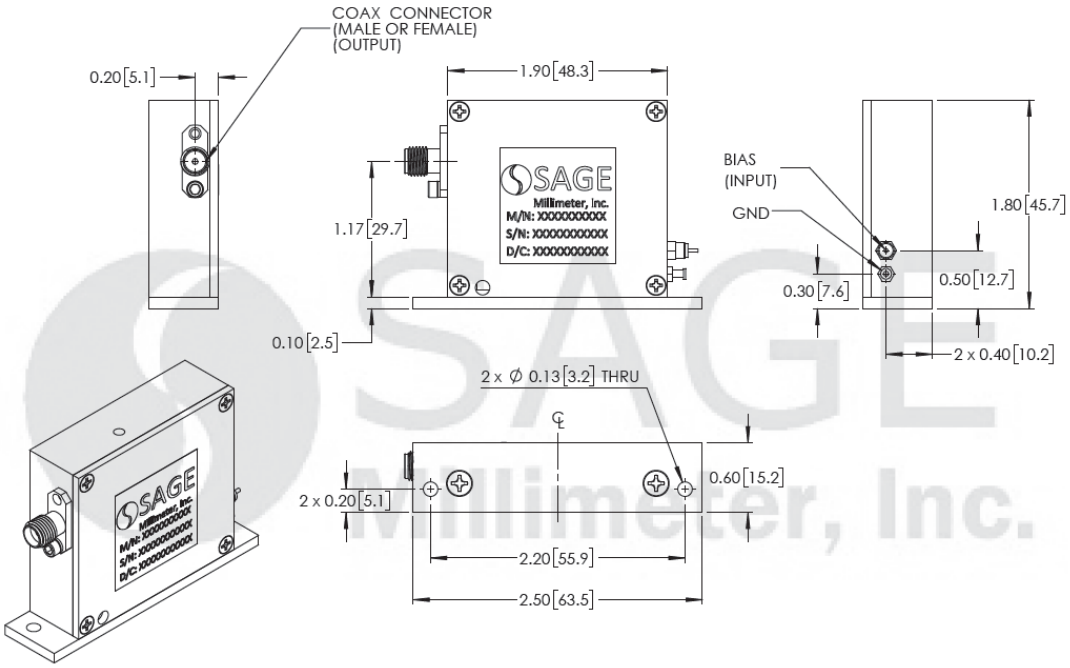
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## W-Band Mechanically Tuned Gunn Oscillator, 4 GHz Tuning Bandwidth

**Caution:**

- Reversing polarity will destroy the device.
- Bias voltage should never exceed **+5.5 Volts**.
- The case temperature of the device should never exceed **+50˚C**. Use an additional heatsink or fan if necessary.
- Proper torque, 8.0 ± 0.4 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.

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






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