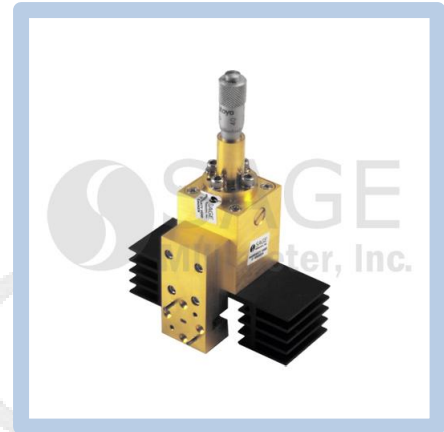




## W-Band Mechanically Tuned Gunn Oscillator, 20 GHz Tuning Bandwidth

### Description:

**Model SOM-10420303-10-M1** is a W-Band, mechanically tuned Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +3 dBm typical power. The oscillator features a frequency tuning range of 90 to 110 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 micrometer for quick frequency tuning and test bench applications. Models with a self-locking set screw for system integration 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		100 GHz	
Power Output		+3 dBm	
Mechanical Tuning Range		±10 GHz	
Bias Tuning Range (+4.0 to +5.0 V <sub>DC</sub> )		±100 MHz	
Bias Voltage		+5.0 V <sub>DC</sub>	+5.5 V <sub>DC</sub>
Bias Current		850 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

### Mechanical Specifications:

Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Flange
DC Bias	SMA (F) and/or Soldered Pin
Mechanical Tuning	Micrometer
Body Material	Aluminum
Finish	Gold Plated
Weight	4 Oz
Outline	OF-MW-C-M

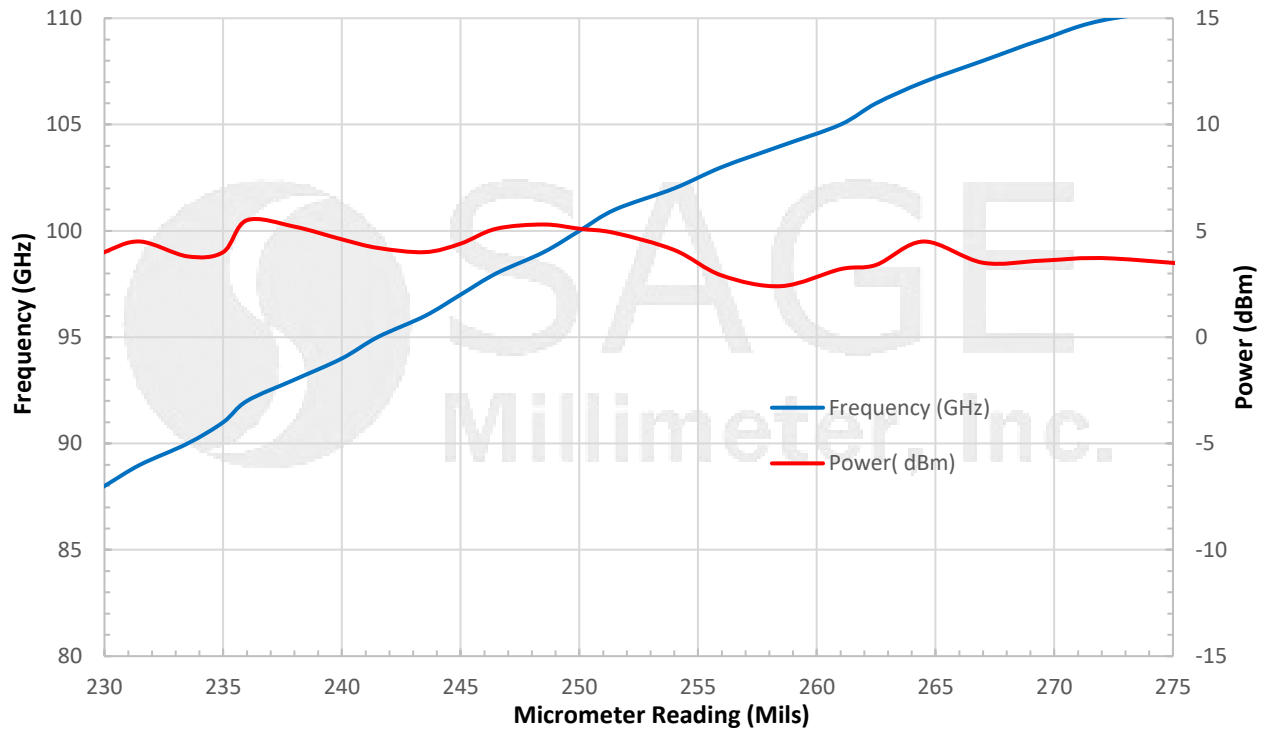




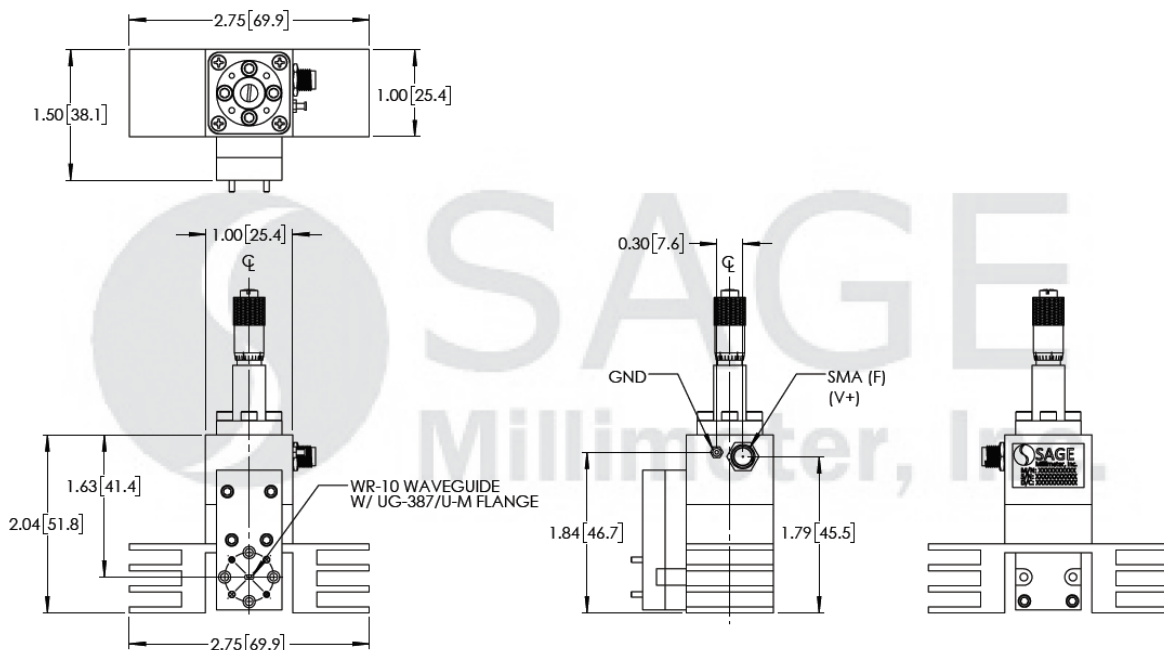
## W-Band Mechanically Tuned Gunn Oscillator, 20 GHz Tuning Bandwidth

### Typical Frequency and Power Output vs. Micrometer Reading

Bias: +5 V<sub>DC</sub>/1020 mA



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





## W-Band Mechanically Tuned Gunn Oscillator, 20 GHz Tuning Bandwidth

### Note:

- All data presented is collected from a sample lot, actual data may vary unit to unit slightly.
- The data given above was tested under case temperature **35°C**.
- Always set micrometer reading to approximately **100.0 GHz** when turning on the oscillator to avoid wrong mode operation.
- 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 **+5.5 Volts**.
- The case temperature of the device should never exceed **+50°C**. Use an additional heatsink or fan if necessary.
- Proper torque,  $8.0 \pm 0.15$  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

