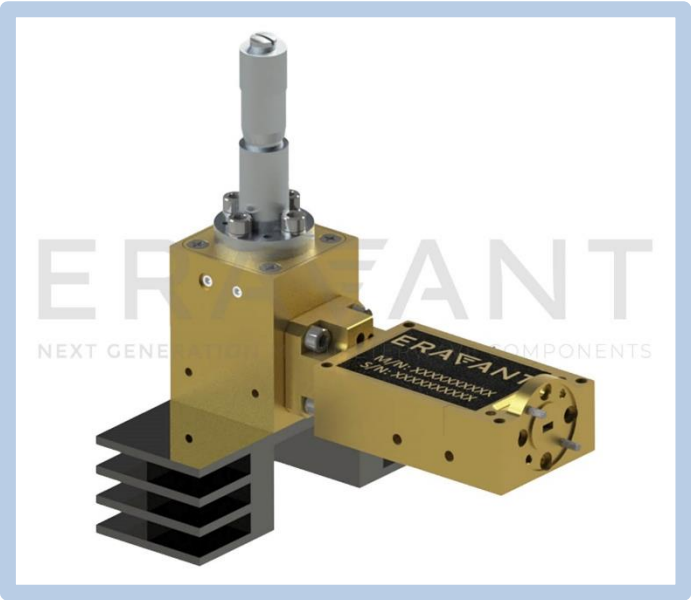
SOM-90311414-10-M1

Advanced

W-Band Wide Mechanical Tuning Bandwidth Gunn Oscillator, 90 to 105 GHz

Description:



Model SOM-90311414-10-M1 is an W-Band, wide mechanical tuning bandwidth Gunn oscillator that utilizes a high-performance GaAs Gunn diode and proprietary cavity design to deliver +14 dBm typical power with low AM/FM noise and harmonic emissions. The oscillator has a center frequency of 97.5 GHz and a mechanical tuning range of ±7.5 GHz. It utilizes a fundamental Ka band broad tuning bandwidth Gunn oscillator and an active x3 multiplier to reach 90 to 105 GHz with +13 dBm output power. The Gunn oscillator is equipped with a micrometer for quick frequency tuning when used as a bench top unit. Models with a self-locking set screw for frequency tuning are available under a different model number for use in system integration applications. The performance of the oscillator can be further enhanced by adding an optional integrated isolator, Gunn oscillator modulator/regulator, and temperature heater.

Features:

- Low AM/FM Noise and Harmonics
- Broad Mechanical Tuning Bandwidth
- Micrometer Tuner

Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Operating Frequency		97.5 GHz	
Mechanical Tuning Range		±7.5 GHz	
Output Power		+14 dBm	
Harmonic Suppression		-20 dBc	
Spurious		-60 dBc	
Ka Band Gunn Oscillator Bias		+5.0 V_{DC}/350 mA	+5.5 V_{DC}/400 mA
W Band Multiplier Bias		+8.0 V_{DC}/400 mA	+15.0 V_{DC}
Specification Temperature		+25 °C	
Case Temperature	0 °C		+50 °C

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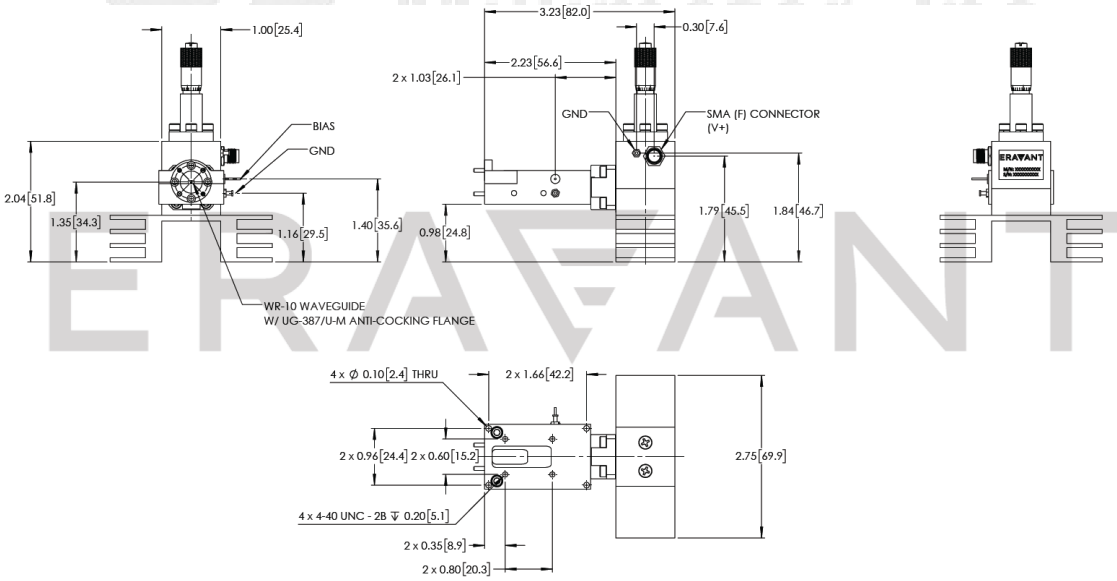
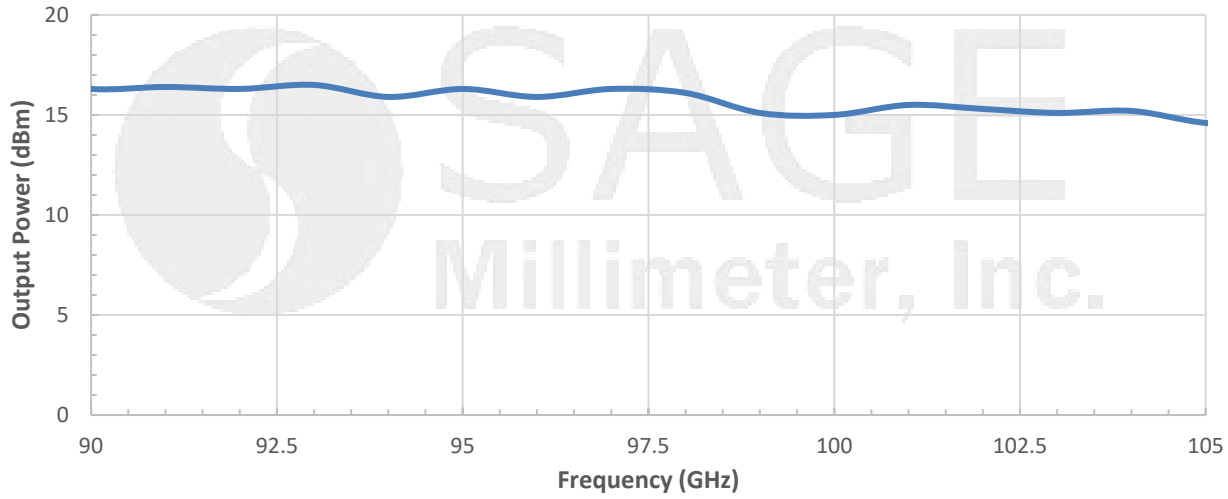
Mechanical Specifications:

Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange
Gunn Oscillator Bias	SMA (F)
Multiplier Bias	Solder Pins
Case Material	Aluminum
Finish	Gold Plated
Outline	OM-MW-A-F

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



Output Power vs. Frequency



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Note:

- All data presented is collected from a sample lot. It is for illustration only. Actual data varies unit to unit.
- The data given above was tested under case temperature **+35 °C.**
- Always set micrometer reading to around **97.5 GHz** when turning on the oscillator to ensure correct mode operation.
- Eravant Gunn oscillator regulator, **model SOR-R3**, is highly recommended to prevent the Gunn oscillator damage due to possible over voltage and/or reverse bias. The outline of the regulator is shown in the appendix section below.
- Eravant reserves the right to change the information presented without notice.

Caution:

- Reversing polarity will destroy the device.
- Bias voltage should not exceed **+5.5 Volts** for Ka Band Oscillator and **+15 Volts** for E band Multiplier. However, a common +8.0 Volts bias can be used if the regulator **SOR-R3** is used.
- The case temperature of the device should not exceed **+50 ˚C**. Use an additional heatsink or fan if necessary.
- When handling coax connectors, proper torque, 8.0 ± 0.4 inch-pounds (0.90 ± 0.02 Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will destroy the device.

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