



## Gunn Oscillator AM/FM Modulator, InP Gunn Diodes Biased

### Description:

**Model SOR-M5** is a voltage regulator for GaAs Gunn diode base Gunn oscillators with capability to provide amplitude modulation (AM) or Frequency Modulation (FM). The voltage modulator is designed and manufactured to protect the Gunn oscillator from accidental over-voltage or reverse bias. The well-regulated and low-ripple output voltage supplied by this modulator also helps to reduce possible RF signal degradation and noise caused by bias voltage ripple or fluctuations when supplied by a low-quality DC power supply. If a signal between 0 to +5 Vdc or TTL is applied to AM input connector, the Gunn oscillator will be “turned-on” and “turned-off”, creating amplitude modulation (AM). If a signal between +5 and -5 V is applied to the FM input connector, the Gunn oscillator bias voltage will vary proportionately, causing the Gunn oscillator frequency to change accordingly, creating frequency modulation (FM).



### Features:

- High Regulated and Precise Output Voltage
- External Modulation Rate up to 10 kHz
- Over Voltage and Reverse Voltage Protection

### Applications:

- Lab Test Setups
- InP Gunn Oscillation Protection
- InP Gunn Oscillation Enhancement

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Input Voltage (V <sub>DC</sub> )	+10.0 V <sub>DC</sub>	+12.0 V <sub>DC</sub>	+15.0 V <sub>DC</sub>
Output Voltage (V <sub>DC</sub> )	+7.5 V <sub>DC</sub>		+12.0 V <sub>DC</sub>
Output Current Capacity		250 mA	500 mA
External Modulation Rate	0	1 kHz	10 kHz
External AM Modulation Amplitude	0		+5 Vdc
External FM Modulation Amplitude	-5 Vdc		+5 Vdc
Specification Temperature		+25 °C	
Case Temperature	0 °C		+50 °C

### Mechanical Specifications:

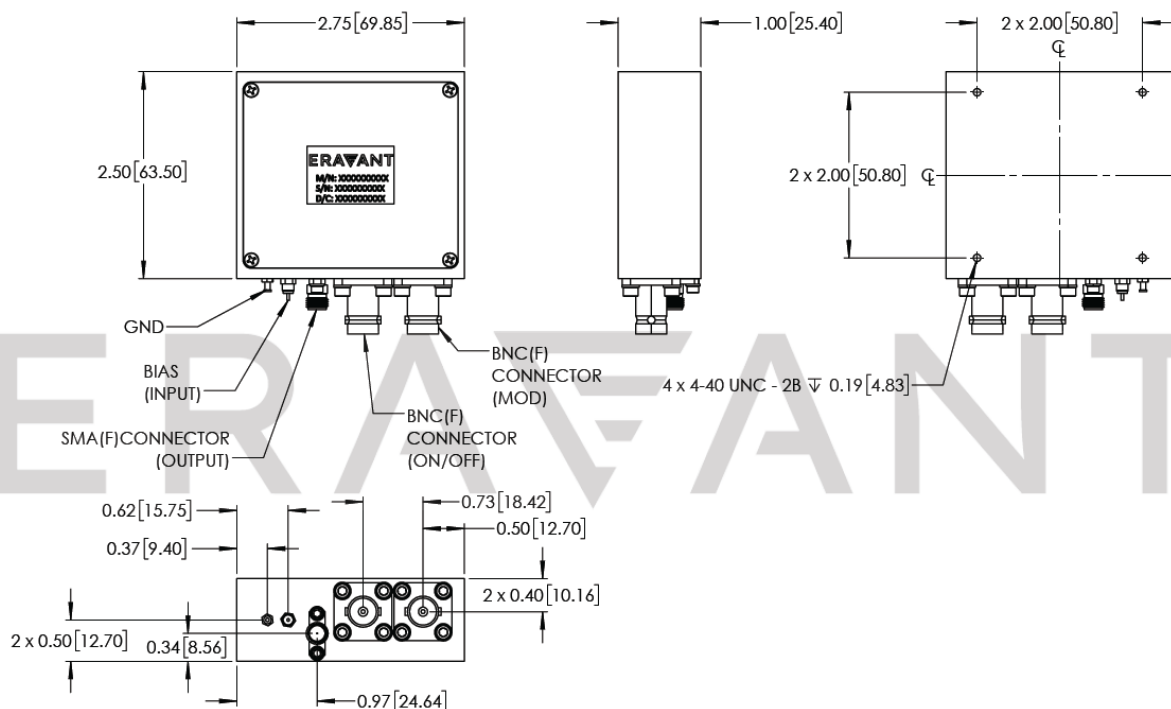
Item	Specification
Input Connector	Solder Pins
Output Connector	SMA (F)
Input AM/FM Connectors	BNC (F), BNC (F)
Case Material	Aluminum
Finish	Chem Film
Weight	4.5 Oz
Size	2.75 (L) x 2.50 (W) x 1.00 (H)
Outline	OR-M3





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



**Note:**

- The modulator is preset for the designated InP Gunn diode based Gunn oscillator only.
- The optimized headroom for the best performance and the heat management of the modulator is 2.0 Volts. The more headroom voltage, the more heat dissipation.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

**Caution:**

- Never exceed the maximum input voltage **+15.0 Vdc** because the modulator will be damaged due to overheating.
- Do not use the modulator as a universal product to bias non-designated oscillators. To do so will cause equipment damage.
- 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.**

