



## W-Band Power Amplifier, 75 to 110 GHz, 22 dB Gain, 13 dBm P<sub>1dB</sub>

### Description:

**Model SBP-7531142213-1010-E1** is a GaAs based high power amplifier with a typical small signal gain of 22 dB and a nominal P<sub>1dB</sub> of +13 dBm across the frequency range of 75 to 110 GHz. The DC power requirement for the amplifier is +8 V<sub>DC</sub>/225 mA. The mechanical configuration offers an in line structure with WR-10 waveguides and UG-387/U-M anti-cocking flanges. Other port configurations, such as with 1 mm connectors or a right angle structure with WR-10 waveguides, are also available under different model numbers.



### Features:

- High Output Power
- High Power Added Efficiency (PAE)

### Applications:

- Test Instrumentation
- Communication Systems
- Radar Systems

### Electrical Specifications:

| Parameter                 | Minimum | Typical            | Maximum |
|---------------------------|---------|--------------------|---------|
| Frequency                 | 75 GHz  |                    | 110 GHz |
| Gain                      |         | 22 dB              |         |
| P <sub>1dB</sub>          |         | +13 dBm            |         |
| P <sub>sat</sub>          |         | +14 dBm            |         |
| P <sub>in</sub>           |         |                    | +0 dBm  |
| Input Return Loss         |         | 8 dB               |         |
| Output Return Loss        |         | 8 dB               |         |
| DC Voltage                |         | +8 V <sub>DC</sub> |         |
| DC Supply Current         |         | 225 mA             |         |
| Specification Temperature |         | +25 °C             |         |
| Operating Temperature     | 0 °C    |                    | +50 °C  |

### Mechanical Specifications:

| Item          | Specification                                       |
|---------------|---|
| Input Port    | WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange |
| Output Port   | WR-10 Waveguide with UG-387/U-M Anti-Cocking Flange |
| Bias          | Solder Pin  |
| Case Material | Aluminum  |
| Finish        | Gold Plated   |
| Weight        | 1.6 Oz  |
| Size          | 1.10" (W) X 1.50" (L) X 0.75" (H)                   |
| Outline       | BG-SW-2-A   |

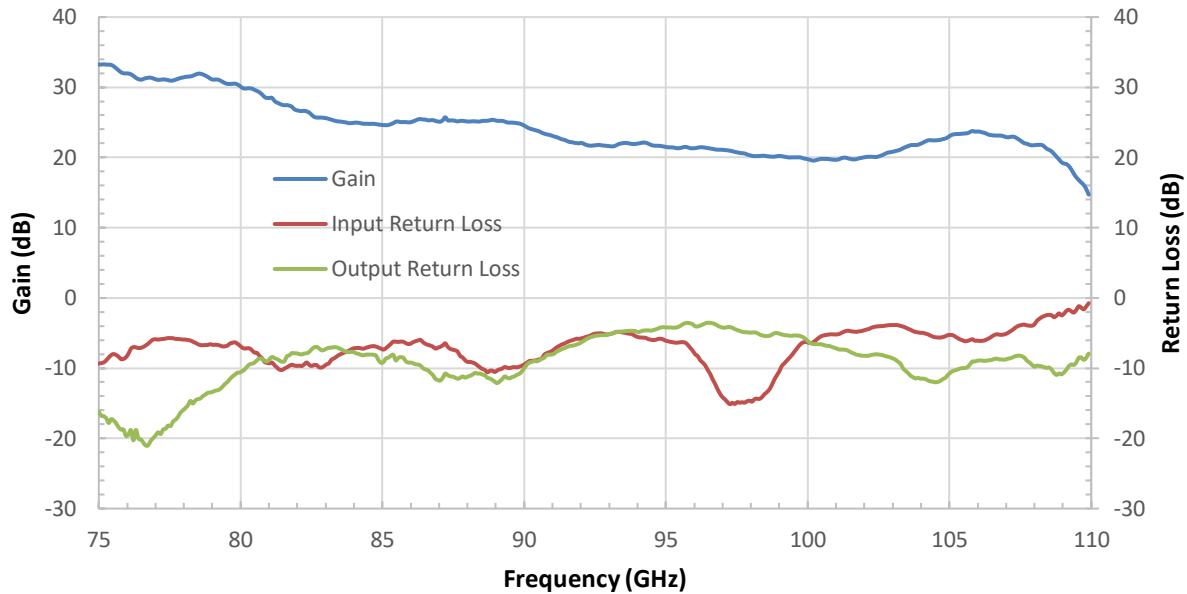




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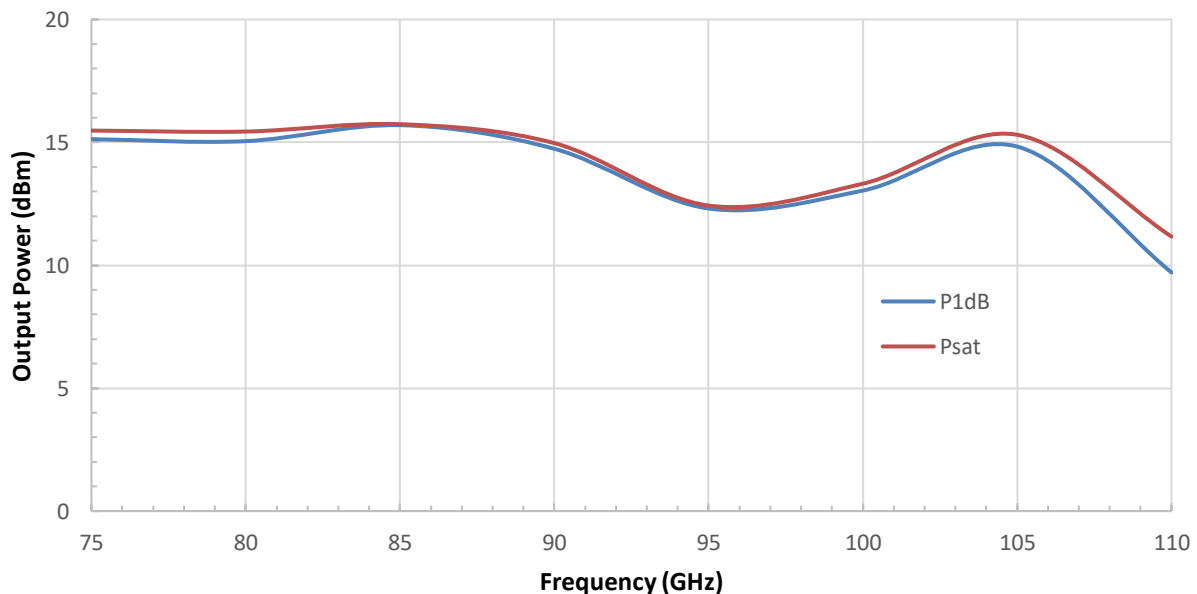
### Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/256 mA



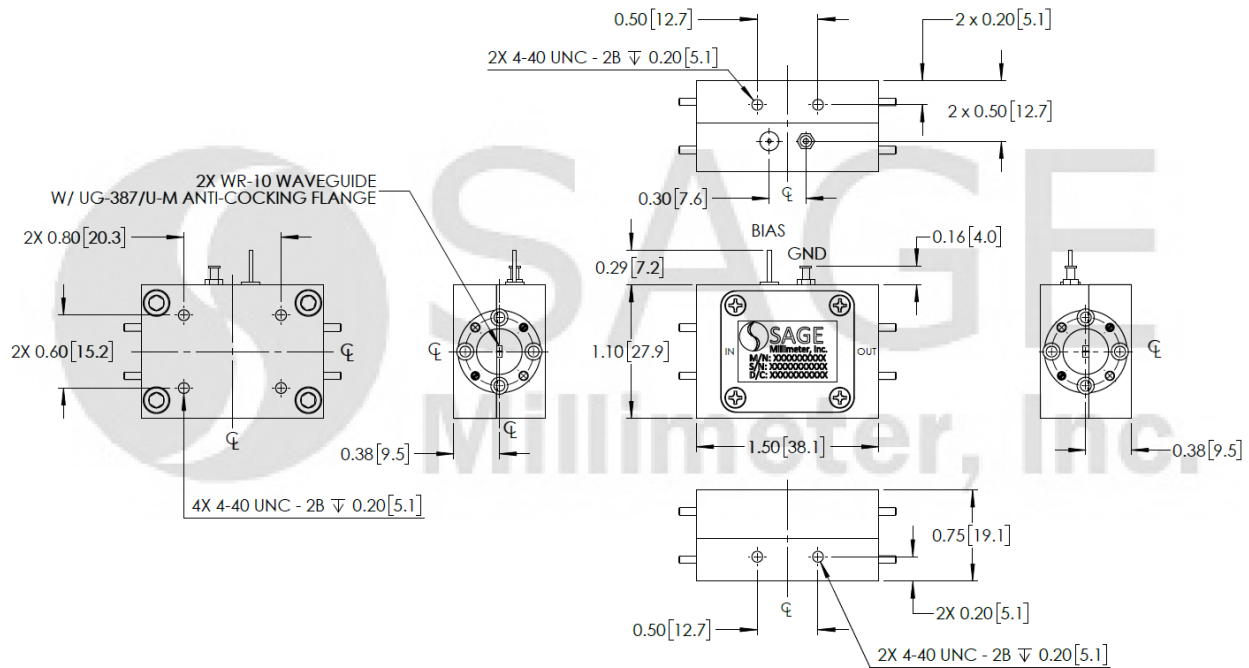
### Output Power vs. Frequency

Bias: +8 V<sub>DC</sub>/256 mA



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



**Note:**

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C case temperature.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.
- Other mechanical configurations are available under different model numbers.

**Caution:**

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- The case temperature of the device shall never exceed +50 °C. Use proper heatsink or fan if necessary.
- Any foreign objects in the waveguide will cause performance degradation and may damage the device.

