



## Q-Band Power Amplifier, 33 to 47 GHz, 35 dB Gain, +25 dBm P<sub>1dB</sub>

### Description:

**Model SBP-3334733525-2222-E1** is a power amplifier with a minimum small signal gain of 35 dB and a nominal P<sub>1dB</sub> of +25 dBm across the frequency range of 33 to 47 GHz. The DC power supply required for the amplifier is +8 V<sub>DC</sub>/650 mA. The mechanical configuration offers an inline structure with WR-22 Uni-Guide™ waveguides. Other port configurations, such as 2.4 mm connectors or right angle WR-22 waveguides for either the input or output port, are also available under different model numbers.



### Features:

- Broadband Performance
- High Output Power
- High Gain

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		47 GHz
Gain		35 dB	
P <sub>1dB</sub>		+25 dBm	
P <sub>SAT</sub>		+27 dBm	
P <sub>in</sub>			+20 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+8 V <sub>DC</sub>	+15 V <sub>DC</sub>
DC Current (Quiescent/Saturation)		650 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

### Mechanical Specifications:

Item	Specification
Input Port	WR-22 Uni-Guide™ Waveguide with UG-383/U Anti-Cocking Flange
Output Port	WR-22 Uni-Guide™ Waveguide with UG-383/U Anti-Cocking Flange
Bias	Solder Pin
Case Material	Aluminum
Finish	Gold Plated
Weight	2.0 Oz
Size	1.95" (L) X 1.20" (W) X 1.13" (H)
Outline	BG-SQ-2-A

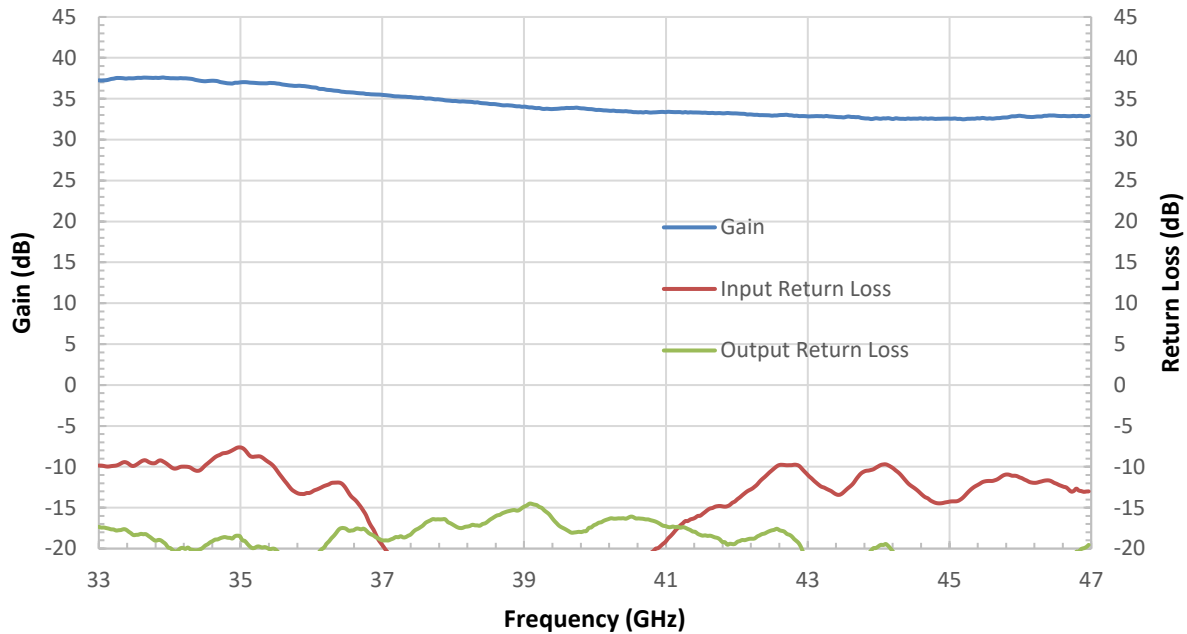




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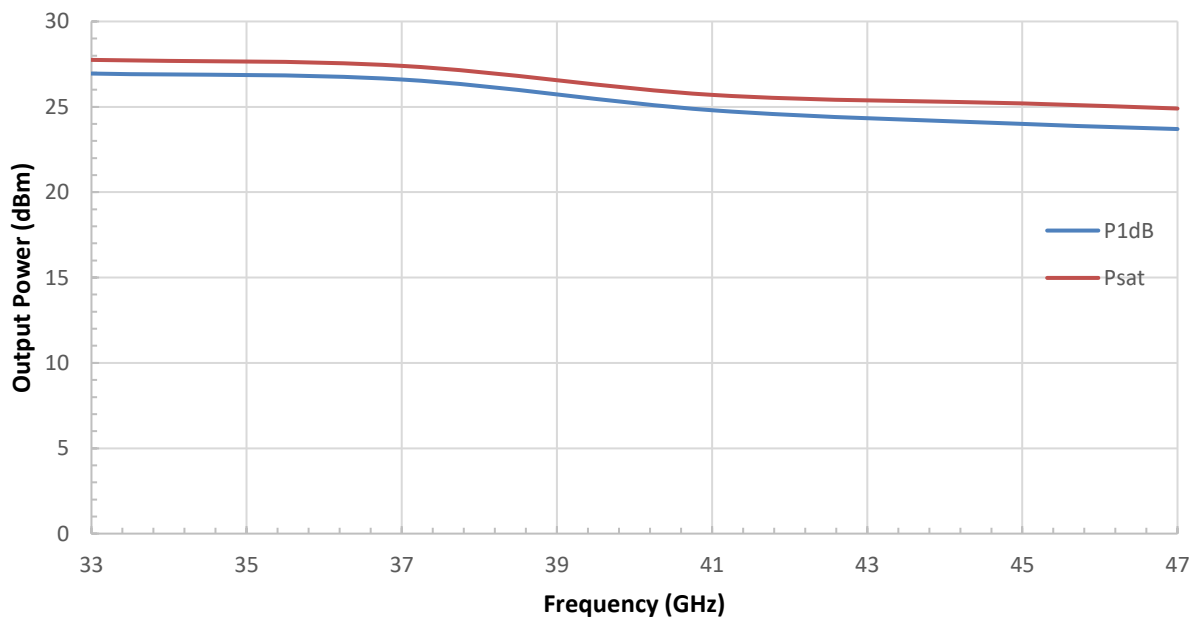
### Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/584 mA



### Output Power vs. Frequency

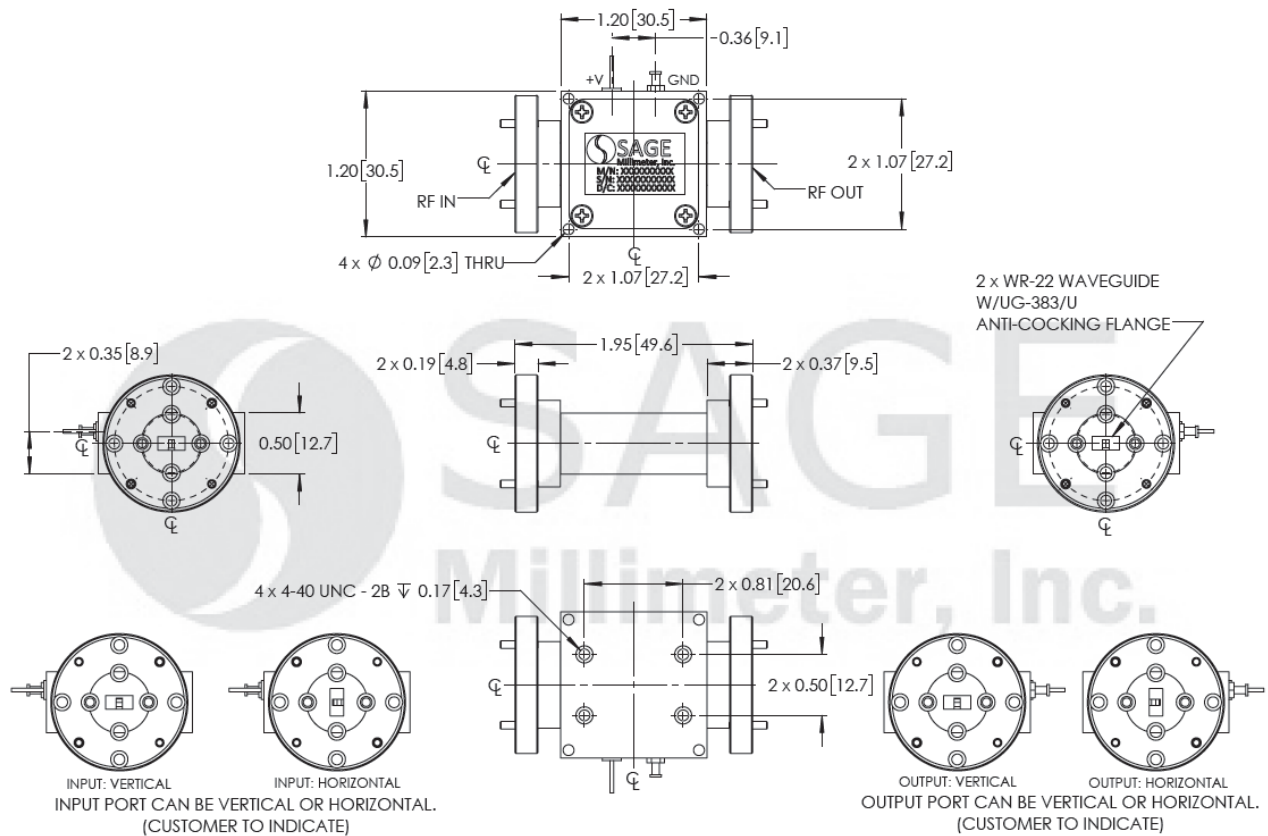
Bias: +8 V<sub>DC</sub>/ 1200mA





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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.
- All testing was performed under +25 °C case temperature.
- The amplifier employs SAGE Millimeter’s trademarked and patent pending technology, **Uni-Guide™**, as its waveguide interfaces. The orientation of the input and the output waveguides can be specified through corresponding model numbers. For example, the model number for a horizontal output waveguide configuration would be **SBP-3334733525-2222H-E1** instead of the default **SBP-3334733525-2222-E1** which indicates vertical orientation output.
- Other mechanical configurations are available under different model numbers.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

**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.

