



## Q-Band Power Amplifier, 33 to 46 GHz, 40 dB Gain, +23 dBm P<sub>1dB</sub>

### Description:

**Model SBP-3334634023-2222-E1** is a Q band power amplifier with a typical small signal gain of 40 dB and a nominal P<sub>1dB</sub> of +23 dBm across the frequency range of 33 to 46 GHz. The DC power requirement for the amplifier is +8 V<sub>DC</sub>/1,100 mA. The mechanical configuration offers an inline structure with WR-22 Uni-Guide™ waveguides. Other port configurations, such as a right angle structure with WR-22 waveguides or 2.4 mm connectors, are also available under different model numbers.



### Features:

- Broadband Performance
- High Output Power
- Good Power and Gain Flatness

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33.0 GHz		46.0 GHz
Gain		40 dB	
P <sub>1dB</sub>		+23 dBm	
P <sub>SAT</sub>		+26 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 Supply Current		1,100 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

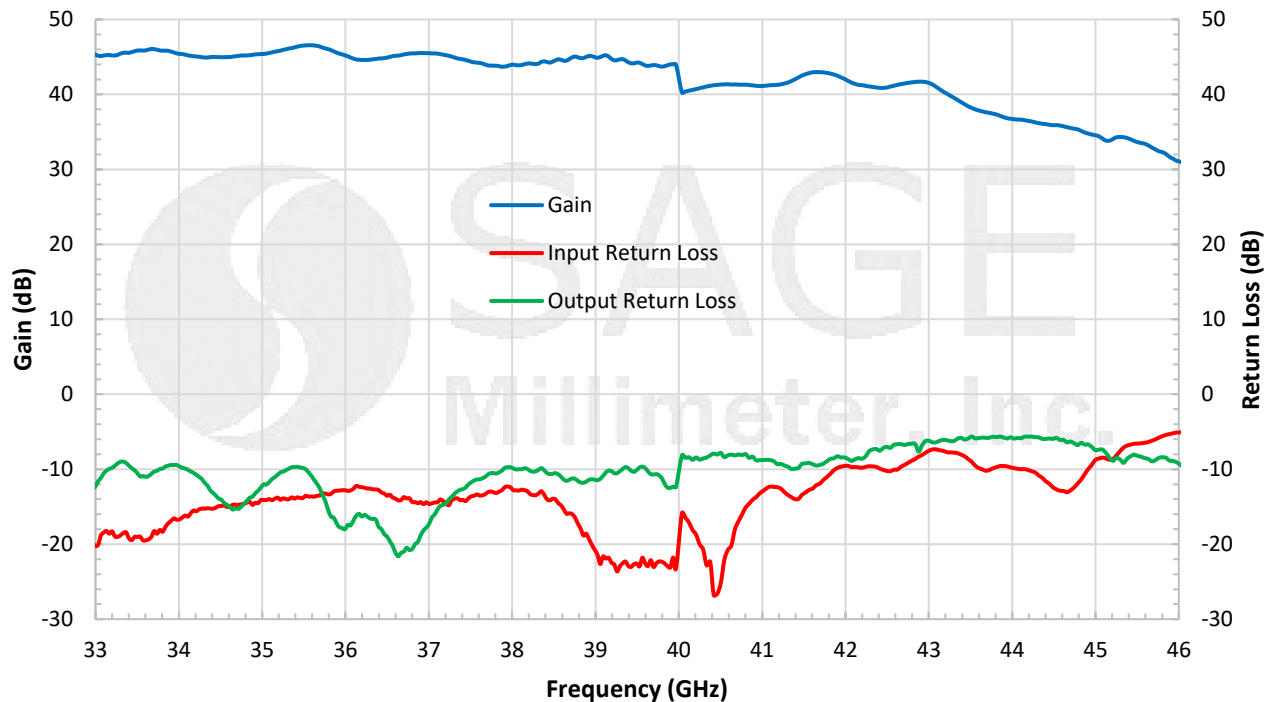




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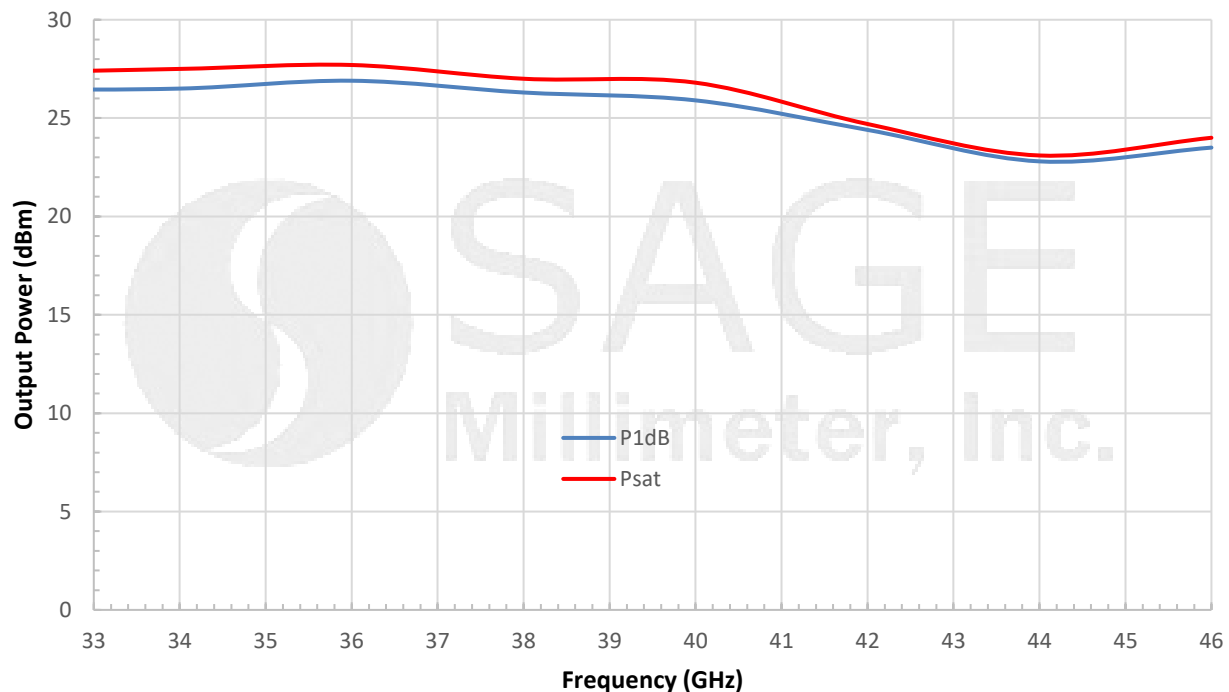
### Typical Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/1,100 mA



### Typical Output P<sub>1dB</sub> and Psat vs. Frequency

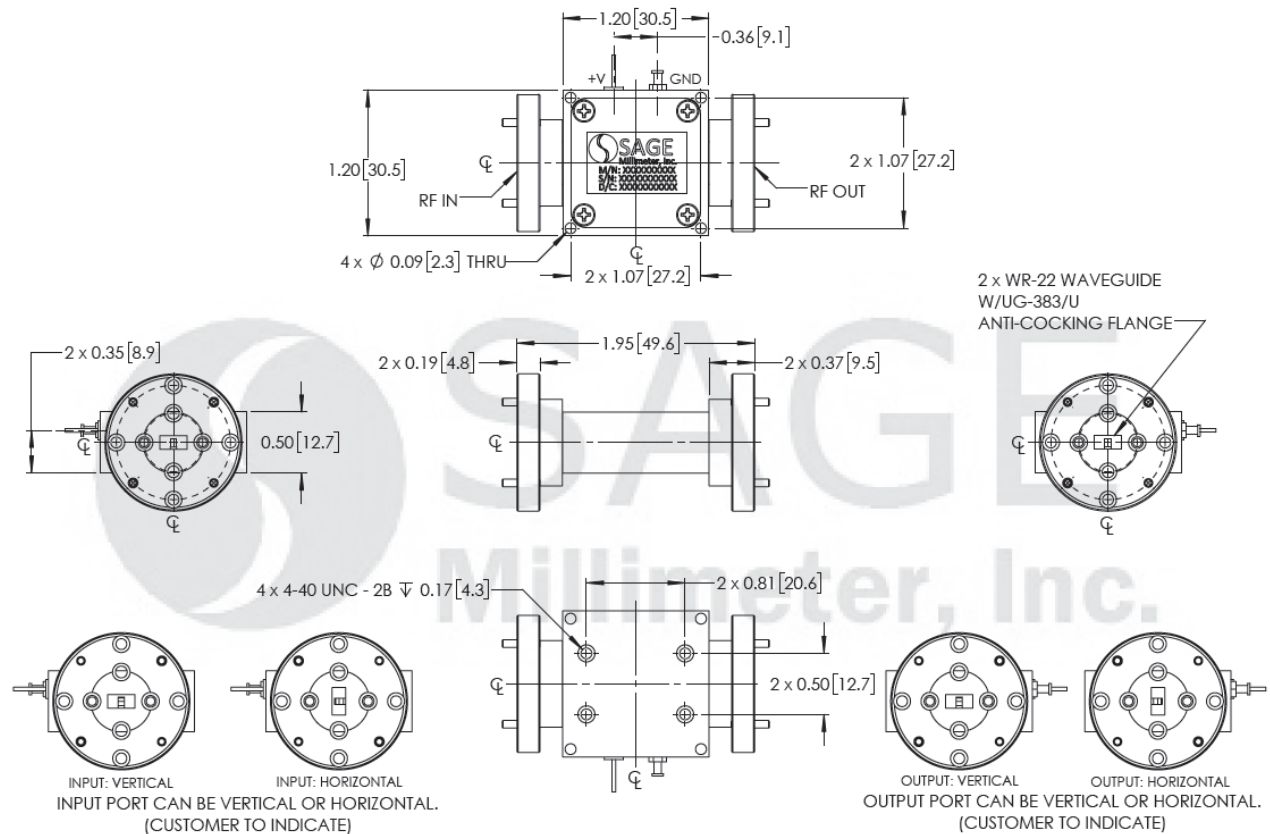
Bias: +8 V<sub>DC</sub>/1,400 mA





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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.
- 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-333464023-2222H-E1** instead of the default **SBP-333464023-2222-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.

