



## Q-Band Power Amplifier, 33 to 50 GHz, 45 dB Gain, +20 dBm P<sub>1dB</sub>

### Description:

**Model SBP-3335034520-2F2F-S1** is a power amplifier with a small signal gain of 45 dB, noise figure of 3 dB, and a typical P<sub>1dB</sub> of +20 dBm across the frequency range of 33 to 50 GHz. The DC power requirement for the amplifier is +8 V<sub>DC</sub>/800 mA. The input and output port configurations are both female 2.4 mm connectors. Other port configurations, such as male 2.4 mm connectors and WR-22 waveguides for either the input or output port, are also available under different model numbers.



### Features:

- High Output Power
- High Gain
- Good Gain Flatness

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Gain		45 dB	
P <sub>1dB</sub>		+20 dBm	
P <sub>sat</sub>		+22 dBm	
P <sub>in</sub>			+15 dBm
Noise Figure		3 dB	
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		800 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

### Mechanical Specifications:

Item	Specification
Input Port	2.4 mm (F)
Output Port	2.4 mm (F)
Bias	Solder Pin
Case Material	Aluminum
Finish	Gold Plated
Weight	1.3 Oz
Size	1.20" (L) X 1.20" (W) X 0.50" (H)
Outline	BG-SC-1

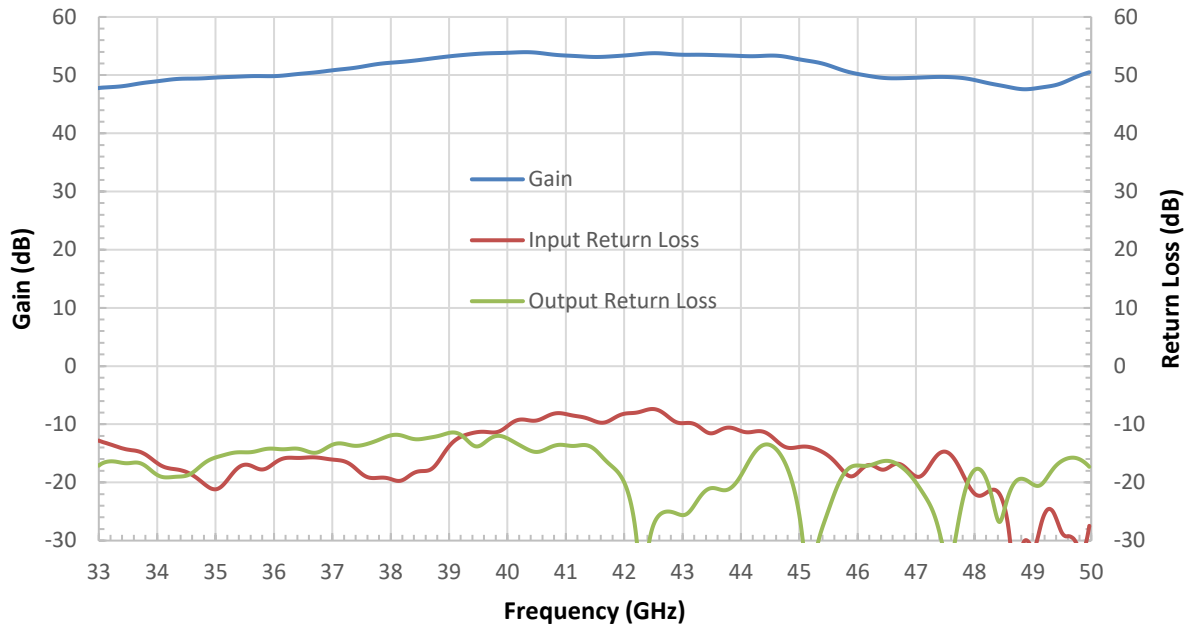




## Q-Band Power Amplifier, 33 to 50 GHz, 45 dB Gain, +20 dBm P<sub>1dB</sub>

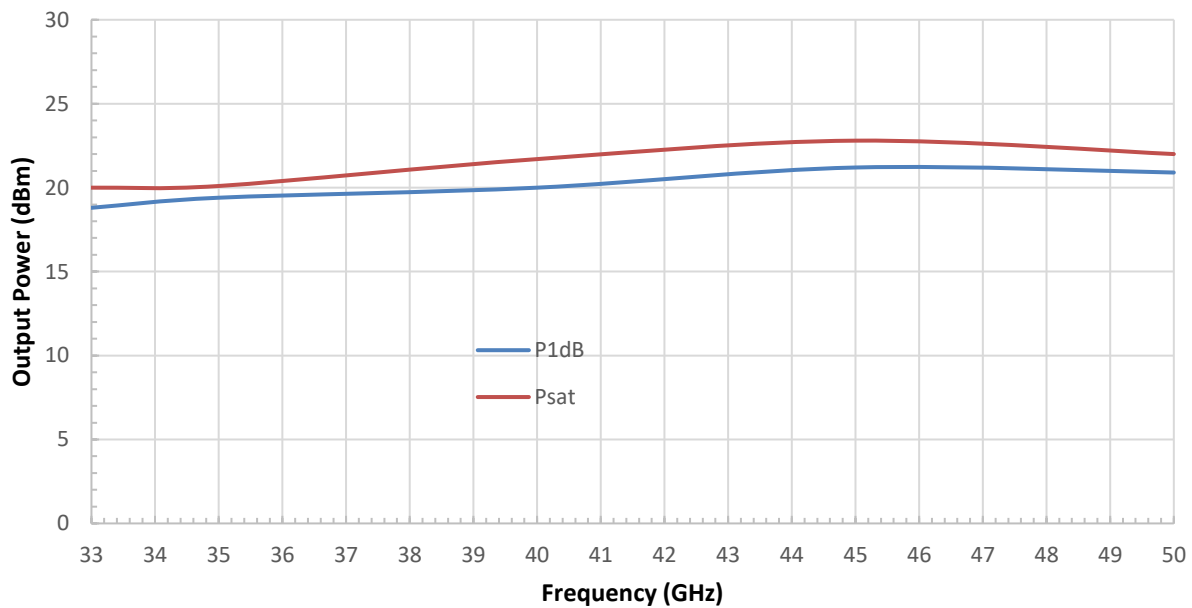
### Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/716mA



### Output Power vs. Frequency

RFsat: +8Vdc/1,200 mA

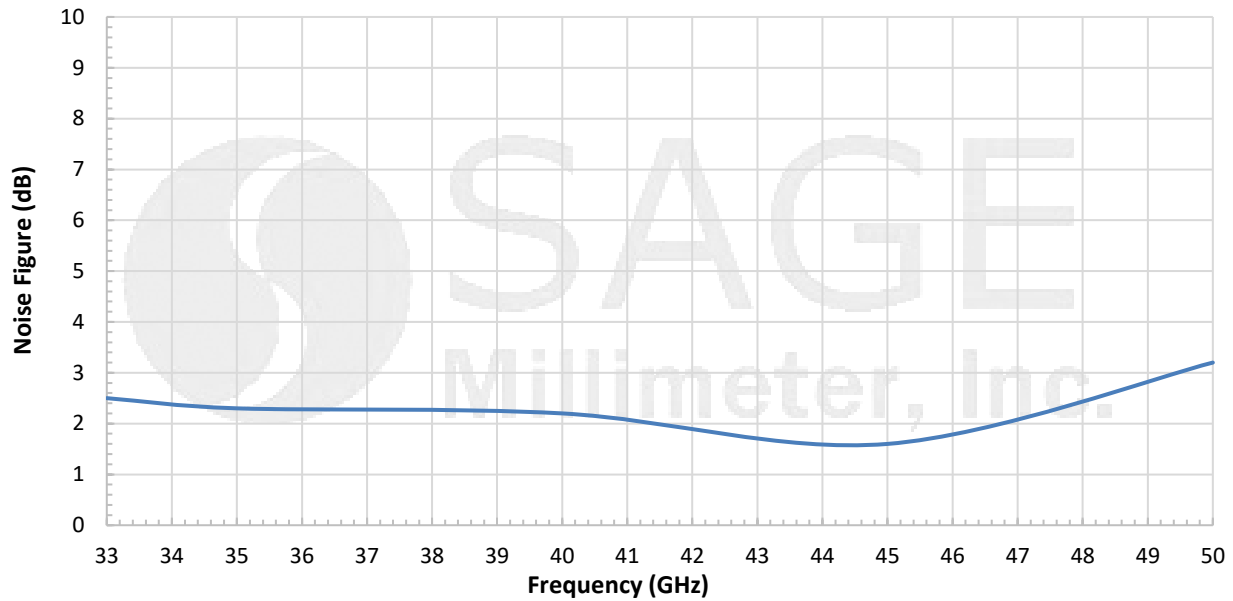




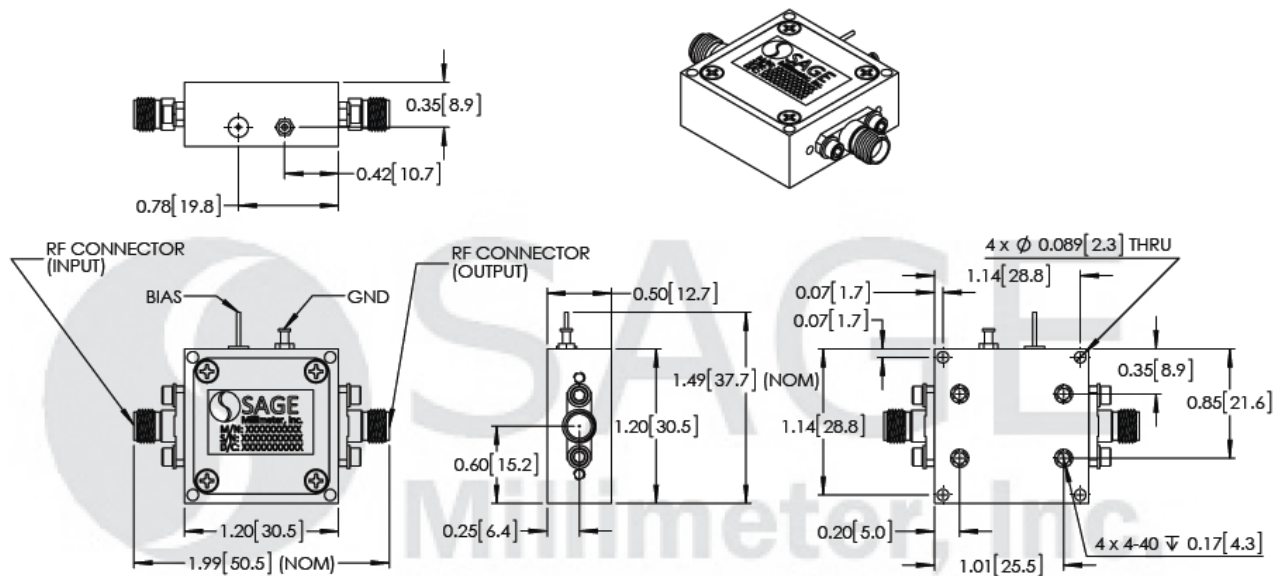
## Q-Band Power Amplifier, 33 to 50 GHz, 45 dB Gain, +20 dBm P<sub>1dB</sub>

### Typical Noise Figure vs. Frequency

Bias: +8 V<sub>DC</sub>/716 mA



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





## Q-Band Power Amplifier, 33 to 50 GHz, 45 dB Gain, +20 dBm P<sub>1dB</sub>

### 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.
- 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.
- Proper torque,  $8.0 \pm 0.15$  inch-pounds ( $0.90 \pm 0.02$  Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

