



## Q-Band Low Noise Amplifier, 33 to 50 GHz, 15 dB Gain, 5 dB NF

### Description:

**Model SBL-3335031550-2222-E1** is a low noise amplifier with a typical small signal gain of 15 dB, a nominal noise figure of 5.0 dB and  $P_{1dB}$  of +12 dBm across the frequency range of 33 to 50 GHz. The DC power requirement for the amplifier is +8 V<sub>DC</sub>/120 mA. The mechanical configuration offers an in line 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:

- Full Waveguide Band Coverage
- State-of-the-Art Noise Figure
- Moderate  $P_{1dB}$

### Applications:

- Radar Systems
- Communication Systems
- Low Noise Receivers

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Gain		15 dB	
Noise Figure		5.0 dB	
$P_{1dB}$		+12 dBm	
$P_{in}$			-10 dBm
Input Return Loss		10 dB	
Output Return Loss		15 dB	
DC Voltage		+8 V <sub>DC</sub>	+15 V <sub>DC</sub>
DC Supply Current		120 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

### Mechanical Specifications:

Item	Specification
Input	WR-22 Uni-Guide™ Waveguide with UG-383/U Anti-Cocking Flange
Output	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

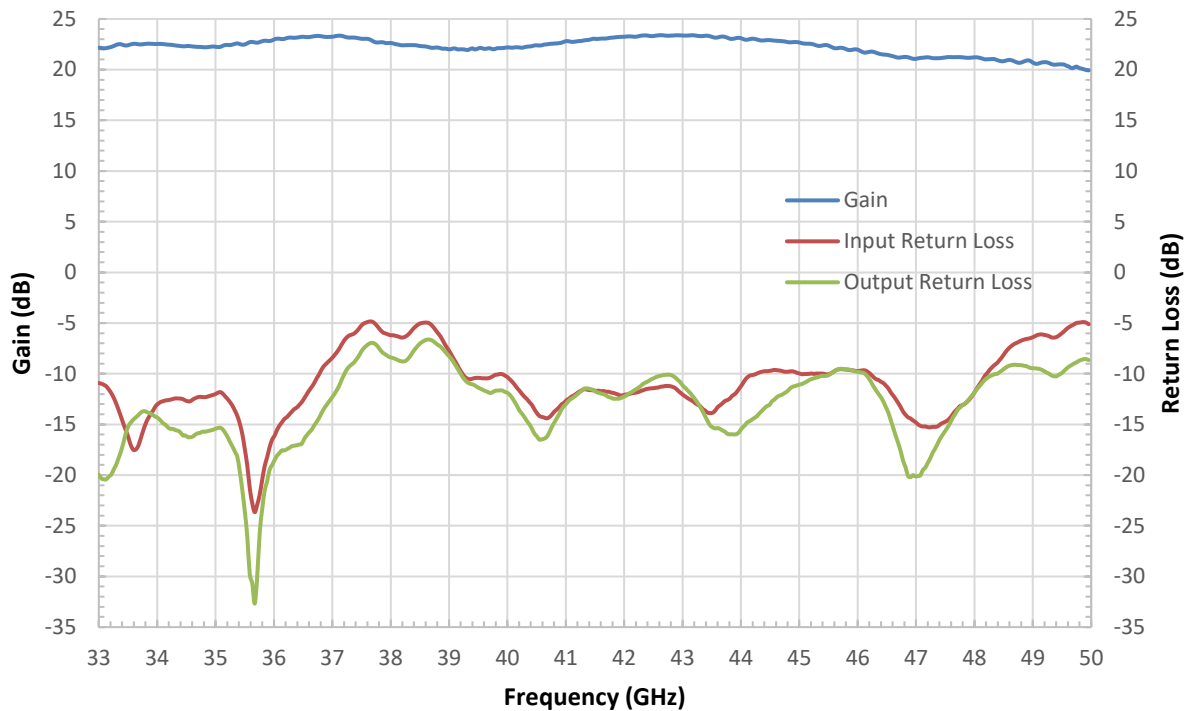




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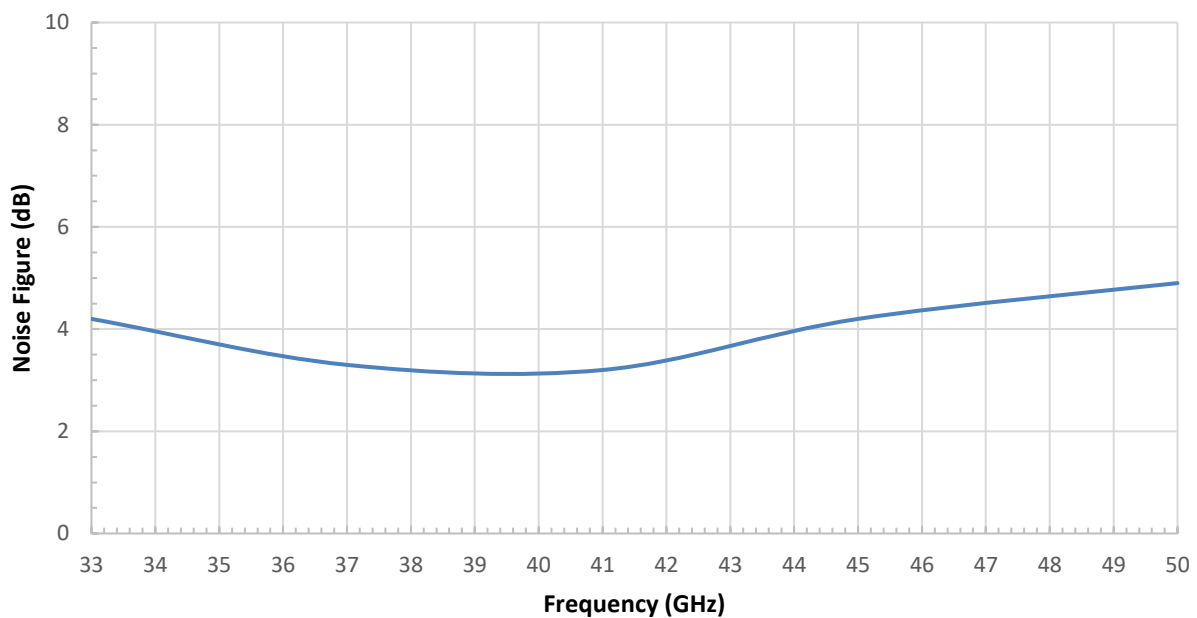
### Typical Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/129 mA



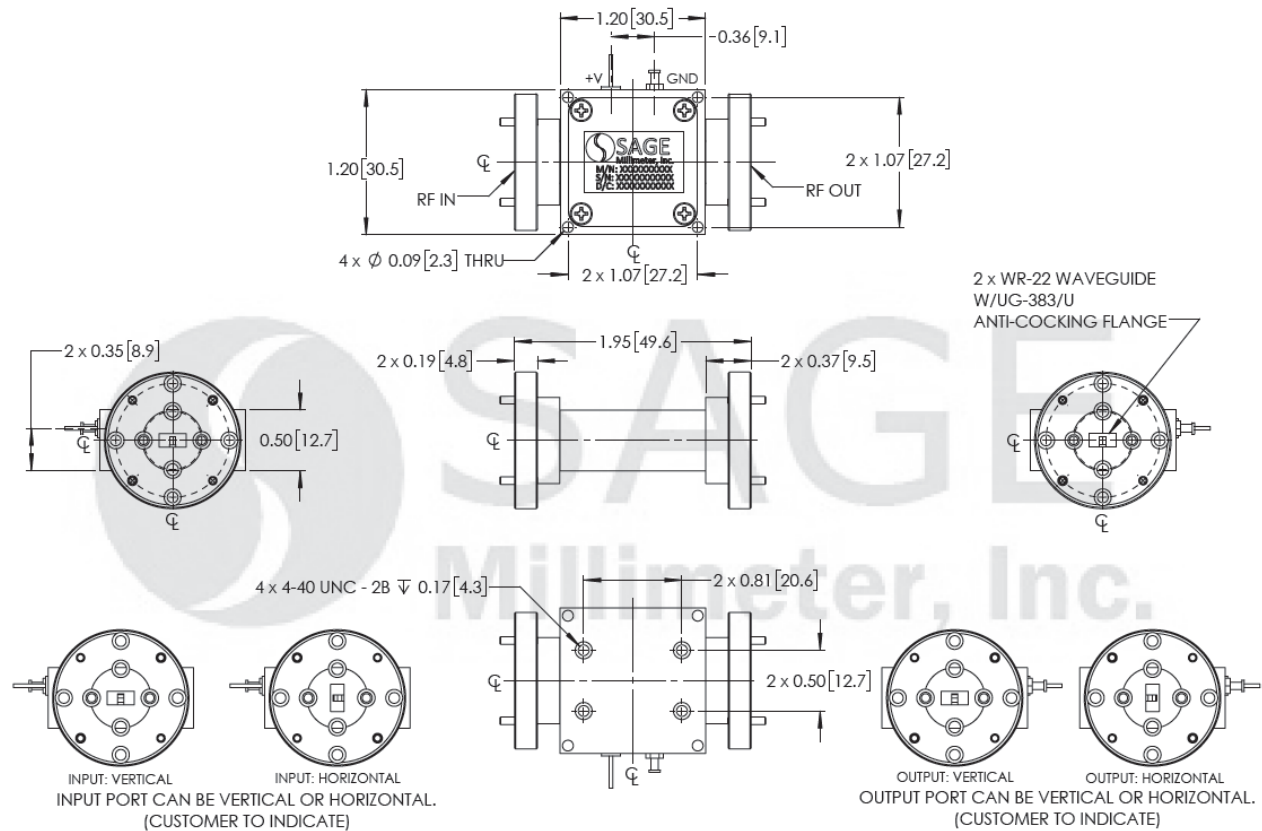
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**Mechanical Outline:** (Unless otherwise specified, all dimensions are in inches [millimeters])



**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 **SBL-3335031550-2222H-E1** instead of the default **SBL-3335031550-2222-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.

