



## Ka-Band Low Noise Amplifier, 33 to 37 GHz, 30 dB Gain, 3 dB NF

### Description:

**Model SBL-3333733030-28KF-E1** is a low noise amplifier with a typical small signal gain of 30 dB and a nominal noise figure of 3 dB across the frequency range of 33 to 37 GHz. The DC power requirement for the amplifier is +8 V<sub>DC</sub>/150 mA. The mechanical configuration is an inline structure with a WR-28 Uni-Guide™ waveguide as its input port and K(F) connector as its output port. Other port configurations, such as K connectors and WR-28 waveguides for either the input or output port, are also available under different model numbers.



### Features:

- Full Waveguide Band Operation
- State-of-the-Art Noise Figure
- Good Gain Flatness

### Applications:

- 5G Systems
- Radar Systems
- Communication Systems
- Low Noise Receivers

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		37 GHz
Gain		30 dB	
Noise Figure		3 dB	
P <sub>1dB</sub>		+10 dBm	
P <sub>in</sub>			-15 dBm
Input Return Loss		10 dB	
Output Return Loss		10 dB	
DC Voltage		+8 V <sub>DC</sub>	+16 V <sub>DC</sub>
DC Supply Current		150 mA	
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

### Mechanical Specifications:

Item	Specification
Input Port	WR-28 Uni-Guide™ Waveguide with UG-599/U Compatible Flange
Output Port	K(F)
Bias	Solder Pin
Case Material	Aluminum
Finish	Gold Plated
Weight	1.6 Oz
Size	1.63" (L) X 1.20" (W) X 0.75" (H)
Outline	BG-SA-2WC

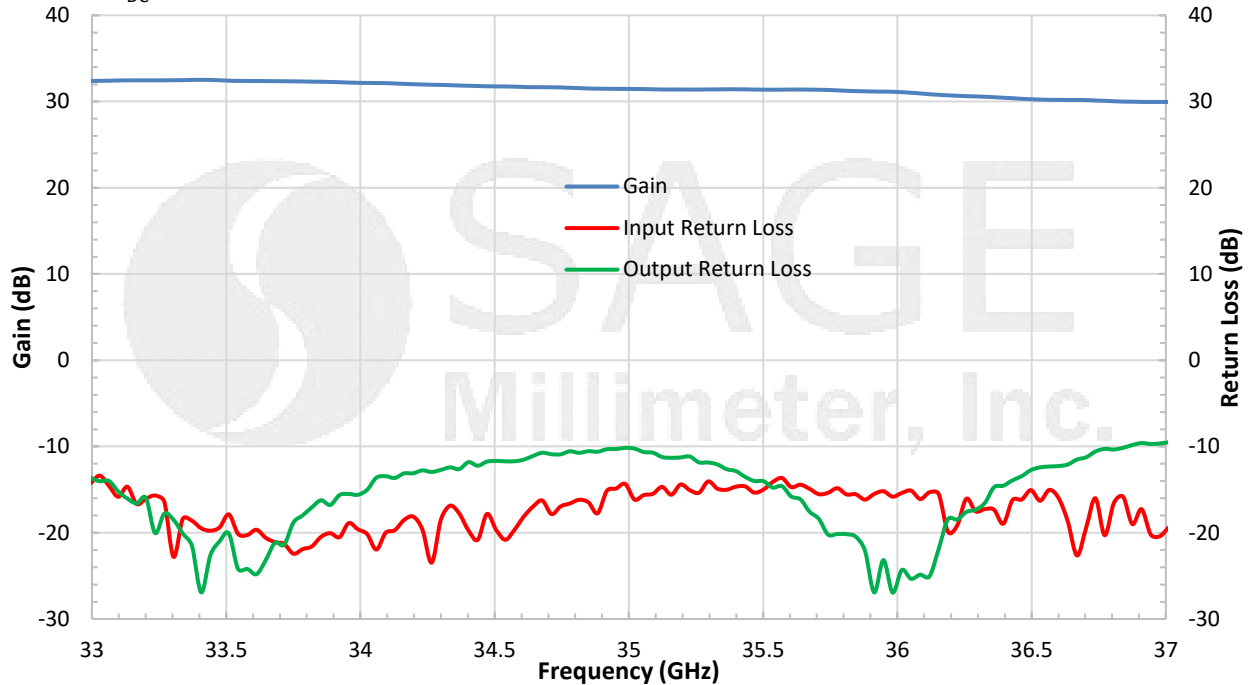




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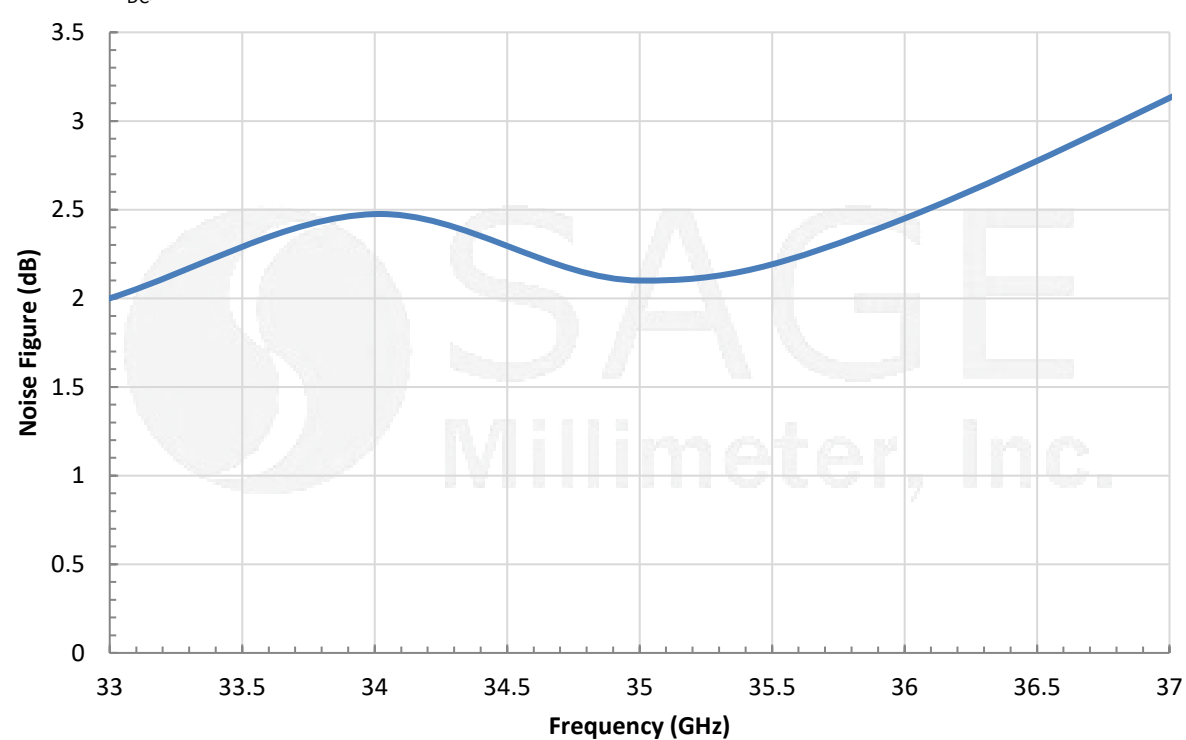
### Typical Gain and Return Loss vs. Frequency

Bias: +8 V<sub>DC</sub>/150 mA



### Typical Noise Figure vs. Frequency

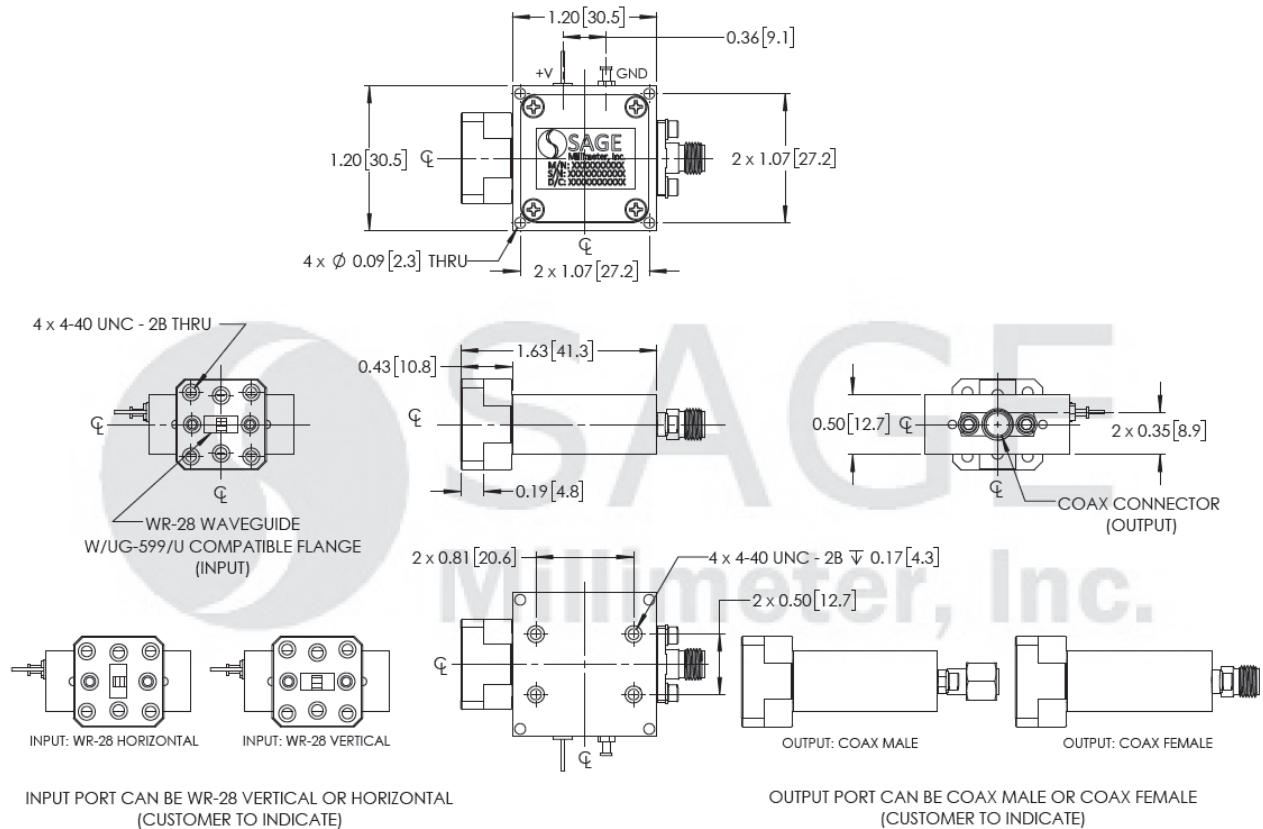
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**Mechanical Outline:** (Unless otherwise specified, all dimensions are in inches [millimeters])



**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 input waveguide configuration would be **SBL-3333733030-28HKF-E1** instead of the default **SBL-3333733030-28KF-E1** which indicates vertical orientation input.
- 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.



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- Any foreign objects in the waveguide will cause performance degradation and may damage the device.
- 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.**

