



## W-Band Balanced Mixer, 65 to 110 GHz

### Description:

**Model SFB-65310410-1010KF-N1** is a W-Band balanced mixer that utilizes high performance GaAs Schottky beam-lead diodes and a balanced circuit configuration to offer superior RF performance. The mixer offers an extended waveguide band operation of 65 to 110 GHz RF, with an extremely broad IF output from DC to 37.5 GHz and a fixed LO at 102.5 GHz. The mixer offers a conversion loss of 9.5 dB typical and a high RF to LO port isolation of 30 dB. From 65 to 69 GHz RF, the in band 2RF-LO spurious rejection is 25 dB typical at 27.5 and 35.5 GHz IF.



### Features:

- Broad Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency up to 37.5 GHz

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency Range	65.0 GHz		110.0 GHz
LO Frequency Range		102.5 GHz	
IF Frequency Range	DC		37.5 GHz
LO Pumping Power	+11.5 dBm	+13 dBm	+15 dBm
Input P <sub>1dB</sub>		-3 dBm	
Conversion Loss		9.5 dB	12 dB
RF to LO Isolation		30 dB	
2RF-LO Spurious Reject		25 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25°C	
Operation Temperature	-40°C		+85°C

### Mechanical Specifications:

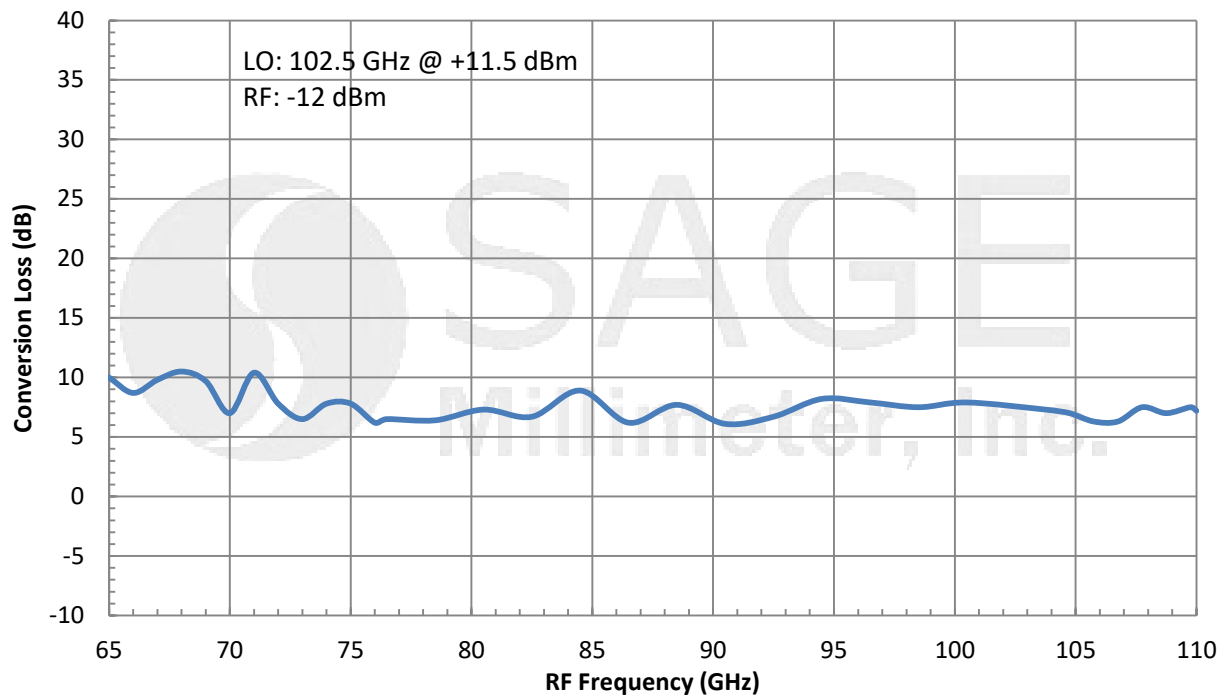
Item	Specification
RF	WR-10 Waveguide with UG-387/U-M Flange
LO	WR-10 Waveguide with UG-387/U-M Flange
IF	K(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.8 Oz
Outline	FB-NW



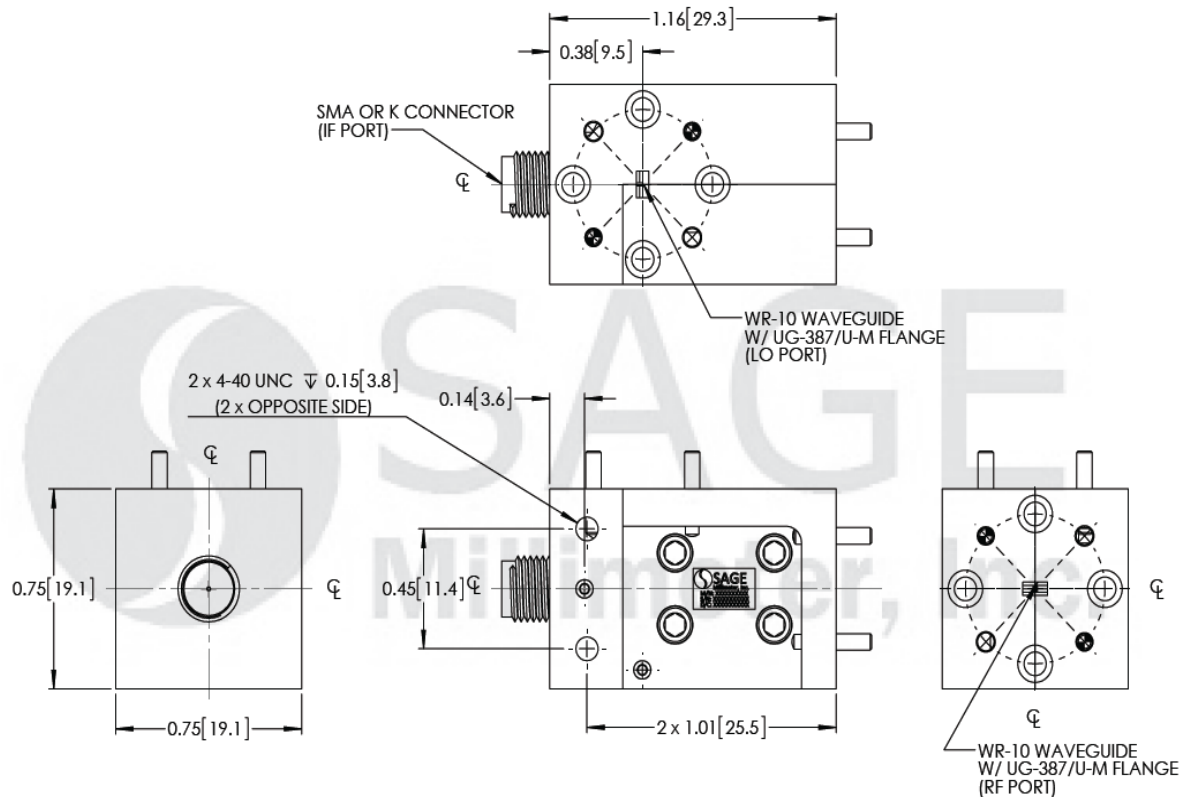


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### Typical Conversion Loss vs. Frequency



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





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### Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit slightly.
- All testing was performed under +25 °C case temperature.
- 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 IF port of the mixer is DC coupled. Use a DC block when connecting to other devices. **Do not apply an external bias voltage to the IF port.**
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.
- Proper torque,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

