



W-Band Balanced Mixer, 65 to 100 GHz Band, High Port Isolation

Description:

Model SFB-67310410-1010KF-N3 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 100 GHz RF, with an extremely broad IF output from 2.5 to 37.5 GHz and a fixed LO at 102.5 GHz. The mixer offers a conversion loss of 10 dB typical and is specifically designed to reject spurious frequencies by 30 dB and higher. From 65 to 69 GHz RF, the in band 2RF-LO spurious rejection is 40 dB typical at 27.5 and 35.5 GHz IF and the 2LO-2RF rejection is 50 dB or better at 5 to 39 GHz IF.



Features:

- Low Conversion Loss
- High Spurious Product Rejection
- High Port Isolation
- Compact Package

Applications:

- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	65.0 GHz		100.0 GHz
LO Frequency		102.5 GHz	
IF Frequency	2.5 GHz		37.5 GHz
LO Pumping Power	+11.5 dBm	+13.0 dBm	+16.0 dBm
Conversion Loss		10.0 dB	14 dB
RF Input P _{1dB}		-3 dBm	
RF to LO Isolation		30 dB	
LO to IF Isolation		25 dB	
2RF- LO Spurious Rejection		40 dB	
2LO-2RF Spurious Rejection		50 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-3

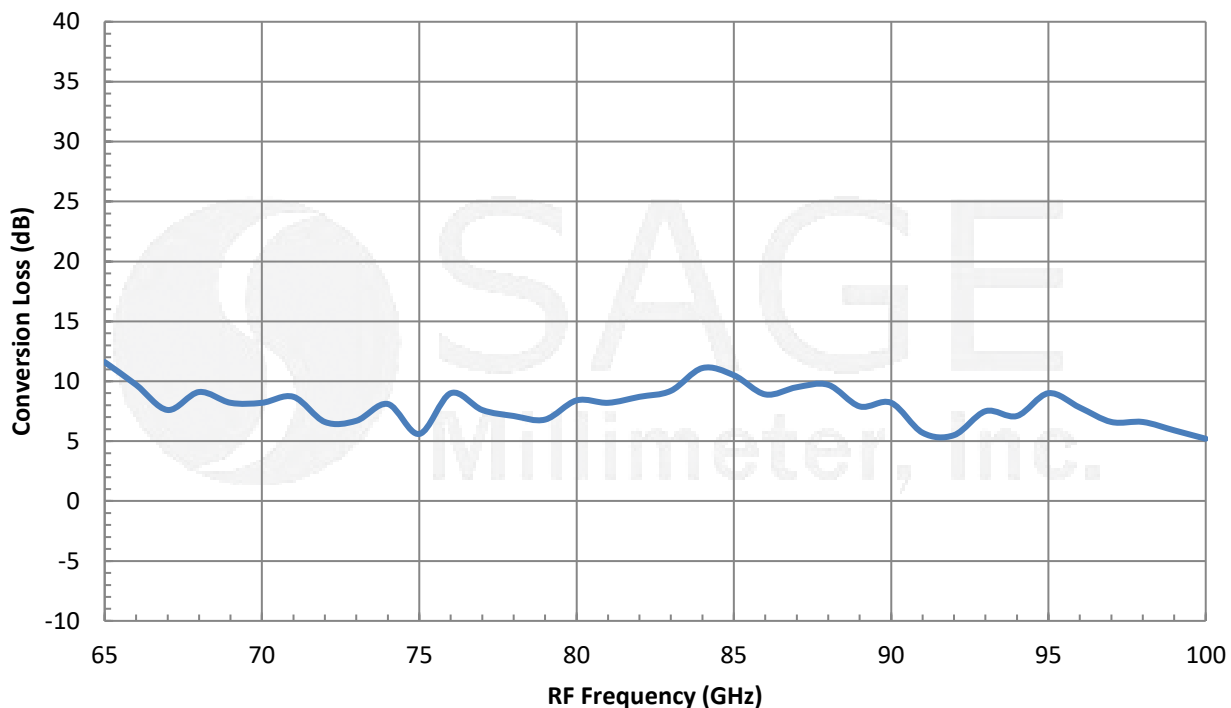




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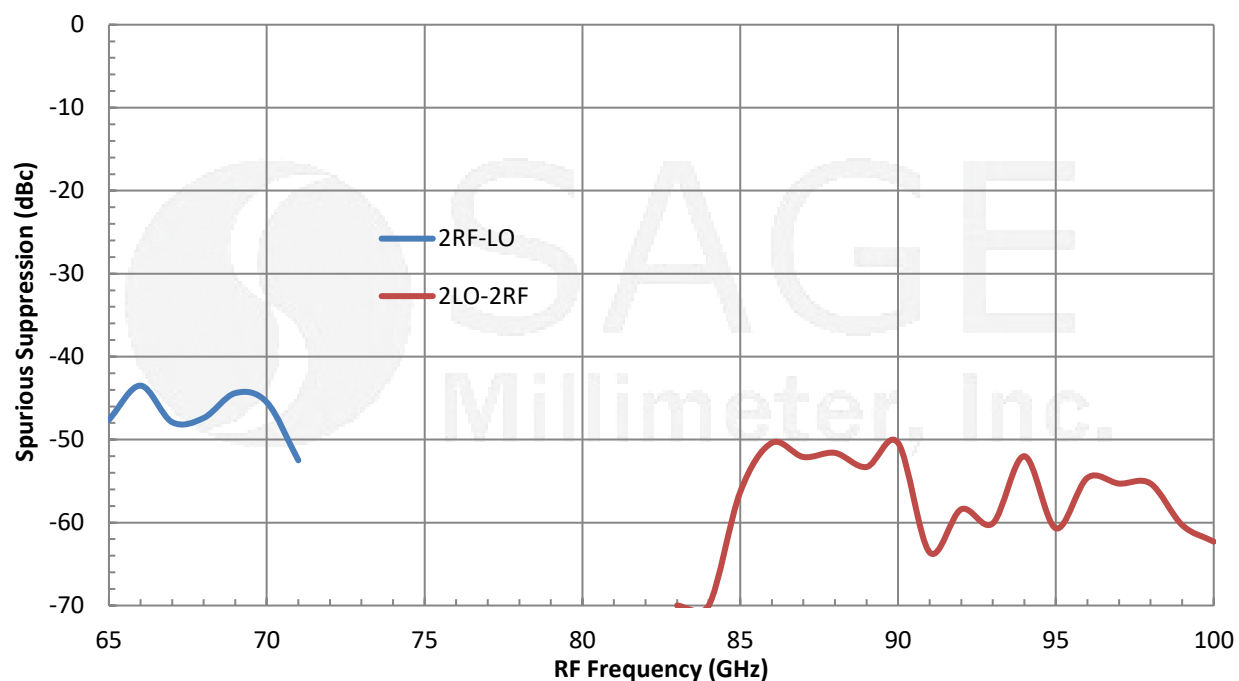
Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: 102.5 GHz/+11.5 dBm



Typical Spurious Suppression vs. RF Frequency

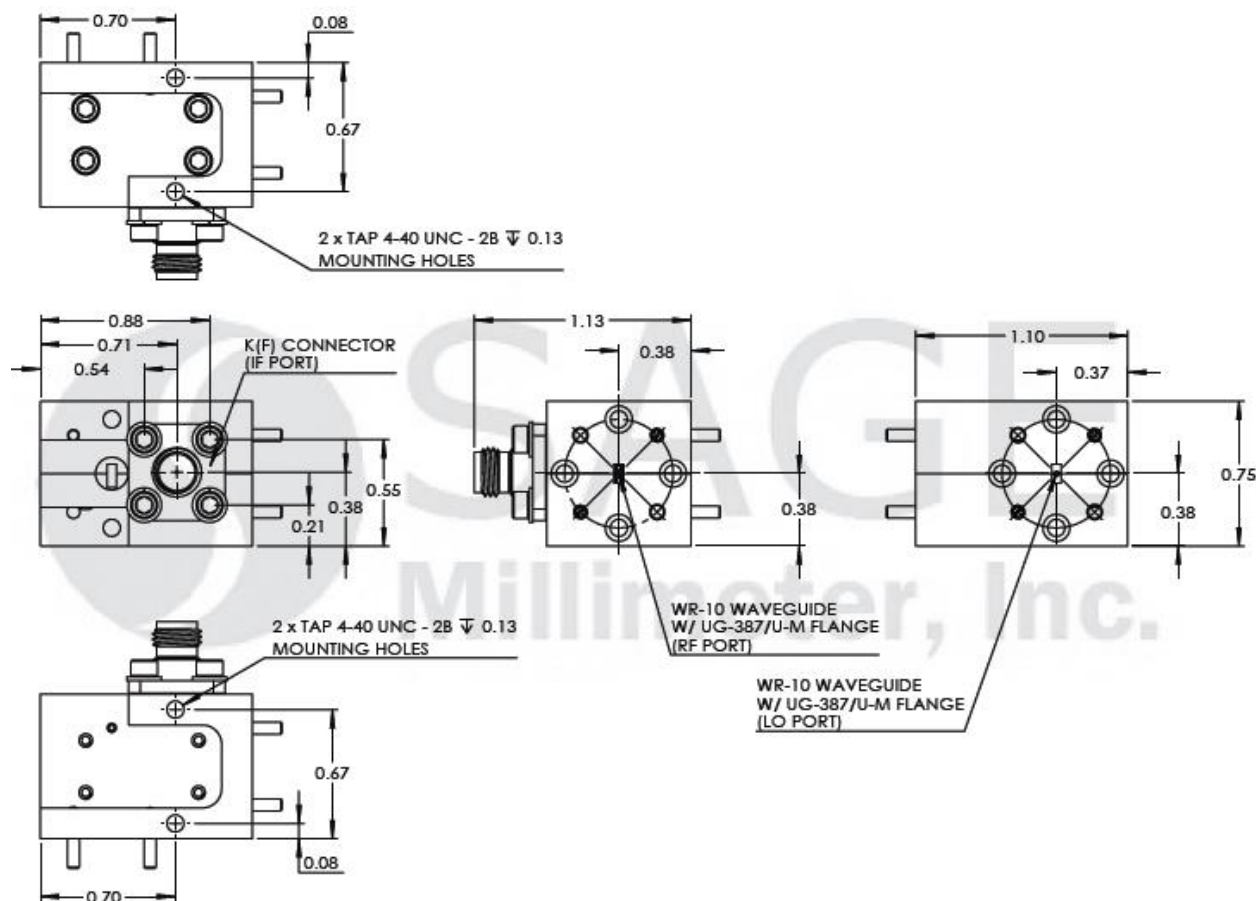
RF: -20 dBm; LO: 102.5 GHz/+11.5 dBm





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Mechanical Outline: (Unless otherwise specified, all dimensions are in inches)



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.
- A DC block at IF port may be required when connecting to a device, such as an IF low noise amplifier or a base band mixer which input port is DC coupled.
- 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.
- **Never apply an external bias voltage to the IF port because the mixer will be damaged.**
- Any foreign objects in the waveguide will cause performance degradation and can possibly damage the device.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

