SFB-28-N1-M

Rev 1.0

Ka-Band Balanced Mixer, +10 dBm IP_{-1dB}

Description:

Model SFB-28-N1-M is a Ka Band balanced mixer that utilizes high performance pHEMT based GaAs MMIC to offer superior RF performance. The mixer supports the full waveguide band operation for both LO and RF frequencies from 26.5 to 40 GHz with an IF output from DC to 13.0 GHz. The mixer offers a conversion loss of 12 dB typical, a high LO to RF port isolation of 30 dB, a LO to IF port isolation of 25 dB and an RF to IF port isolation of 25 dB.

Features:

- Full Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency

Applications:

- 5G Systems
- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40 GHz
LO Frequency	26.5 GHz		40 GHz
IF Frequency	DC		13 GHz
LO Pumping Power	+13 dBm	+15 dBm	+18 dBm
Conversion Loss		12 dB	
Input P-1dB		+10 dBm	
LO to RF Isolation		30 dB	
LO to IF Isolation		25 dB	
RF to IF Isolation		25 dB	
Combined LO and RF Power			+22 dBm
Specification Temperature		+25 ˚C	
Operating Temperature	-40 ˚C		+85 ˚C

Note: The RF input P-1 dB is LO pumping power related. The value shown is at LO power +15 dBm. The higher the LO power, the higher the input P-1dB.

Mechanical Specifications:

Item	Specification
RF	WR-28 Waveguide with UG-599/U Flange
LO	WR-28 Waveguide with UG-599/U Flange
IF	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.6 Oz
Size	1.47” (L) X 0.80” (W) X 0.75” (H)
Outline	FB-NAM-1

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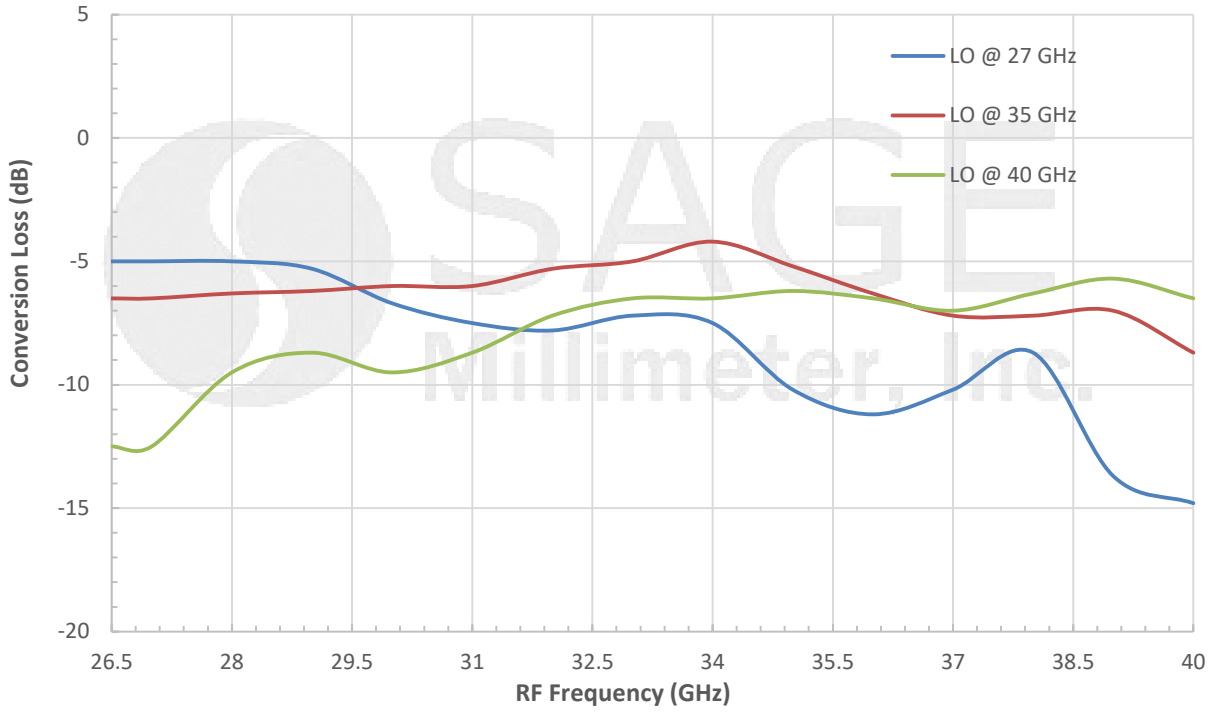
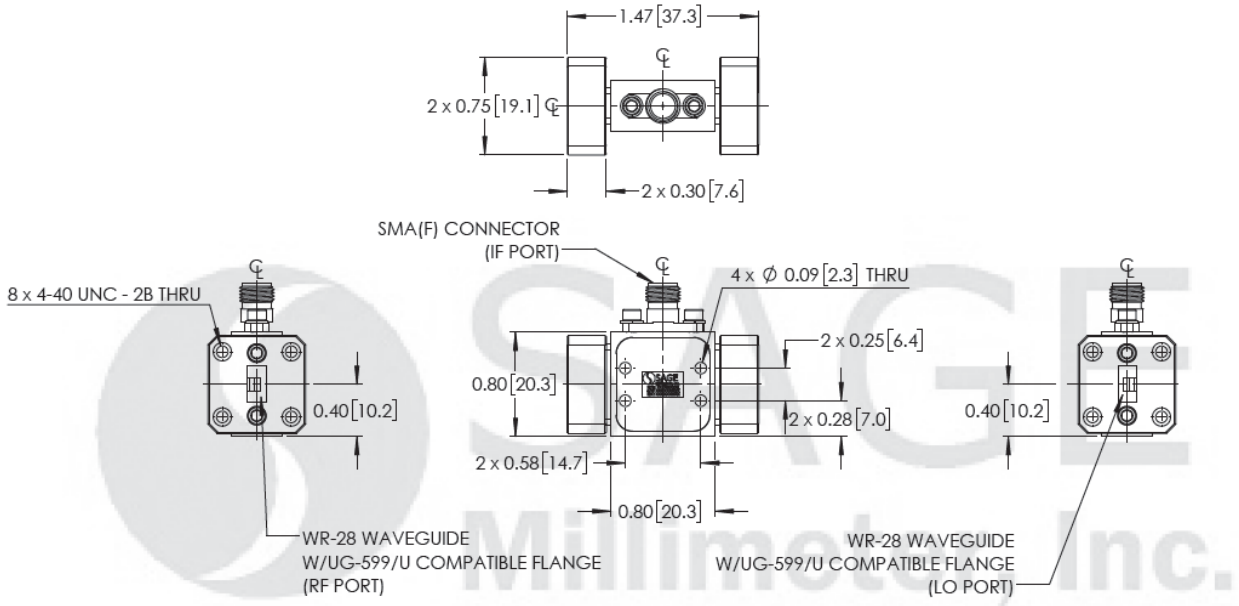
Typical Conversion Loss vs. Frequency

RF: -20 dBm, LO: +13 dBm



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.
- 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 mixer is a small signal device. The typical RF input level is 0 dBm or lower.**
- 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. It will damage the mixer.**
- 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.**

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