SFB-06-N1

Rev. 1.1

D-Band Balanced Mixer

Description:

Model SFB-06-N1 is a D-Band balanced mixer that utilizes high performance GaAs Schottky beam-lead diodes and a balanced circuit configuration to offer superior RF performance. The mixer supports the full waveguide band operation for both LO and RF frequencies from 110 to 170 GHz with an extremely broad IF output from DC to 40 GHz. The mixer offers a conversion loss of 13 dB typical and a high RF to LO port isolation of 30 dB.

Features:

- Full Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency up to 40 GHz

Applications:

- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency Range	110 GHz		170 GHz
LO Frequency Range	110 GHz		170 GHz
IF Frequency Range	DC		40 GHz
LO Pumping Power		+13 dBm	
Input P_{1dB}		-3 dBm	
Conversion Loss		13 dB	16 dB
RF to LO Isolation		30 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25°C	
Case Temperature	-40°C		+ 85°C

Mechanical Specifications:

Item	Specification
RF	WR-06 Waveguide with UG-387/U-M Flange
LO	WR-06 Waveguide with UG-387/U-M Flange
IF	K(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.8 Oz
Outline	FB-ND

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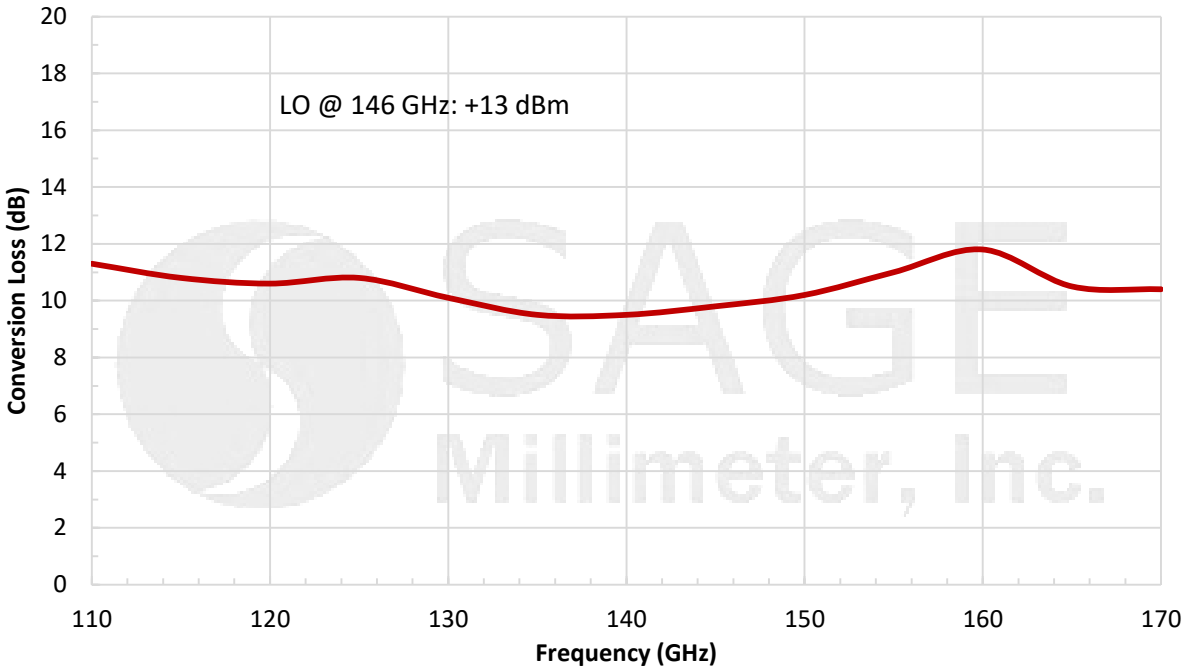
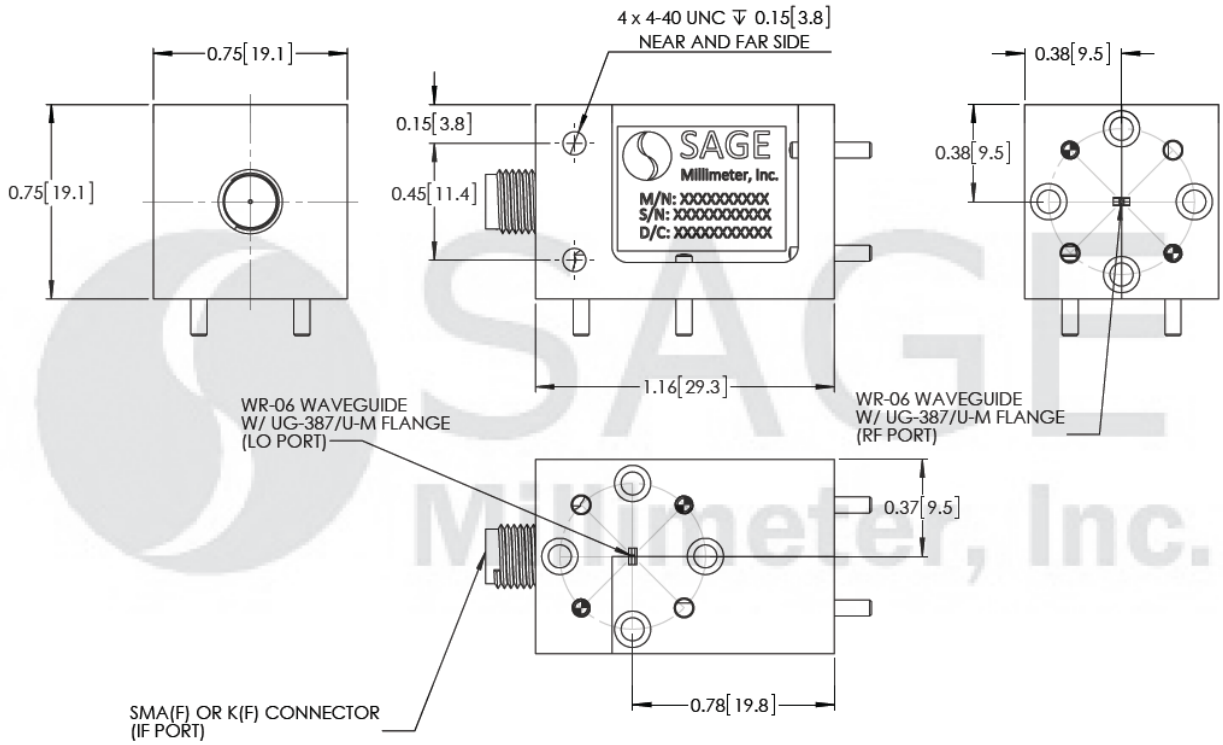
Typical Conversion Loss vs. Frequency



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.
- The mixer will work full band. Due to the limitations of the test equipment, only partial band at a fixed LO frequency is measured.
- 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 ± 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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