



U Band Balanced Mixer with WR-19 Uni-Guide™

Description:

Model SFB-40360311-1919SF-N1-M is a U 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 40 to 60 GHz with an IF output from DC to 14.0 GHz. The mixer offers a conversion loss of 11 dB typical, a high LO to RF port isolation of 30 dB, a LO to IF port isolation of 15 dB and an RF to IF port isolation of 20 dB.



Features:

- Compact Package
- Low Conversion Loss
- High Port Isolations
- IF Port DC Coupled

Applications:

- Speed and Ranging Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	40 GHz		60 GHz
LO Frequency	40 GHz		60 GHz
LO Pumping Power	+13 dBm	+15 dBm	+18 dBm
IF Frequency	DC		14.0 GHz
Conversion Loss		11 dB	
Input P-1db		+10 dBm	
LO to RF Port Isolation	20 dB	30 dB	
LO to IF Port Isolation		15 dB	
RF to IF Port Isolation		20 dB	
Combined RF & LO Power			+22 dBm
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Mechanical Specifications:

Item	Specification
RF Port	WR-19 Uni-Guide™ Waveguide with a UG-383/U-M Anti-Cocking Flange
LO Port	WR-19 Uni-Guide™ Waveguide with a UG-383/U-M Anti-Cocking Flange
IF Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.68 Oz
Size	0.8" (L) 0.8" (W) X 0.39" (H)
Outline	FB-NUM-2

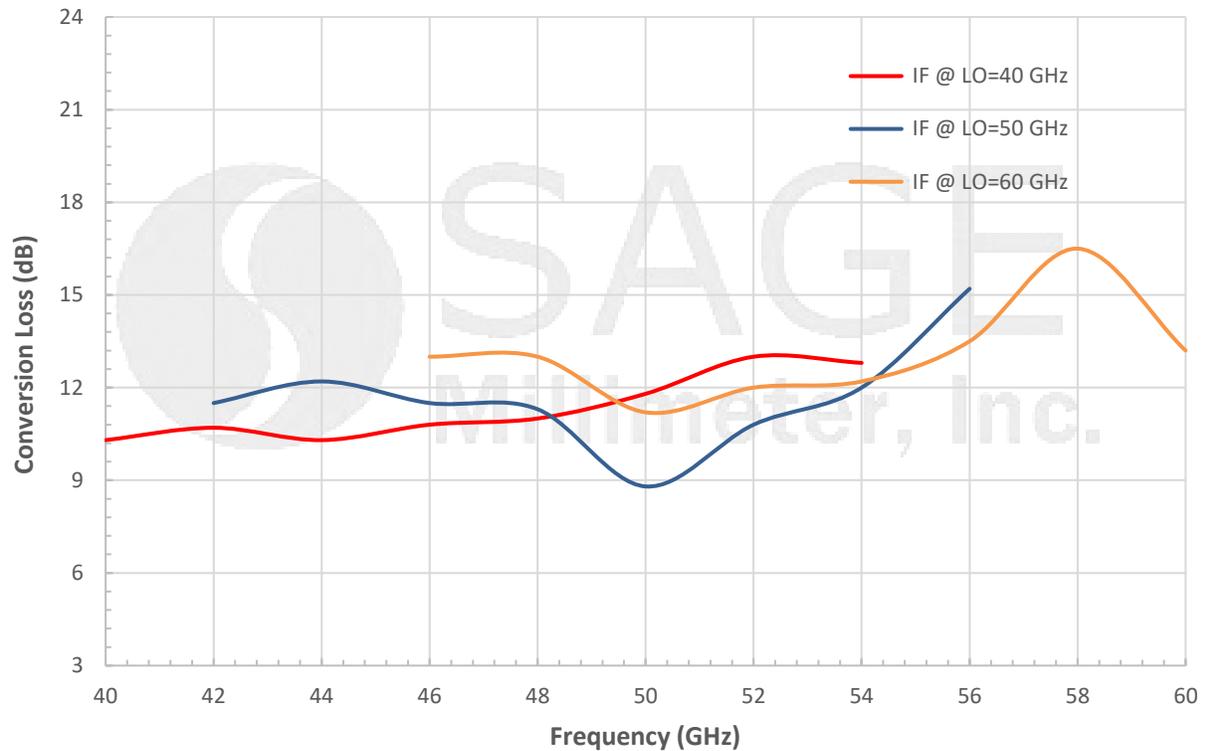




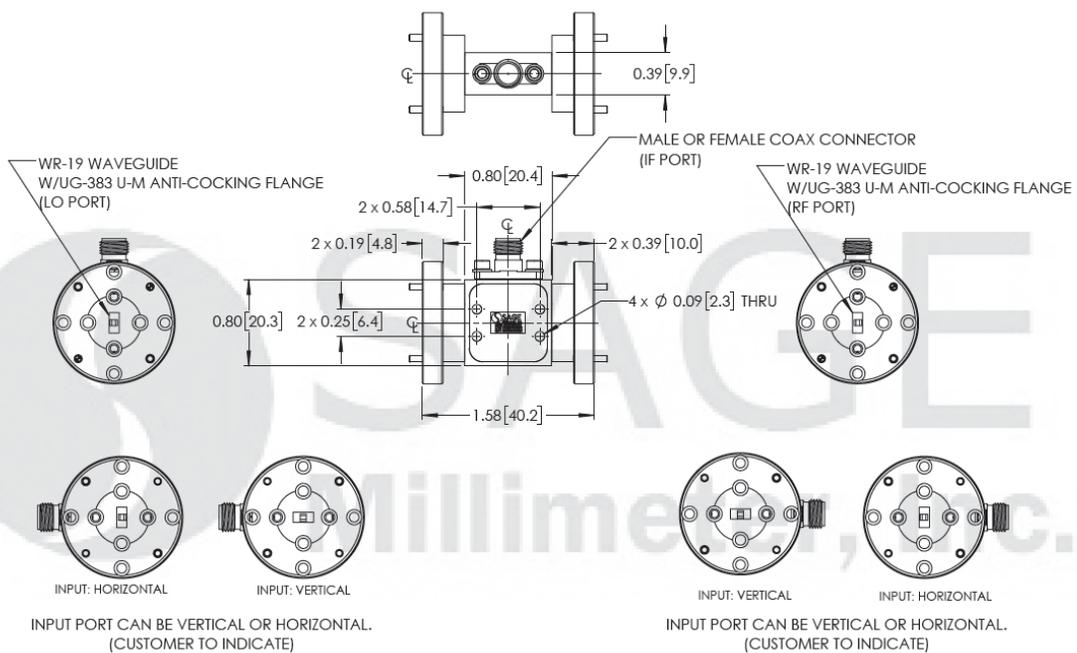
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Typical Conversion Loss vs. Frequency

LO Power: 14 dBm; RF Power: -20dBm



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.
- The I/Q mixer can be configured as an image rejection mixer or used as an I/Q up-converter, single sideband modulator and phase detector.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Exceeding absolute maximum ratings will damage the device.
- The mixer is a static sensitive device. Always follow ESD rules when working with the device.
- The IF ports are DC coupled. Use DC blocks if necessary. **Do not apply an external bias voltage to the IF port.**
- Proper torque, 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

