

W-Band Balanced Up-Converter

Description:

Model SFU-10-N1 is a W-Band balanced up-converter that utilizes high performance GaAs Schottky beam-lead diodes and a balanced circuit configuration to offer superior RF performance. The up-converter supports the full waveguide band operation for both LO and RF frequencies from 75 to 110 GHz with an extremely broad IF output from DC to 35 GHz. The up-converter 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 35 GHz

Applications:

- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	75 GHz		110 GHz
LO Frequency	75 GHz		110 GHz
IF Frequency	DC		35 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
IP-1 dB		-5 dBm	
Conversion Loss		9.5 dB	12 dB
RF to LO Isolation		30 dB	
Combined IF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operation Temperature	-40 °C		+85 °C

Mechanical Specifications:

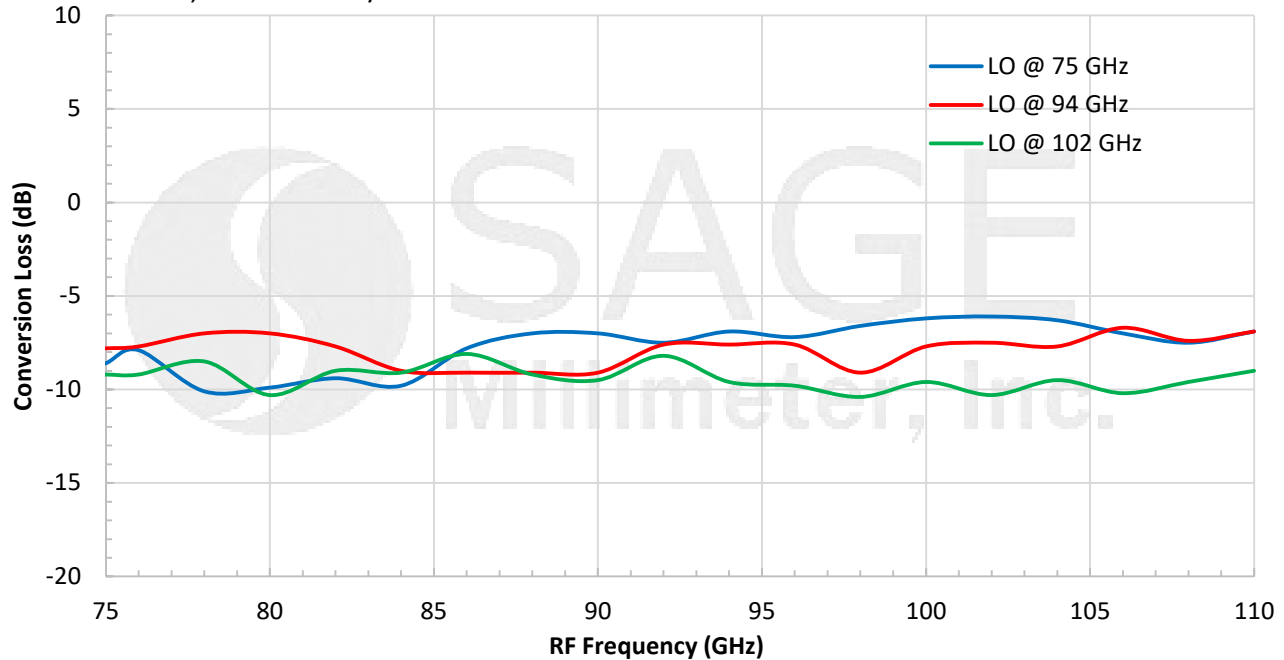
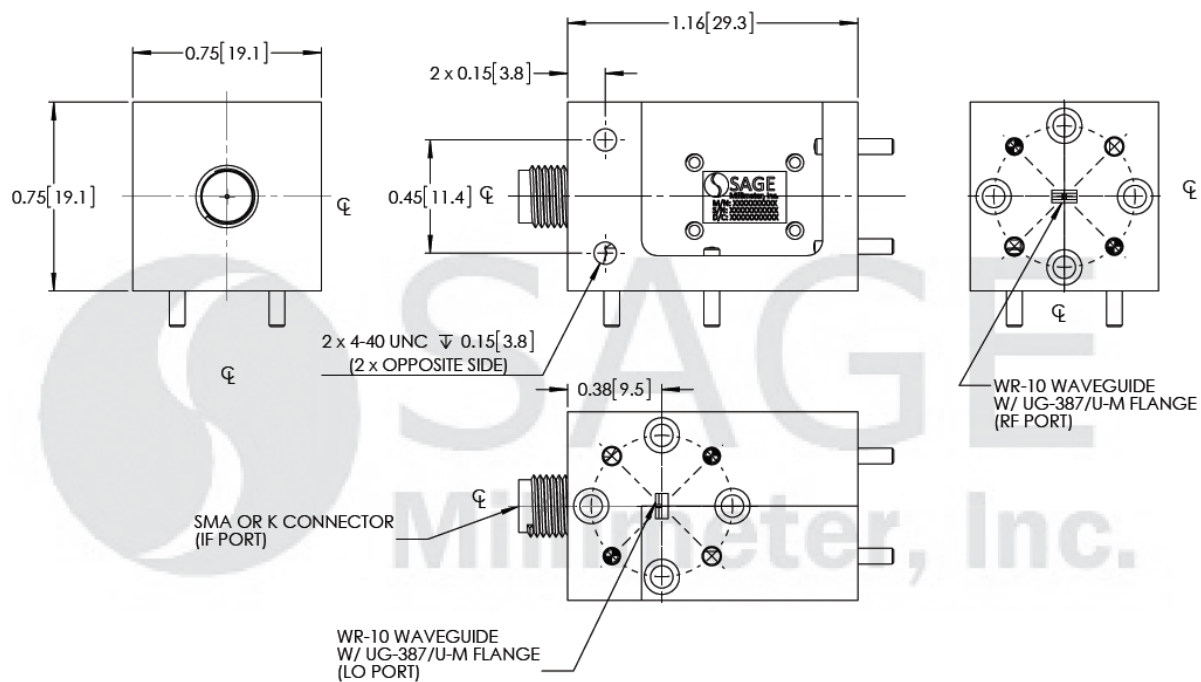
Item	Specification
RF Port	WR-10 Waveguide with UG-387/U-M Flange
LO Port	WR-10 Waveguide with UG-387/U-M Flange
IF Port	K(F)
Material	Aluminum
Finish	Gold Plated
Weight	0.8 Oz
Size	1.16" (L) X 0.75" (W) X 0.75" (H)
Outline	FB-NW



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Typical Conversion Loss vs. Frequency

LO = +13 dBm, IF = -20 dBm/1 GHz

**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 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.**

