



W-Band Balanced Mixer, 65 to 110 GHz

Description:

Model SFB-65310410-1010KF-N1 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 110 GHz RF, with an extremely broad IF output from DC to 37.5 GHz and a fixed LO at 102.5 GHz. The mixer offers a conversion loss of 9.5 dB typical and a high RF to LO port isolation of 30 dB. From 65 to 69 GHz RF, the in band 2RF-LO spurious rejection is 25 dB typical at 27.5 and 35.5 GHz IF.



Features:

- Broad Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency up to 37.5 GHz

Applications:

- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---------------------------|-----------|-----------|-----------|
| RF Frequency Range | 65.0 GHz | | 110.0 GHz |
| LO Frequency Range | | 102.5 GHz | |
| IF Frequency Range | DC | | 37.5 GHz |
| LO Pumping Power | +11.5 dBm | +13 dBm | +15 dBm |
| Conversion Loss | | 9.5 dB | 12 dB |
| RF Input P _{1dB} | | -3 dBm | |
| RF to LO Isolation | | 30 dB | |
| 2RF-LO Spurious Reject | | 25 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 |
| Size | 1.16" (L) X 0.75" (W) X 0.75" (H) |
| Outline | FB-NW |

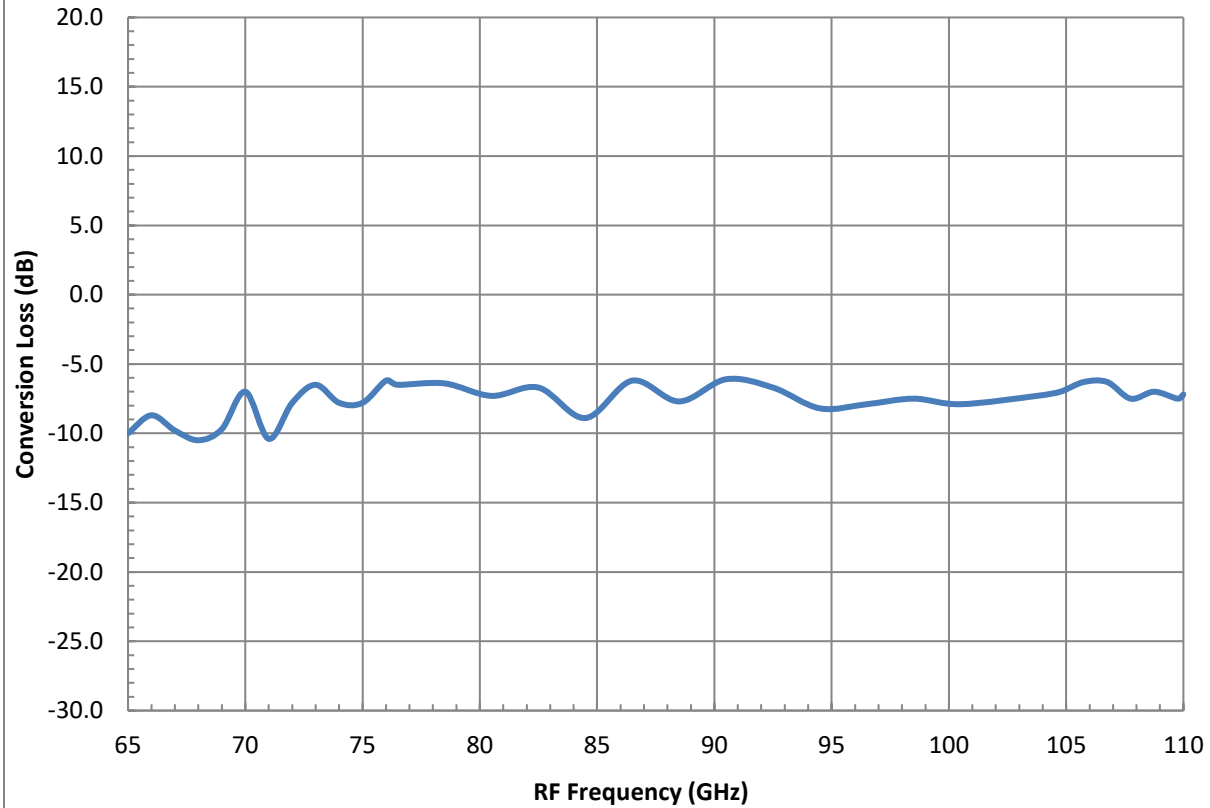




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Typical Conversion Loss vs. Frequency

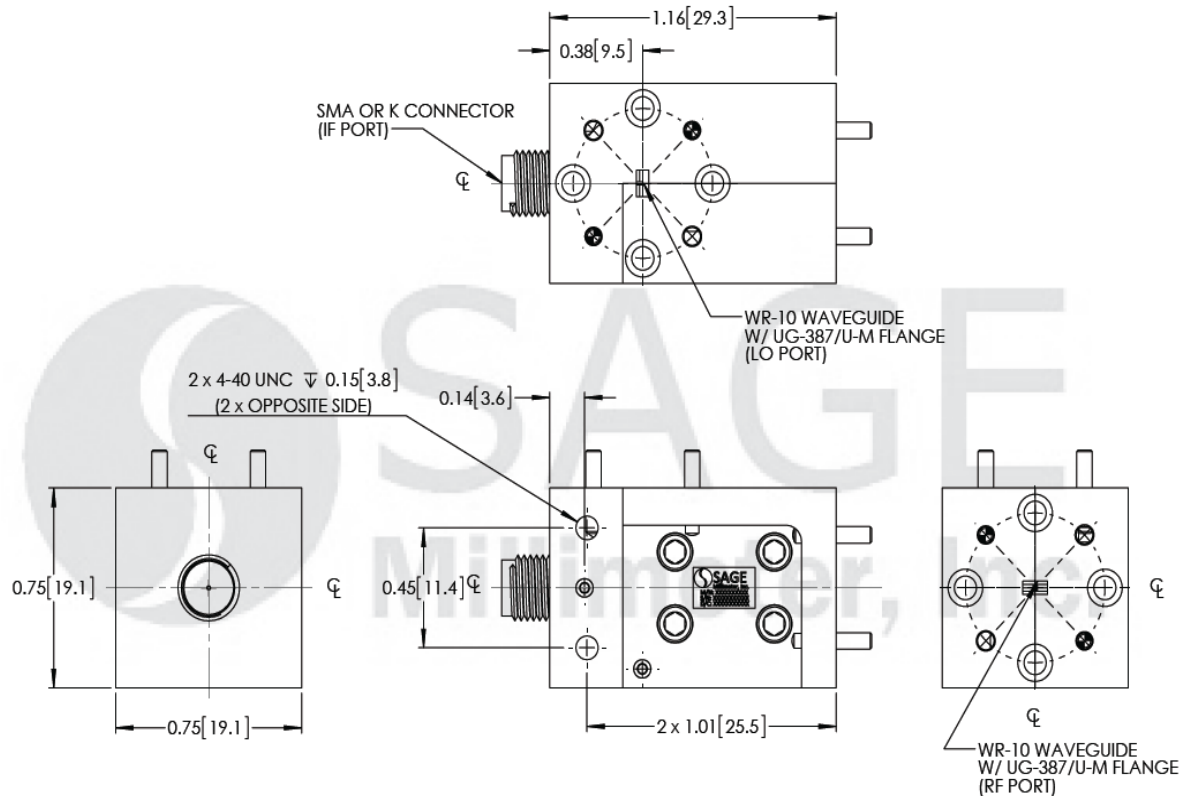
RF: -20 dBm; LO: 102.5 GHz/+11.5 dBm





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



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.**

