SFB-06-N1-WP

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 RF frequency from 110 to 170 GHz with an extremely broad IF output from DC to 40 GHz. The mixer offers a conversion loss of 20 dB typical and a high RF to LO port isolation of 30 dB. The typical input P_{-1dB} is around -3 dBm and RF to LO isolation is 30 dB nominally.

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		160 GHz
IF Frequency Range	DC		40 GHz
LO Pumping Power		+13 dBm	+15 dBm
Conversion Loss		20 dB	
RF Input P_{-1dB}		-3 dBm	
RF to LO Isolation		30 dB	
Combined RF and LO Power			+18 dBm
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

Note: The RF input P_{-1dB} is LO pumping power related. The value shown is at LO power +13 dBm. The higher the LO power, the higher the input P_{-1dB}.

Mechanical Specifications:

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

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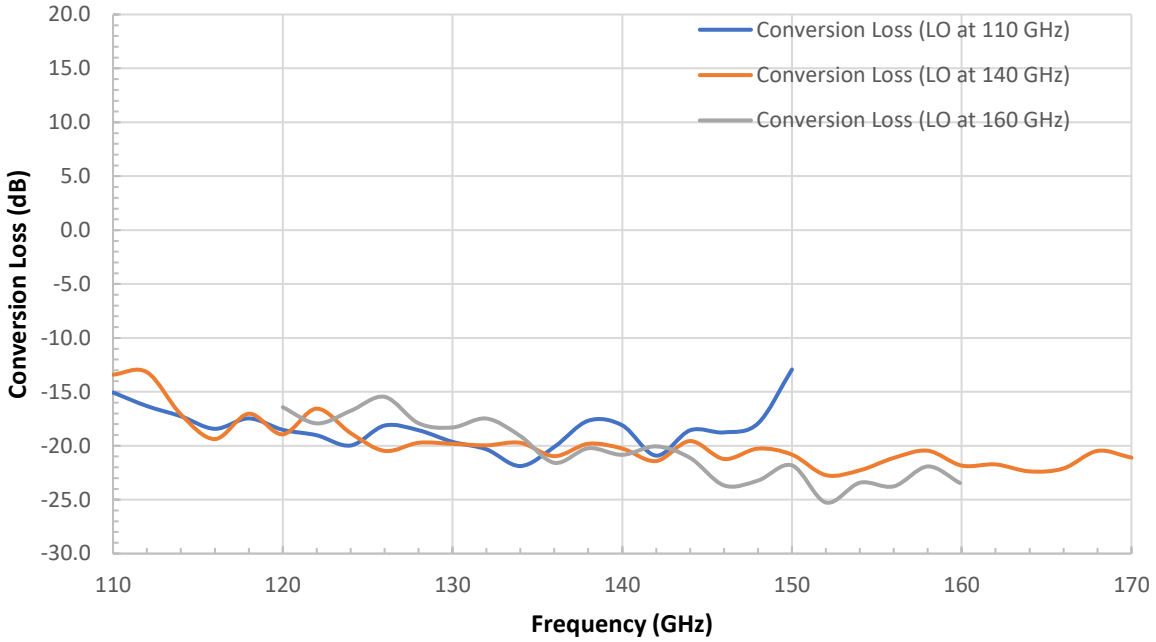
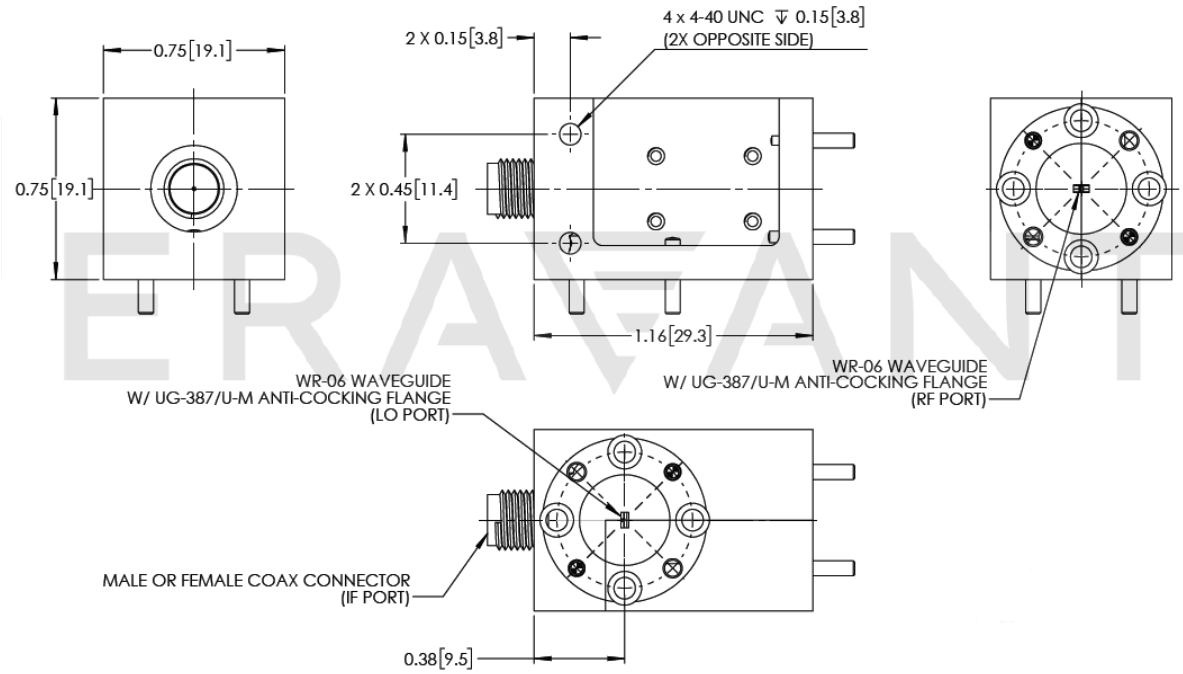
Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +14 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 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.
- Eravant 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. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**