

## V-Band Balanced Mixer, +10 dBm Input P<sub>1dB</sub>

### Description:

**Model SFB-15-N1-M** is a V Band balanced mixer that utilizes a high-performance GaAs pHEMT-based MMIC chip to offer superior RF performance. The mixer supports the full waveguide band operation from 50 to 75 GHz for both LO and RF ports. The mixer also supports an extremely broad bandwidth of IF from DC to 25 GHz. The mixer offers a typical conversion loss of 8 dB at center frequency of 62.5 GHz and a high input P<sub>1dB</sub> of +10 dBm when the LO port is pumped at +13 dBm. The mixer is ideal for high linearity system where high input P<sub>1dB</sub> is required.



### Features:

- Full Waveguide Band Coverage
- Low Conversion Loss
- DC to 25 GHz IF Bandwidth
- High Input P<sub>1dB</sub>

### Applications:

- IEEE 802.11.ad WiGig System
- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
LO Frequency	50 GHz		75 GHz
IF Frequency	DC		25 GHz
LO Pumping Power	+10 dBm	+13 dBm	+18 dBm
Conversion Loss		9 dB	13 dB
RF Input P <sub>1dB</sub>		+10 dBm	
Combined LO and RF Power			+20 dBm
LO to RF Isolation		30 dB	
LO to IF Isolation		20 dB	
RF to IF Isolation		20 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

### Mechanical Specifications:

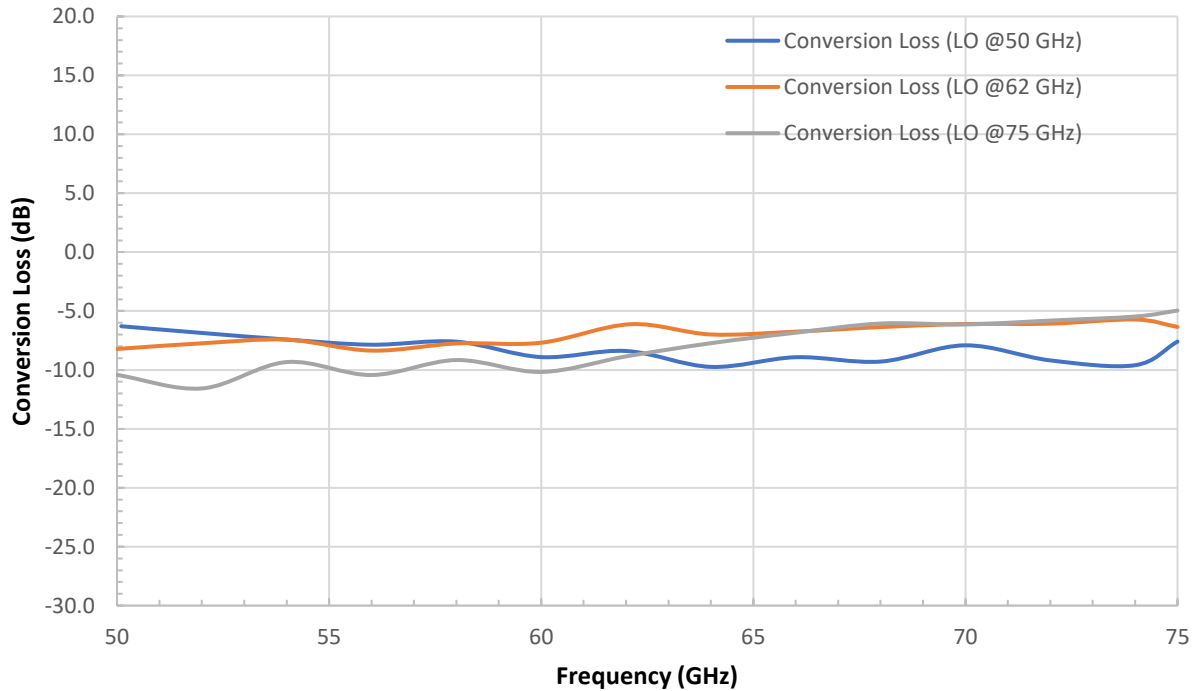
Item	Specification
RF Port	WR-15 Waveguide with UG 385/U Flange
LO Port	WR-15 Waveguide with UG 385/U Flange
IF Port	K (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.0 Oz
Outline	FB-NVM



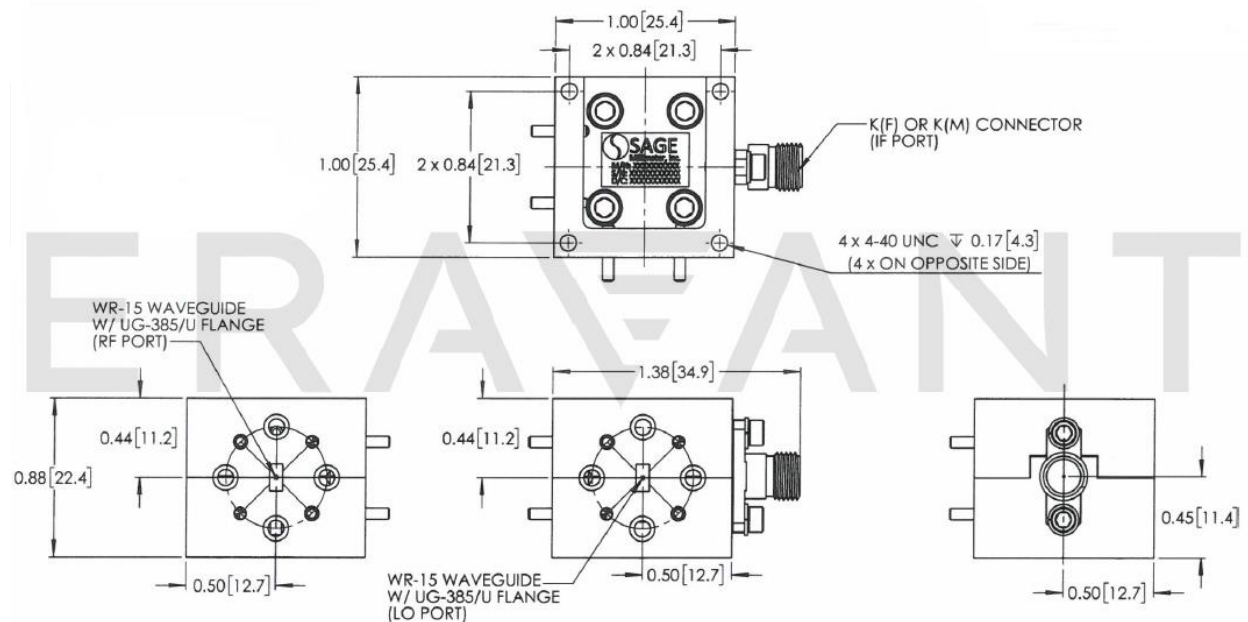
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### Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +13 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,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**

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