

## SFB-55375307-1519SF-E2

### V-Band Externally Biased Balanced Mixer

**SFB-55375307-1519SF-E2** is a V-Band, externally biased balanced mixer. The mixer supports a wide waveguide band operation with an RF frequency of 55 to 75 GHz, a LO frequency of 40 to 60 GHz, and an IF output from DC to 25 GHz. The mixer offers a typical conversion loss of 8 dB. The externally biased mixer is used when high LO power is not available. Externally biased mixer works with low local oscillator (LO) power of 0 to +5 dBm when external bias of +5 V<sub>DC</sub> is applied. As a trade-off, LO to RF isolation is lower compared to non-biased mixers.



### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	55 GHz		75 GHz
LO Frequency	40 GHz		60 GHz
IF Frequency	DC		25 GHz
LO Pumping Power		+3 dBm	
Conversion Loss		8 dB	
RF Input P <sub>1dB</sub>		-10 dBm	
LO to RF Isolation		20 dB	
Combined Damage RF to LO Power			+13 dBm
External Bias Voltage		+5 V <sub>DC</sub> / 1 mA	+5 V <sub>DC</sub> / 5 mA
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

### Mechanical Specifications:

Item	Specification
RF	WR-15 Waveguide with UG-385/U Anti-Cocking Flange
LO	WR-19 Waveguide with UG-383/U-M Anti-Cocking Flange
IF	SMA (F)
External Bias	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.8 Oz
Outline	FB-EVU-2-A

### ECCN

EAR99

### FEATURES

- Near Full Waveguide Band Coverage
- Low LO Power Requirement
- Low Conversion Loss
- High IF Frequency up to 25 GHz

### APPLICATIONS

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

### SUPPLEMENTAL DETAILS

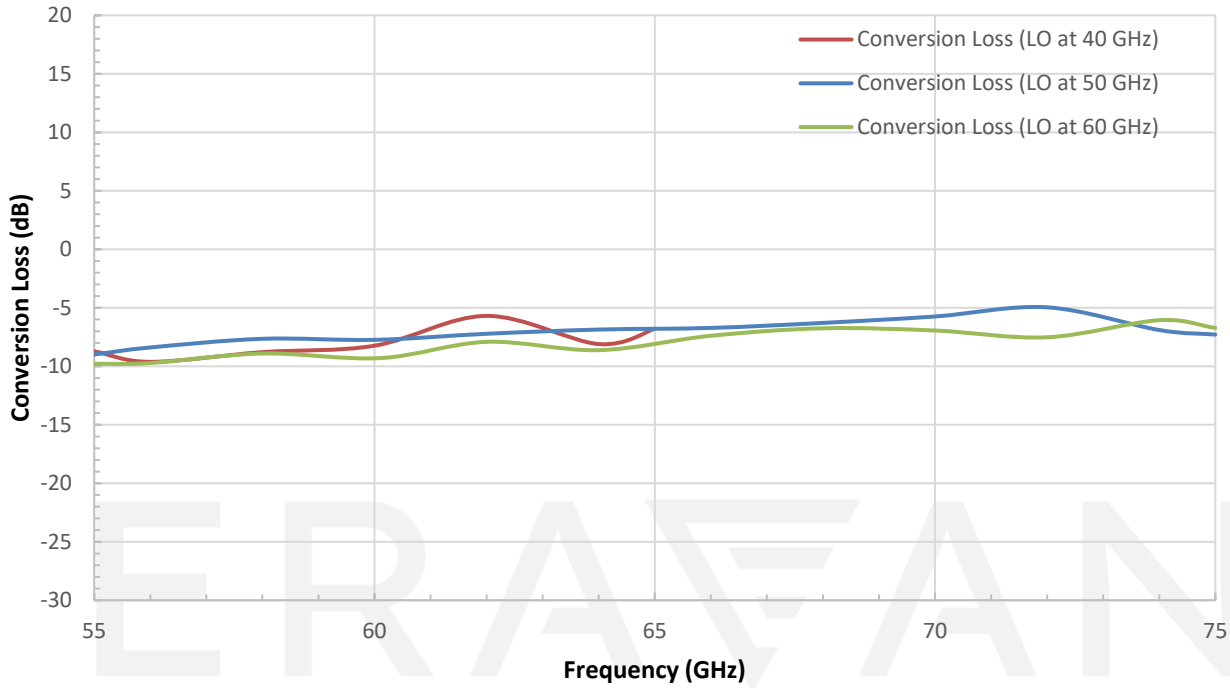
- LO to RF Isolation of Externally Biased Mixer



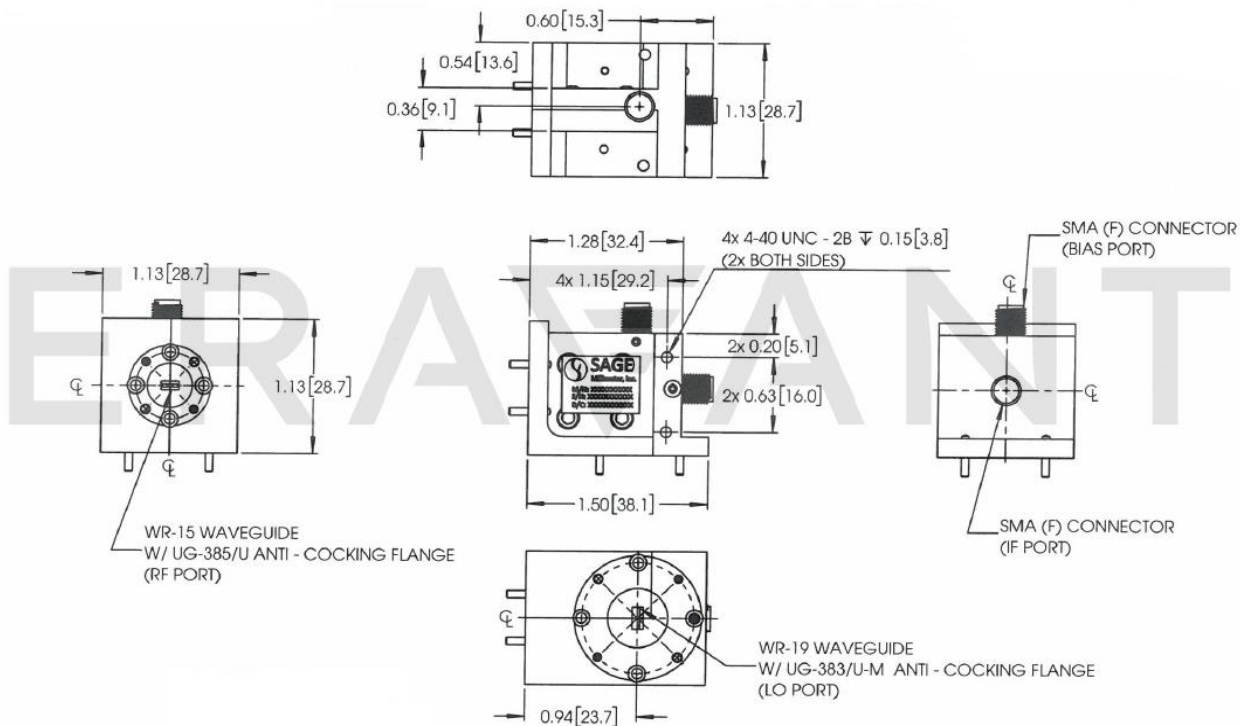
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### Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +3 dBm, Bias: +5 V<sub>DC</sub>/1mA



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



### NOTE:

- The test data provided is collected from a sample lot. Actual data may vary slightly from unit to unit. All testing is performed under +25 °C room 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.
- To protect mixer from accidental static discharge, overbias and/or reverse bias, it is highly recommended to use voltage regulator (**M/N: SOR-05-SM-R1**) with this mixer.
- When sufficient LO power is available, always use non-biased mixers to get optimum conversion loss and LO to RF isolation. Externally biased mixers should be used only if 13 dBm LO power is not available.
- Eravant reserves the right to change the information presented without notice.

### CAUTION:

- Exceeding absolute maximum ratings shown will damage the device.
- **The mixer is a small signal device. The typical RF input level should be at least 5 dB lower than input P<sub>-1dB</sub>.**
- The device is static sensitive. Always follow ESD rules when working with the device.
- The IF port of the externally biased mixer is DC coupled. Due to the external bias, it has a small DC offset voltage (+0.7 VDC), which could upset the connecting device performance or even damage the device. 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 may damage or destroy the unit.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque, 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm), should be applied. Eravant torque wrench model [SCH-08008-S1](#) is highly recommended.

### Appendix: The Outline of Externally Biased Mixer Voltage Regulator (SOR-05-SM-R1).

*Unless otherwise specified, all dimensions are in inches [millimeters]*

