SFB-27340311-2828SF-N1-M

Rev 1.1

Ka-Band Balanced Mixer, High Port Isolation

Description:

Model SFB-27340311-2828SF-N1-M is a Ka Band balanced mixer that utilizes high performance pHEMT based GaAs MMIC to offer superior RF performance. The mixer supports the full waveguide band operation for both LO and RF frequencies from 26.5 to 40 GHz with an IF output from DC to 13.0 GHz. The mixer offers a conversion loss of 11 dB typical, high LO to RF port isolation of 50 dB, LO to IF port isolation of 30 dB and an RF to IF port isolation of 30 dB. The RF and LO ports are WR-28 Uni-Guide™ waveguides, and IF port has SMA Female connector.

Features:

- Full Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency

Applications:

- 5G Systems
- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	26.5 GHz		40 GHz
LO Frequency	26.5 GHz		40 GHz
IF Frequency	DC		13 GHz
LO Pumping Power		+13 dBm	+18 dBm
Conversion Loss		11 dB	
RF Input P_{-1dB}		0 dBm	
LO to RF Isolation		50 dB	
LO to IF Isolation		30 dB	
RF to IF Isolation		30 dB	
Combined LO and RF Power			+27 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-28 Uni-Guide™ Waveguide with UG-599/U Flange
LO Port	WR-28 Uni-Guide™ Waveguide with UG-599/U Flange
IF Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.8 Oz
Outline	FB-NAM-1

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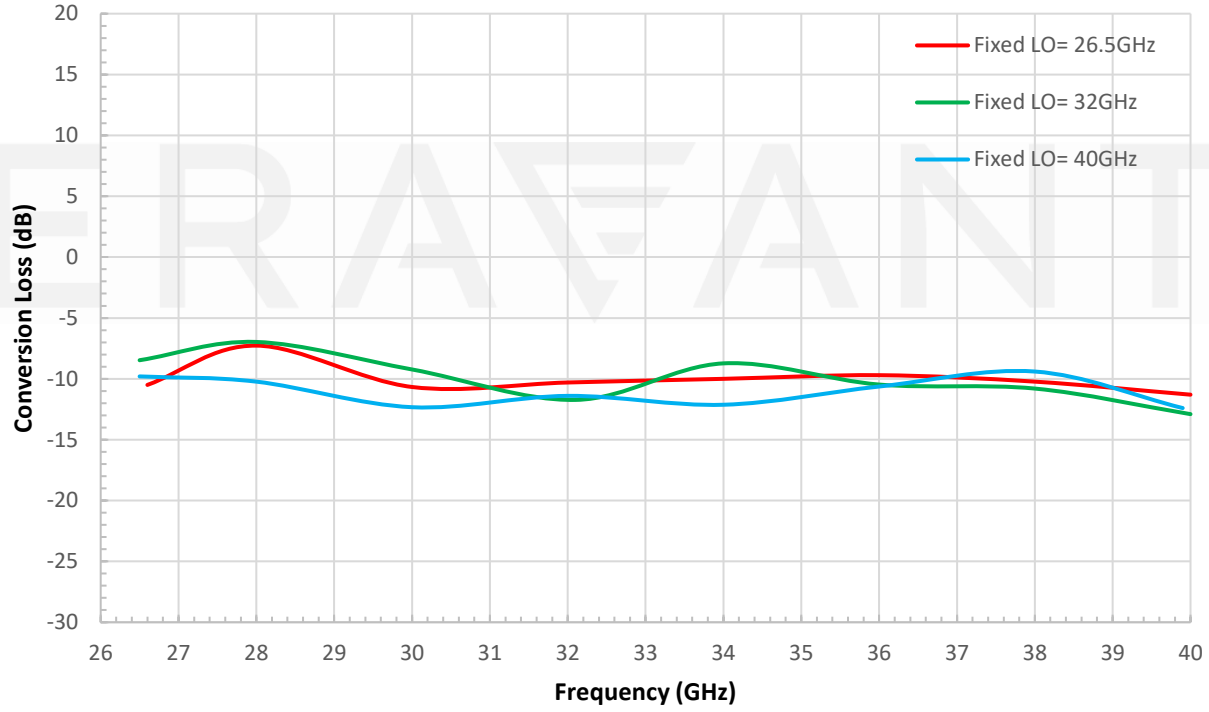
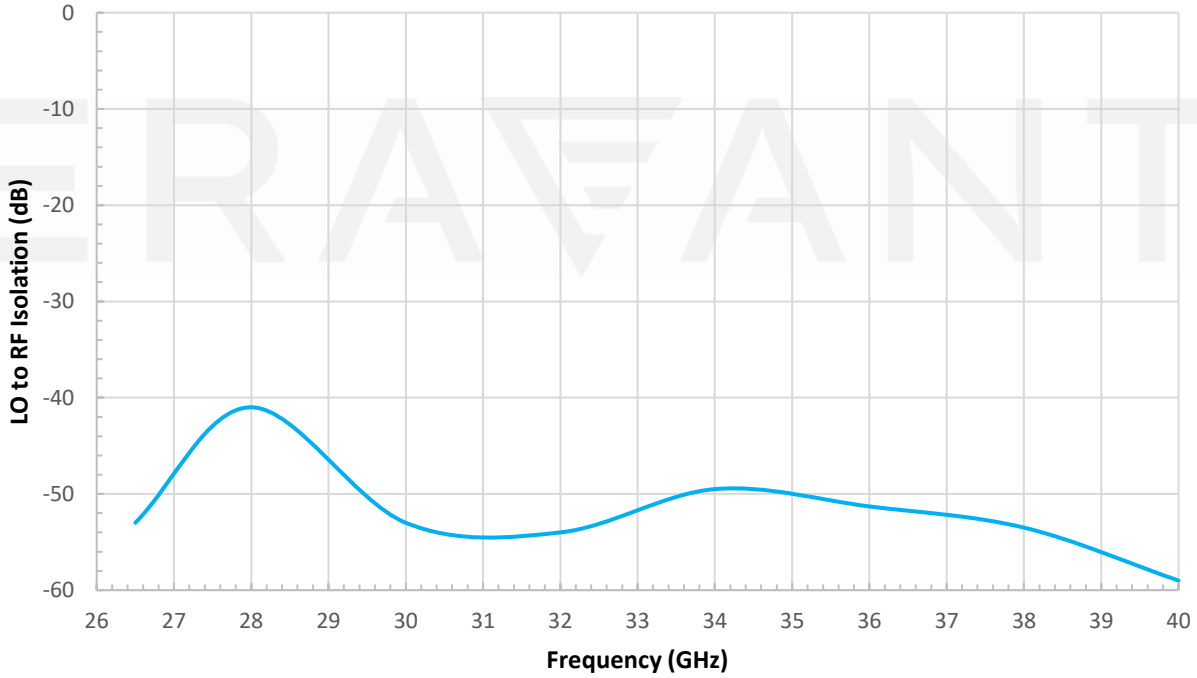
Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +13 dBm



Typical LO to RF Isolation vs. Frequency



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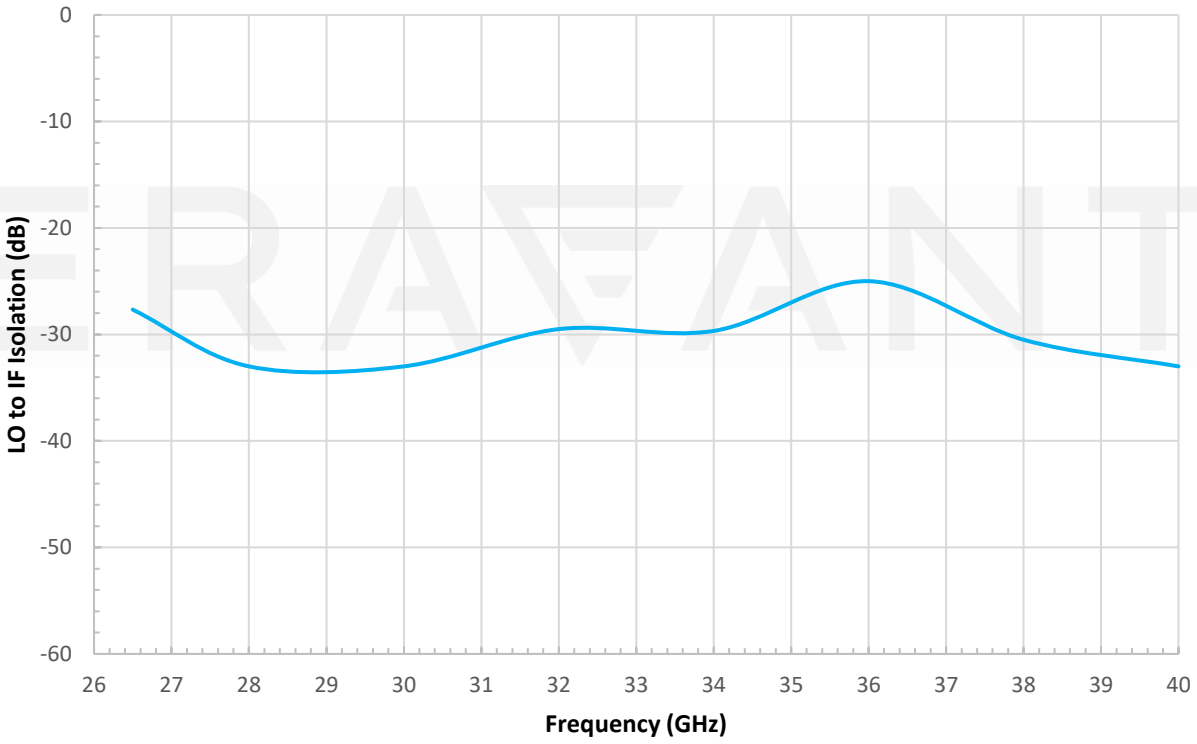
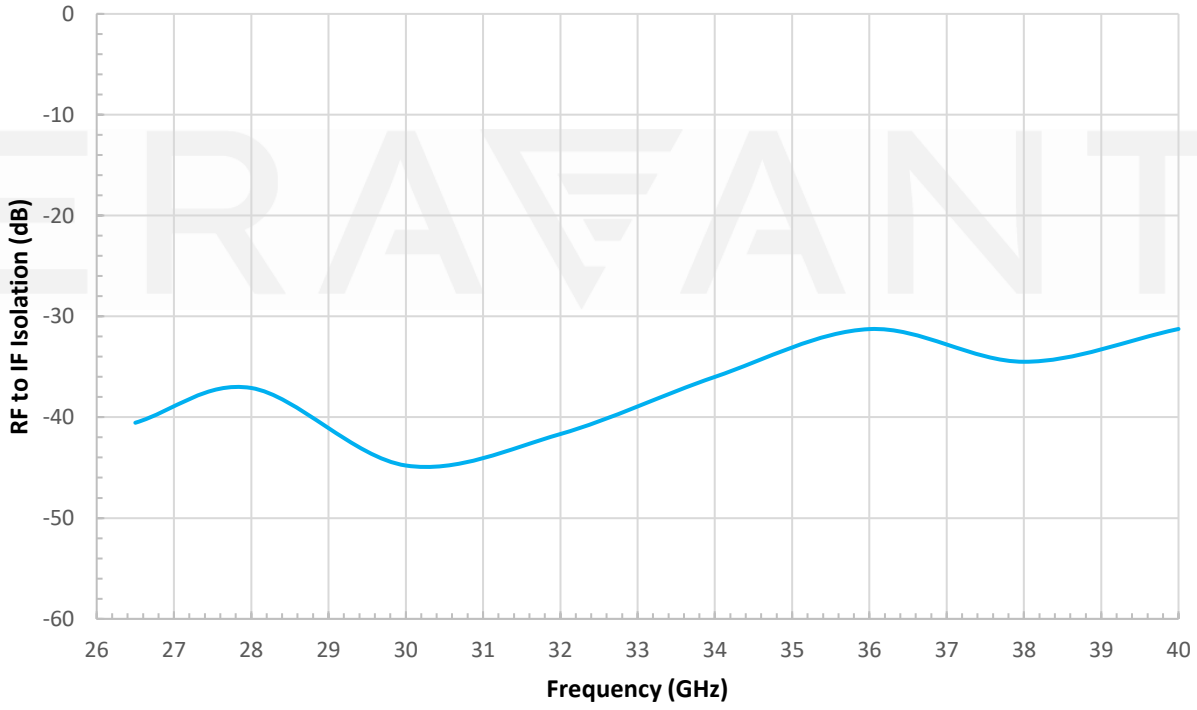
Typical LO to IF Isolation vs. Frequency



Typical RF to IF Isolation vs. Frequency



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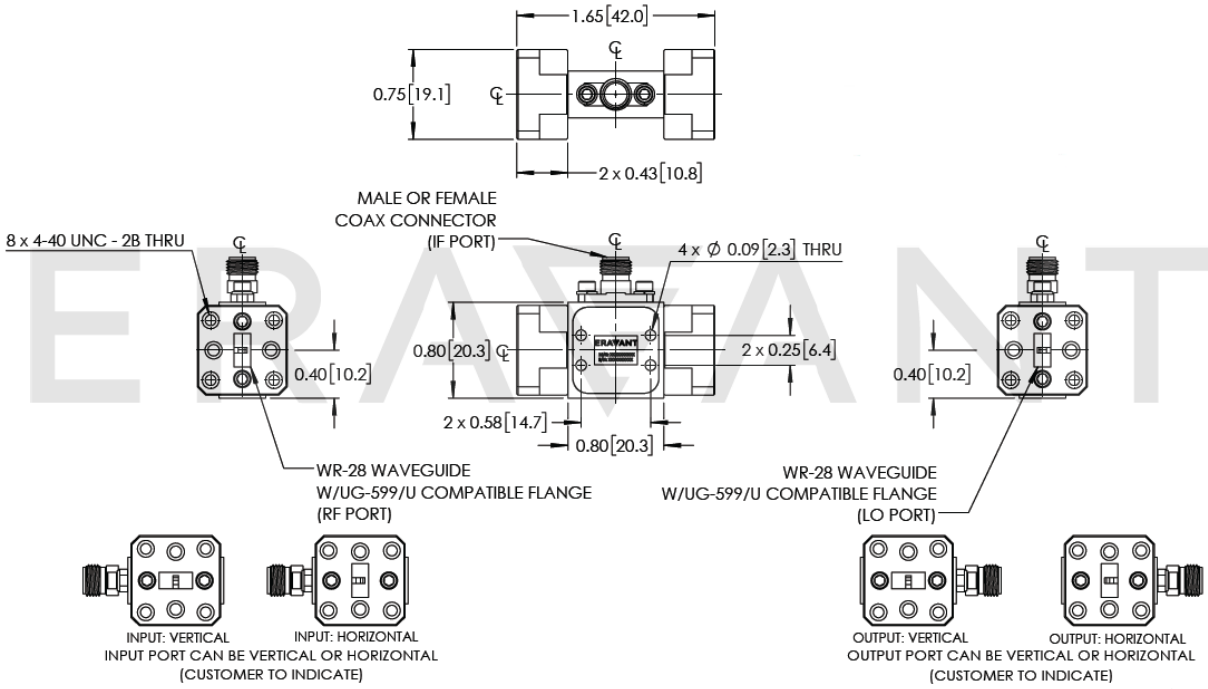
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit.
- 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.
- The mixer employs Eravant's trademarked and patent pending technology, UniGuide™, as its waveguide interfaces.
- 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. It will damage the mixer.**
- 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.**