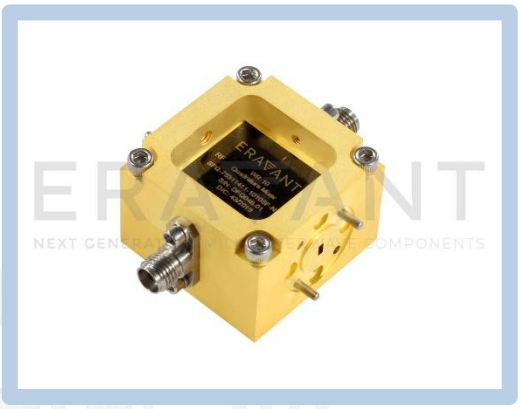
SFQ-50375313-1515SF-N1-M-ET-2

Rev 1.0

V-Band Quadrature Mixer or Phase Detector, 50 to 75 GHz, Extended Temperature

Description:

Model SFQ-50375313-1515SF-N1-M-ET-2 is an V Band quadrature mixer that covers the frequency range of 50 to 75 GHz. The typical conversion loss of the quadrature mixer is 13 dB with an LO driving power of +16 dBm. Since the IF port of the quadrature mixer is DC coupled, the mixer can be used as a phase detector. In addition, the mixer can be readily configured into an image rejection mixer or single sideband modulator by adding an IF quadrature coupler. This model is tested to operate in the extended temperature range of -40° C to +85° C.



Features:

- Compact Package
- Low Conversion Loss
- High Port Isolations
- IF Port DC Coupled for Phase Detection

Applications:

- IEEE 802.11.ad WiGig Systems
- Phase Detection
- Speed and Ranging Radar Systems
- Communication Systems

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
LO Frequency Range	50 GHz		75 GHz
RF Input P_{-1dB}		0 dBm	
IF Frequency Range	DC		20 GHz
LO Pumping Power		+16 dBm	+20 dBm
Conversion Loss		13 dB	
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.0 dB	
LO to RF Port Isolation	20 dB	30 dB	
LO to IF Port Isolation		35 dB	
RF to IF Port Isolation		30 dB	
Damage Power, Any Port			+ 25 dBm
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

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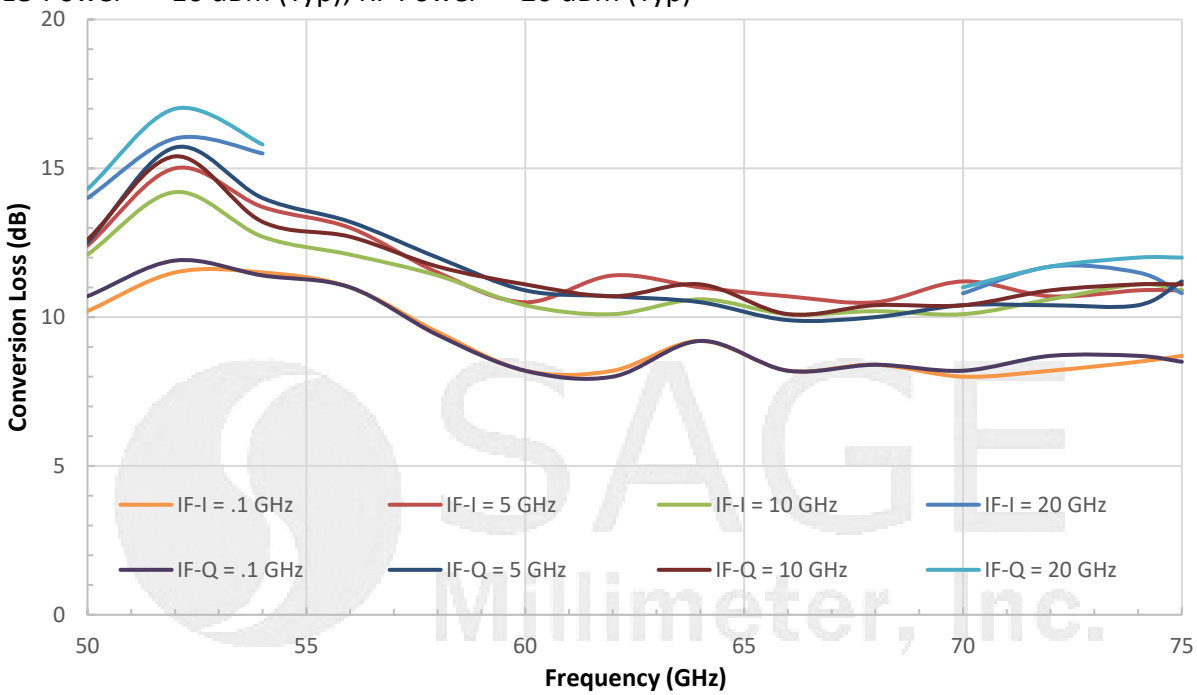
Mechanical Specifications:

Item	Specification
RF Port	WR-15 Waveguide with UG-385/U Anti-Cocking Flange
IF Port	WR-15 Waveguide with UG-385/U Anti-Cocking Flange
IF-I Port	SMA (F)
IF-Q Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.8 Oz
Size	1.25” (L) X 1.25” (W) X 0.88” (H)
Outline	FQ-V1M-A

Typical Conversion Loss vs. Frequency

LO Power = +16 dBm (Typ); RF Power = -20 dBm (Typ)



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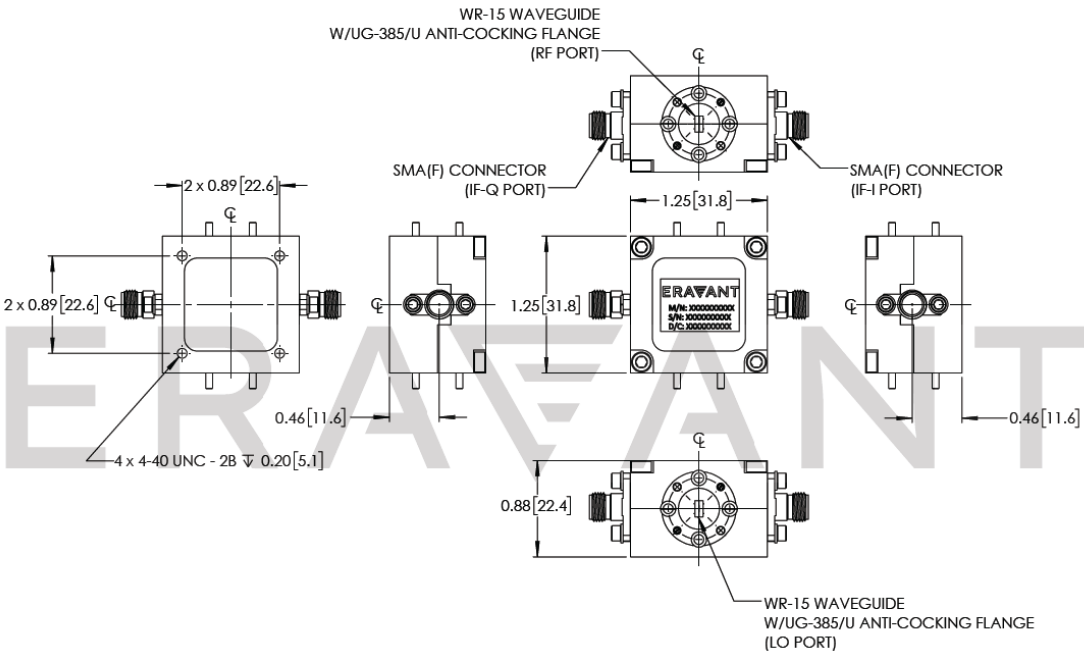
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit, slightly.
- Presented data was performed at +25 ˚C case temperature.
- The I/Q mixer can be configured as an image rejection mixer or used as an I/Q up-converter, single sideband modulator and phase detector.
- Eravant reserves the right to change the information presented without notice.

Caution:

- Exceeding absolute maximum ratings will damage the device.
- The mixer is a static sensitive device. Always follow ESD rules when working with the device.
- The IF ports are DC coupled. Use DC blocks if necessary. **Do not apply an external bias voltage to the IF port.**
- Proper torque, 8.0 ± 0.4 inch-pounds (0.90 ± 0.02 Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.

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