SFQ-11411415-0808SF-N1

Advanced

F-Band Quadrature Mixer or Phase Detector, 110 to 112 GHz

Description:

Model SFQ-11411415-0808SF-N1 is a F Band quadrature mixer that covers the frequency range of 110 to 112 GHz. The mixer requires a nominal LO power of +16 dBm. The typical LO to RF port isolation of the mixer is 30 dB with a conversion loss of 15 dB. The low LO power requirement offers a cost-effective option for system integrations and test applications at F Band frequencies. 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 reject mixer or single side-band modulator by adding an IF quadrature coupler.

Features:

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

Applications:

- Phase Detection
- Speed and Ranging Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency	110 GHz		112 GHz
RF Input P_{1dB}		0 dBm	
LO Frequency	110 GHz		112 GHz
LO Pumping Power		+16 dBm	
IF Frequency	DC		1.0 GHz
Conversion Loss		15 dB	
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.0 dB	
LO to RF Port Isolation	20 dB	30 dB	
Combined RF & LO Power			+23 dBm
Specification Temperature		+25 °C	
Operating Temperature	0 °C		+50 °C

Mechanical Specifications:

Item	Specification
RF, LO Ports	WR-08 Waveguides with UG-387/U-M Flange
IF-I, IF-Q Ports	SMA(F), SMA(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.8 Oz
Insertion Length	1.15”[29.2 mm]
Outline	FQ-W1

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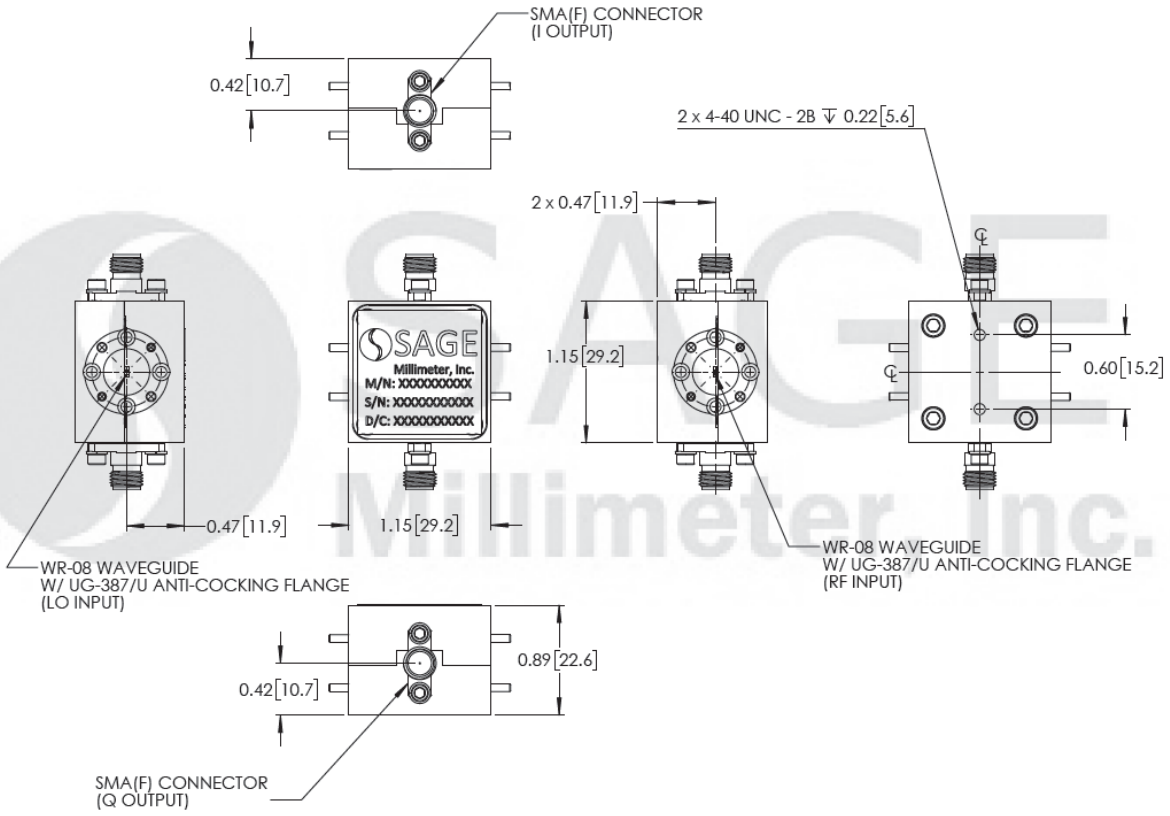
Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



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.
- 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.
- SAGE Millimeter, Inc. 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 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **SAGE Millimeter 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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