SFQ-30340313-KFKFSF-N1-M

Rev 1.0

Ka-Band Quadrature Mixer or Phase Detector, 30 to 40 GHz

Description:

Model SFQ-30340313-KFKFSF-N1-M is a Ka Band quadrature mixer that covers the frequency range of 30 to 40 GHz. The typical conversion loss of the quadrature mixer is 13 dB with an LO driving power of +17 dBm. The typical LO to RF port isolation is 30 dB. 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.

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	30 GHz		40 GHz
RF Input P1dB		+4 dBm	
LO Frequency	30 GHz		40 GHz
LO Pumping Power	+16 dBm	+17 dBm	+20 dBm
IF Frequency	DC		5 GHz
Conversion Loss		13 dB	15 dB
I/Q Phase Unbalance		±15°	
I/Q Amplitude Unbalance		±1.0 dB	
LO to RF Port Isolation	20 dB	30 dB	
RF to IF Port Isolation		20 dB	
LO to IF Port Isolation		15 dB	
IP3dB		+13 dBm	
Combined Damage RF & LO Power			+20 dBm

Mechanical Specifications:

Item	Specification
RF Port	K(F)
LO Port	K(F)
IF-I Port	SMA(F)
IF-Q Port	SMA(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.68 Oz
Size	0.8” (L) 0.8” (W) X 0.39” (H)
Outline	UH-235-4C

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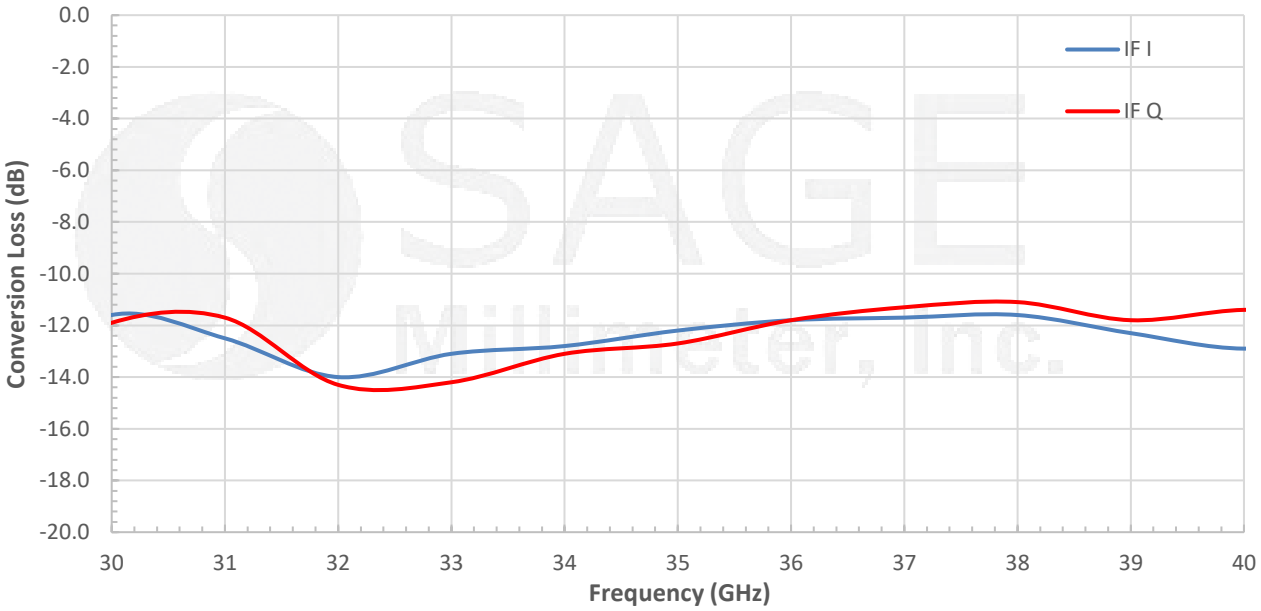
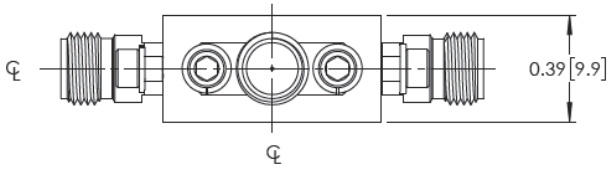
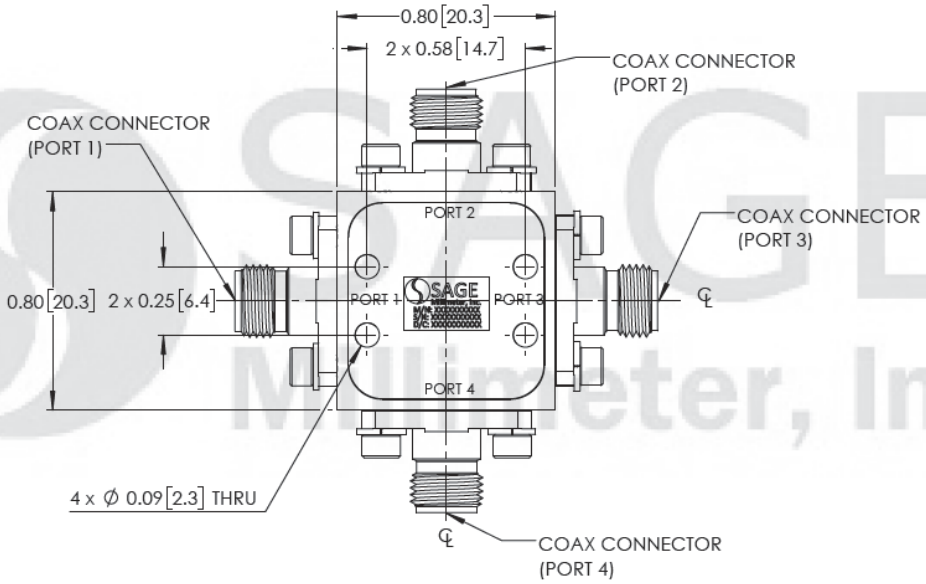
Typical Convertion Loss vs. Frequency

LO Power: 17 dBm; RF Power: -20 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.
- 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.**

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