SFQ-10410415-1010SF-E1

Rev. 1.0

W-Band Quadrature Mixer with External Bias, 98 to 102 GHz

Description:

Model SFQ-10410415-1010SF-E1 is an externally biased W Band quadrature mixer that covers the frequency range of 98 to 102 GHz. The mixer requires a nominal external DC bias of +5.0 V_{DC} with a current draw of 4 mA and an LO power of +4.5 dBm. The typical LO to RF port isolation of the mixer is 30 dB with a conversion loss of 18 dB. The low LO power requirement offers a cost efficient option for system integrations and test applications at W 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:

- Low LO Power Requirement
- Broadband Operation
- Good Gain Flatness

Applications:

- Phase detector
- Directional radar systems
- Communication systems

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
RF Frequency Range	98 GHz		102 GHz
LO Frequency Range	98 GHz		102 GHz
IF Frequency Range	DC		1 GHz
LO Pumping Power	+4 dBm	+4.5 dBm	+6 dBm
External Bias		+5.0 V_{DC} /4 mA	+5.5 V_{DC}/6 mA
Conversion Loss		18 dB	20 dB
I/Q Phase Unbalance		±15˚	
LO to RF Port Isolation		30 dB	
Combined RF & LO Power			+9 dBm

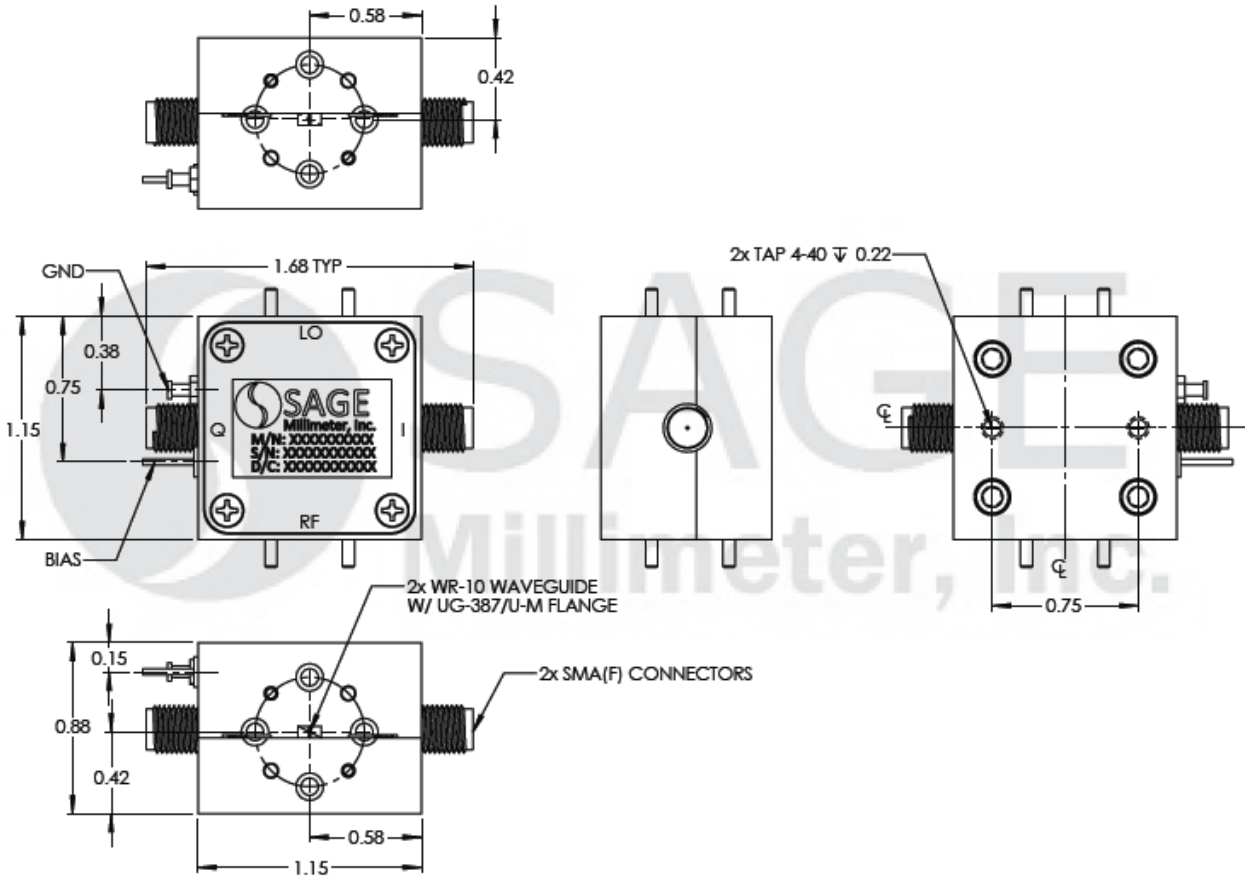
Mechanical Specifications:

Item	Specification
RF	WR-10 Waveguide with UG-387/U-M Flange
LO	WR-10 Waveguide with UG-387/U-M Flange
IF-I, IF-Q	SMA(F), SMA(F)
DC Bias	Solder Pins
Case Material	Aluminum
Finish	Gold Plated
Weight	1.8 Oz
Outline	FQ-WE

www.sage-millimeter.com | Phone:+86-21- 51870044| Fax: 6415 8292| Email: info@molexy.com
15Floor,Suit B,Technology Building,Yishan Road 705,XuHui District,Shanghai,200233,China

W-Band Quadrature Mixer with External Bias, 98 to 102 GHz

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



Note:

- 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 degrade performance and/or damage the device.

www.sage-millimeter.com | Phone:+86-21- 51870044| Fax: 6415 8292| Email: info@molexy.com
15Floor,Suit B,Technology Building,Yishan Road 705,XuHui District,Shanghai,200233,China