



V-Band Subharmonic Single Sideband Modulator, 55 to 71 GHz

Description:

Model SFN-55371318-15KFSF-N1-M is a V Band subharmonic single sideband modulator that converts the input RF frequency of 27.5 to 35.5 GHz, which is half of the output RF frequency of 55 to 71 GHz. The typical conversion loss of the modulator is 18 dB with the quadrature IF driving signals of $\pm 10 V_{p-p}/5$ mA for both I and Q ports. The typical input/output isolation is 30 dB and the image rejection is 20 dB, respectively. In addition, the modulator can be readily used as an I/Q mixer or image rejection mixer by using the RF input port as LO port and/or adding the IF hybrid coupler.



Features:

- Compact Package
- Subharmonic Operation
- 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
Input RF Frequency Range	27.5 GHz		35.5 GHz
Output RF Frequency Range	55 GHz		71 GHz
IF Frequency Range	DC		3.0 GHz
IF I/Q Port Signal Amplitude		$\pm 10 V_{p-p}/5$ mA	$\pm 15 V_{p-p}/10$ mA
IF I/Q Port Signal Phase		$\pm 90^\circ$	
Conversion Loss		18 dB	
RF In to RF Out Isolation		30 dB	
Image Rejection		20 dB	
RF Damage Power			+16 dBm
Specification Temperature		+25 °	
Operation Temperature	0 °		+85 °

Mechanical Specifications:

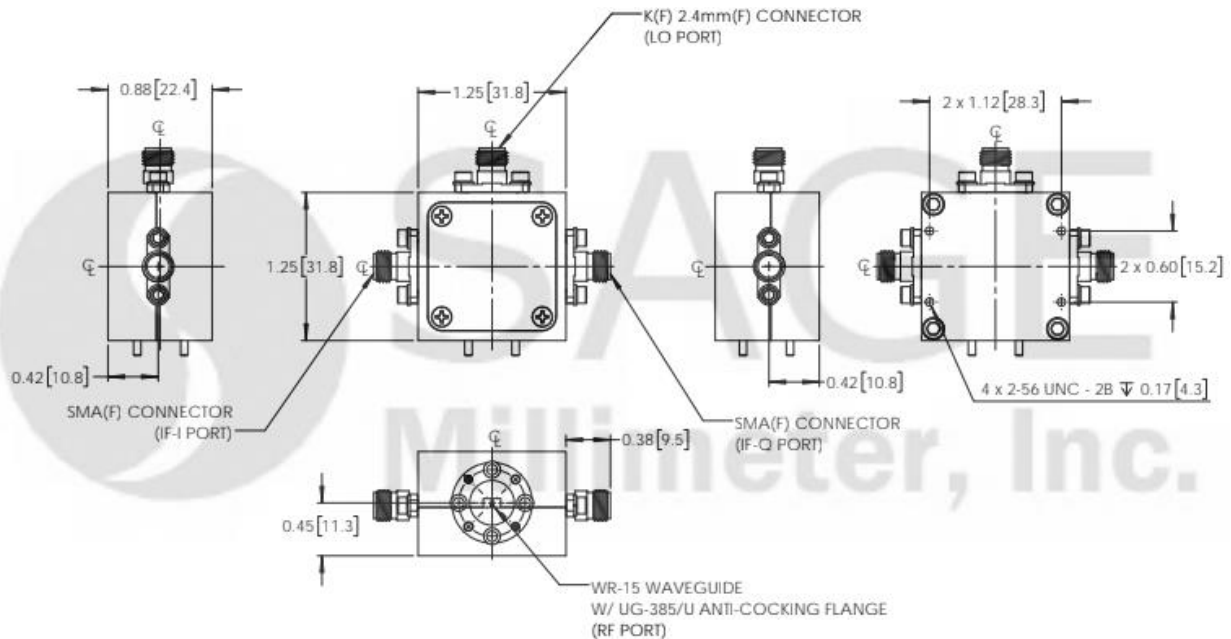
Item	Specification
RF IN	K(F)
RF OUT	WR-15 Waveguide with UG-385/U Flange
IF-I	SMA(F)
IF-Q	SMA(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	0.68 Oz
Outline	UH-235-4C





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



Note:

- The single side band modulator can be configured as an image rejection mixer, I/Q mixer or used as an I/Q up-converter 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.**

