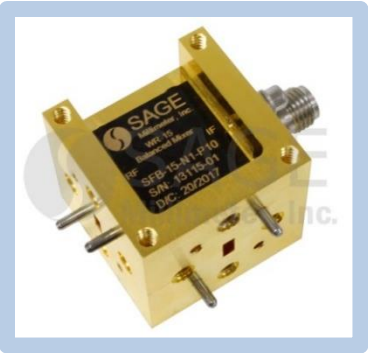
SFF-50375313-1515KF-N1-M

Rev. 1.0

V-Band Double Sideband Modulator, +10 dBm Input P_{1dB}

Description:



Model SFF-50375313-1515KF-N1-M is a V Band balanced double sideband (DSB) modulator that utilizes a high-performance GaAs pHEMT-based MMIC chip to offer superior RF performance. The modulator supports the full waveguide band operation from 50 to 75 GHz. The modulator also supports an extremely broad bandwidth of IF from DC to 25 GHz. The mixer offers a typical conversion loss of 13 dB across the full waveguide bandwidth and a high input P_{1dB} of +10 dBm when the IF port is pumped at ± 2.5 V_{P-P} modulation level. The modulator is ideal candidate for high input P_{-1dB} applications.

Features:

- Full Waveguide Band Coverage
- Low Conversion Loss
- DC to 25 GHz IF Bandwidth
- High Input P_{1dB}

Applications:

- IEEE 802.11.ad WiGig System
- Radar Systems
- Communication Systems
- Test Equipment

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Input RF Frequency Range	50 GHz		75 GHz
Output RF Frequency Range	50 GHz		75 GHz
IF Frequency Range	DC		25 GHz
IF I/Q Port Signal Amplitude		±2.5 V_{p-p}/2 mA	±5 V_{p-p}/5 mA
Input P_{1dB}		+10 dBm	
Conversion Loss		13 dB	
RF In to RF Out Rejection		30 dB	
RF Damage Level			+18 dBm
Specification Temperature		+25 ˚C	
Case Temperature	-40 ˚C		+85 ˚C

Mechanical Specifications:

Item	Specification
Input RF Port	WR-15 Waveguide with UG 385/U Flange
Output RF Port	WR-15 Waveguide with UG 385/U Flange
IF Port	K(F)
Case Material	Aluminum
Finish	Gold Plated
Weight	1.0 Oz
Size	1.38” (L) X 1.00” (W) X 0.88” (H)
Outline	FB-NVM

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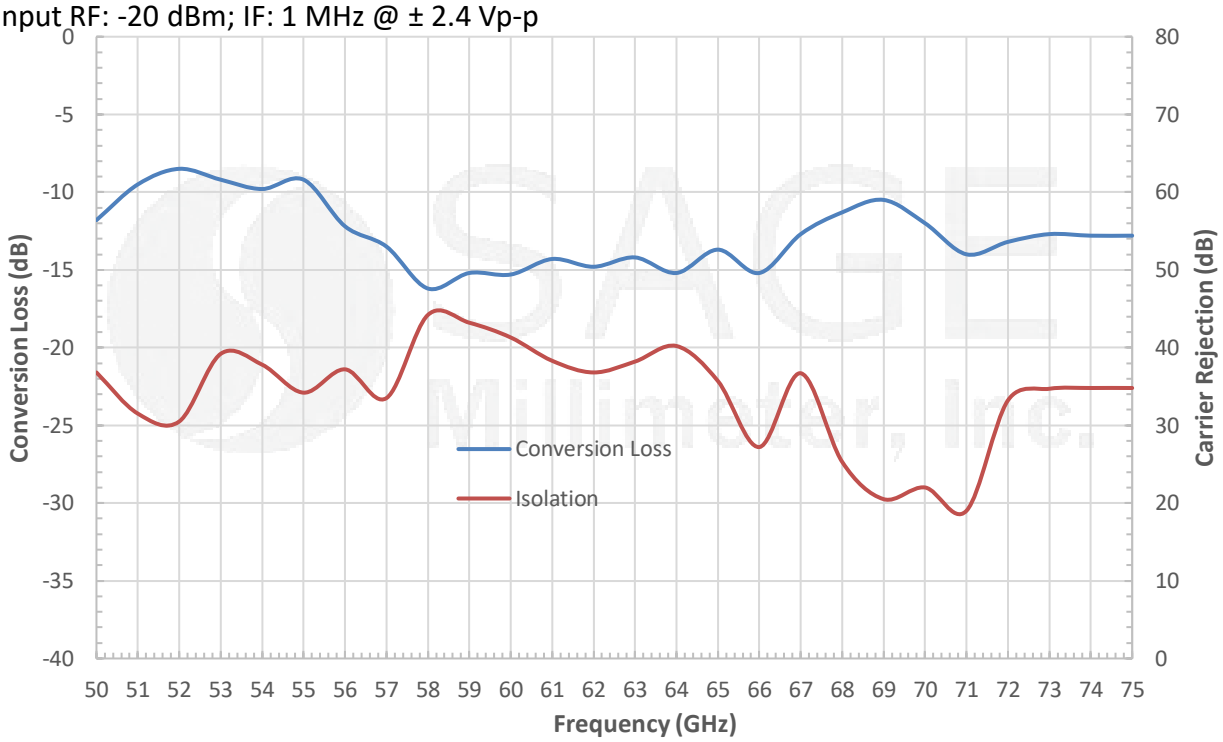
V-Band Double Sideband Modulator, +10 dBm Input P_{1dB}

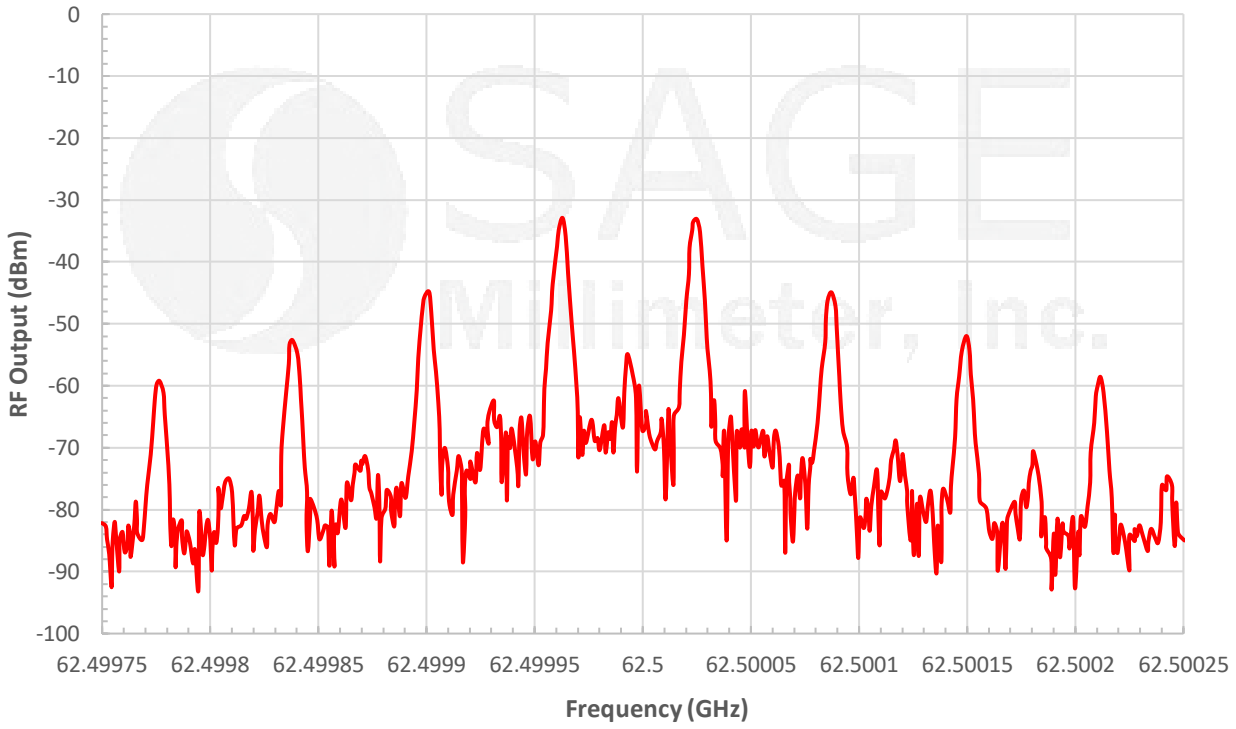
Typical Conversion Loss and Carrier Rejection vs. Frequency

Input RF: -20 dBm; IF: 1 MHz @ ± 2.4 Vp-p



Spectrum Output at 62.5 GHz

RF Input: 62.5 GHz/-20 dBm; IF: ±2.5 Vp-p/2 mA @ 60 KHz



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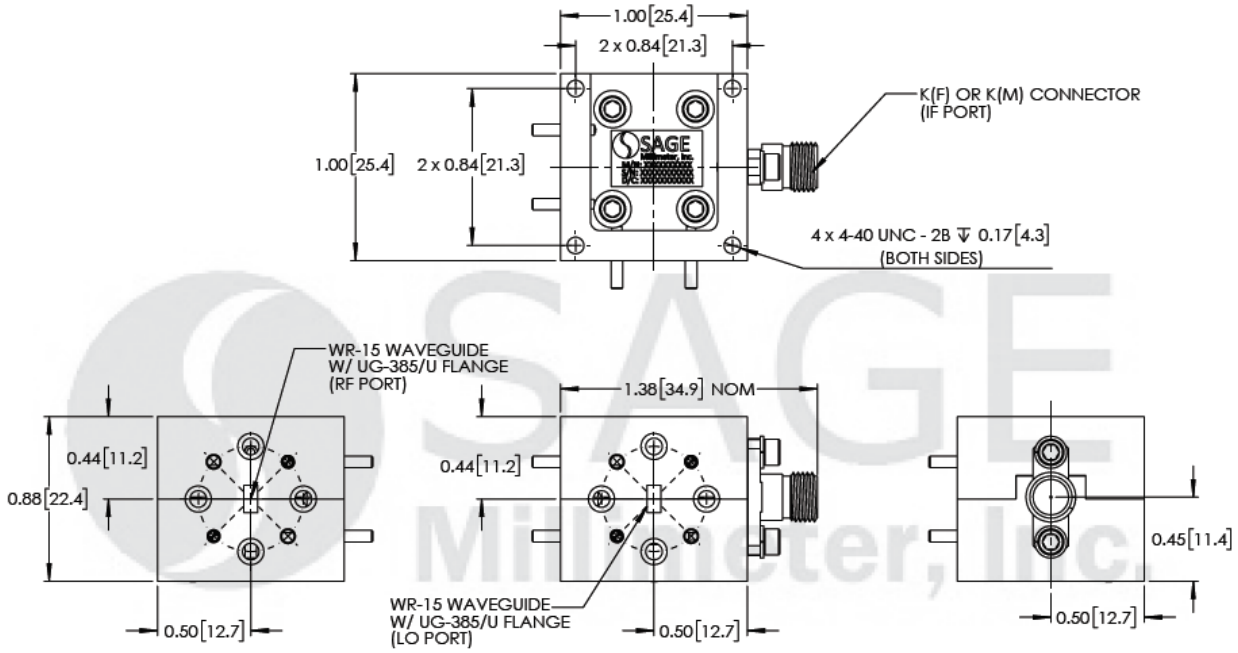
V-Band Double Sideband Modulator, +10 dBm Input P_{1dB}

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.
- All testing was performed under +25 °C case temperature.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Exceeding absolute maximum ratings shown will damage the device.
- The device is static sensitive. Always follow ESD rules when working with the device.
- The IF port of the mixer is DC coupled. Use a DC block when connecting to other devices. **Do not apply an external bias voltage to the IF port.**
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**

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