



Short Slot 90 Degree Hybrid Coupler, U-band, Thermal Vacuum Safe

Description:

Model SWZ-45355317-19-3B-V is a U band, short slot 90 degree hybrid coupler that delivers a 3 dB nominal coupling level and 17 dB typical isolation from 45 to 55 GHz. Across the operation frequency band, the coupler can achieve the magnitude imbalance within ± 1 dB, and the phase imbalance within ± 3 degrees. The interfaces of the coupler are WR-19 waveguides with UG-383/U-M flanges. This hybrid coupler is manufactured to thermal vacuum compatibility.



Features:

- Wide Band Operation
- Low Insertion Loss
- Low Amplitude and Phase Imbalance
- Thermal Vacuum Safe

Applications:

- Test Labs
- Instrumentation
- Sub-assemblies
- Thermal Vacuum Chamber

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	45 GHz		55 GHz
Insertion Loss*		1 dB	
Coupling*		3 dB	
Isolation		17 dB	
Amplitude Imbalance*			± 1 dB
Phase Difference between Through and Coupling Ports		90 degrees	
Phase Imbalance*			± 3 degrees
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

*The definition of the insertion loss, coupling, amplitude imbalance and phase imbalance is shown below:

Insertion Loss = $-10 \log_{10} [(P2+P3)/P1]$

Coupling Value = $-10 \log_{10} [P3/P1]$

Amplitude Imbalance = $-10 \log_{10} [P3/P2]$

Phase Imbalance = $\angle[P3/P1] - \angle[P2/P1]$



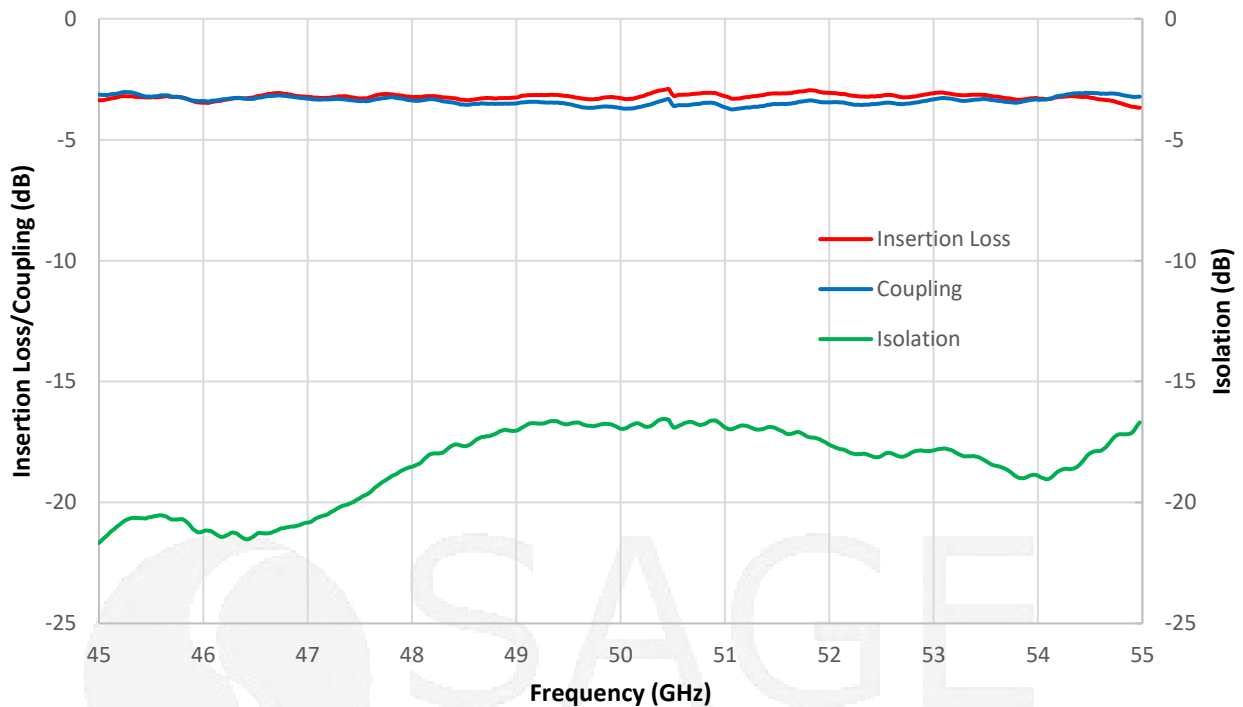


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Mechanical Specifications:

Item	Specification
Input Port	WR-19 Waveguide with UG-383/U-M Flange
Through Port	WR-19 Waveguide with UG-383/U-M Flange
Coupled Port	WR-19 Waveguide with UG-383/U-M Flange
Material	Brass
Finish	Gold Plated
Weight	33.6 Oz
Size	3.0" (L) X 2.25" (W) x 1.13" (H)
Outline	WZ-UB-3

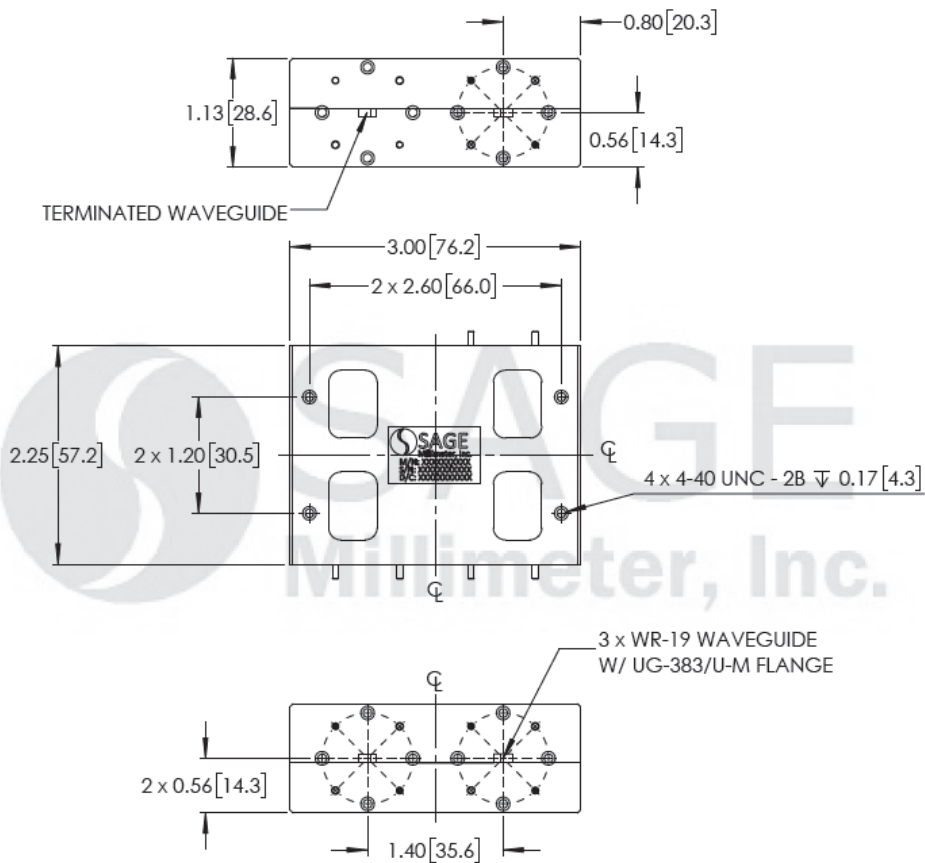
Typical Performance vs. Frequency





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

Caution:

- Any foreign objects in the waveguide will degrade performance and/or damage the device.

