



## Short Slot 90 Degree Hybrid Coupler, U-band

### Description:

**Model SWZ-45355317-19-3B** 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  $\pm 1$  dB, and the phase imbalance within  $\pm 3$  degrees. The interfaces of the coupler are WR-19 waveguides with UG-383/U-M flanges.



### Features:

- Wide Band Operation
- Low Insertion Loss
- Low Amplitude and Phase Imbalance

### Applications:

- Test Labs
- Instrumentation
- Sub-assemblies

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	45 GHz		55 GHz
Insertion Loss*		1 dB	
Coupling*		3 dB	
Isolation		17 dB	
Amplitude Imbalance*			$\pm 1$ dB
Phase Difference between Through and Coupling Ports		90 degrees	
Phase Imbalance*			$\pm 3$ 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 =  $\angle[P3/P1] - \angle[P2/P1]$



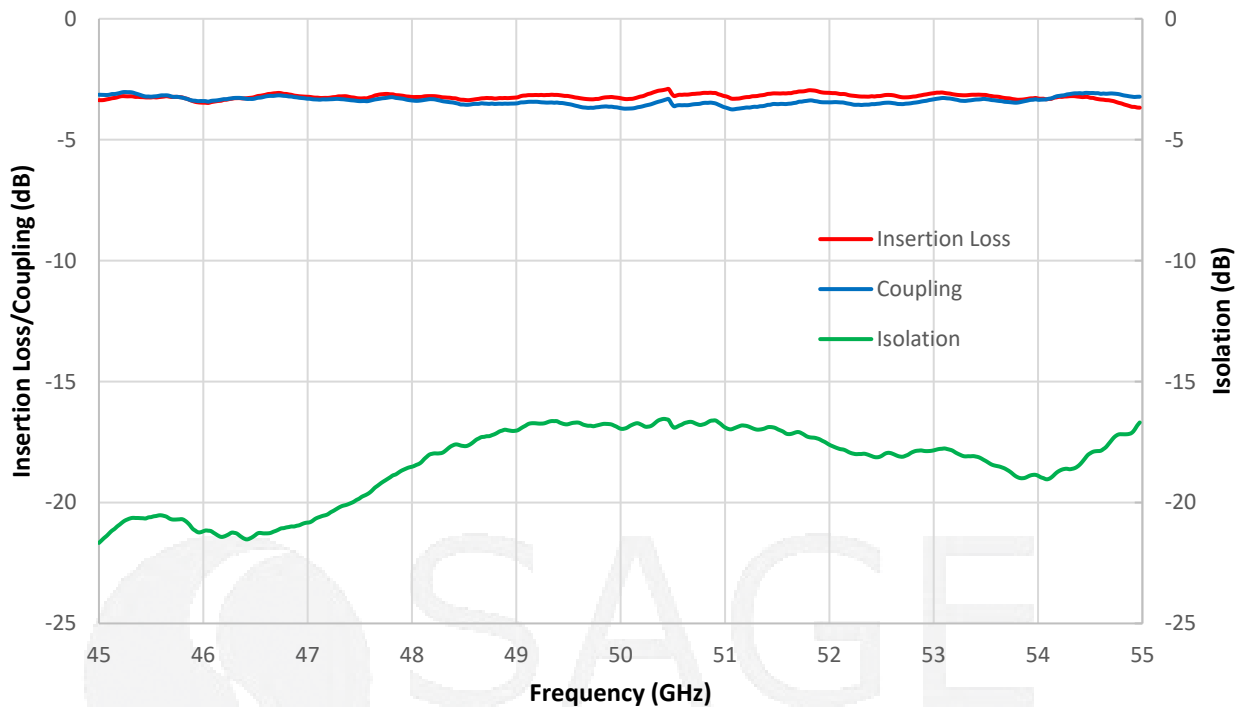


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### Mechanical Specifications:

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

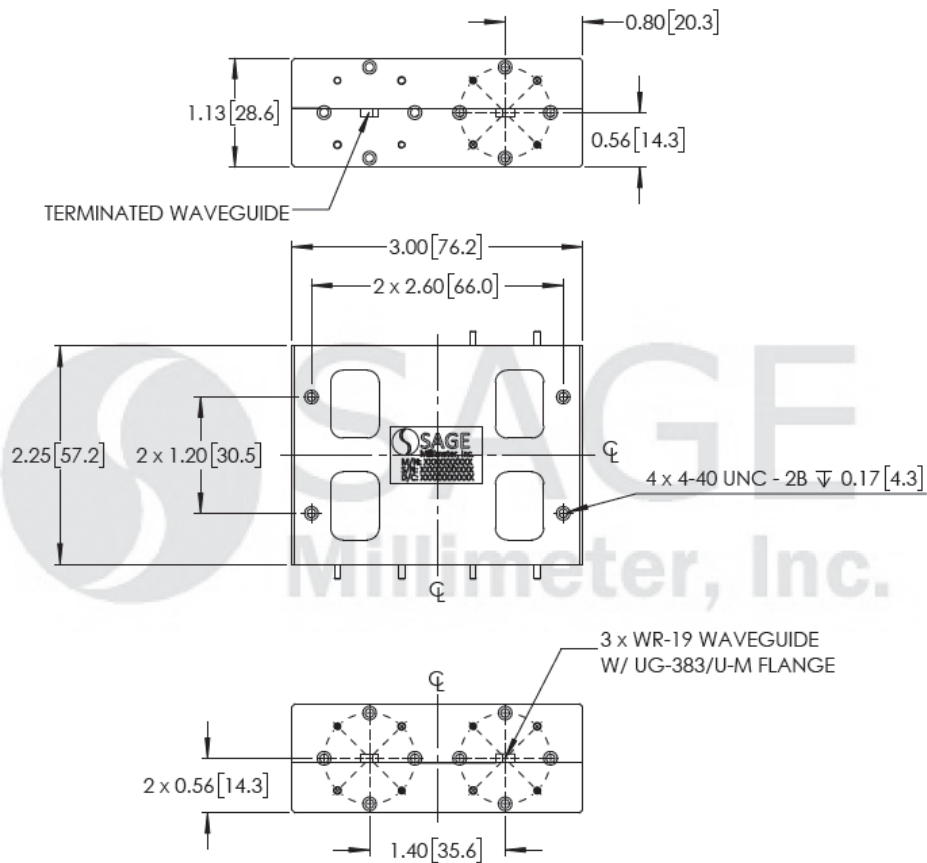
### Typical Performance vs. Frequency





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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.

