



## U-Band Waveguide Directional Coupler, 10 dB, Thermal Vacuum Safe

### Description:

**Model SWD-1040H-19-SB-V** is a U band, three-port waveguide directional coupler that delivers a 10 dB nominal coupling level and 35 dB minimum directivity across the full waveguide band from 40 to 60 GHz. The three-port coupler uses a traditional multi-hole and split block design to achieve a flat coupling level, high directivity, low insertion loss, and additional thermal vacuum compatibility. The interfaces of the coupler are WR-19 waveguides with UG-383/U-M flanges. Custom coupling levels are available under different model numbers.



### Features:

- Full Band Operation
- Low Insertion Loss
- High Directivity
- Thermal Vacuum Safe

### Applications:

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

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	40 GHz		60 GHz
Insertion Loss*		0.7 dB	
Coupling*		10 dB	
Directivity*	35 dB		
VSWR			1.1:1
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

\*The definition of the insertion loss, coupling and directivity is show as following.

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

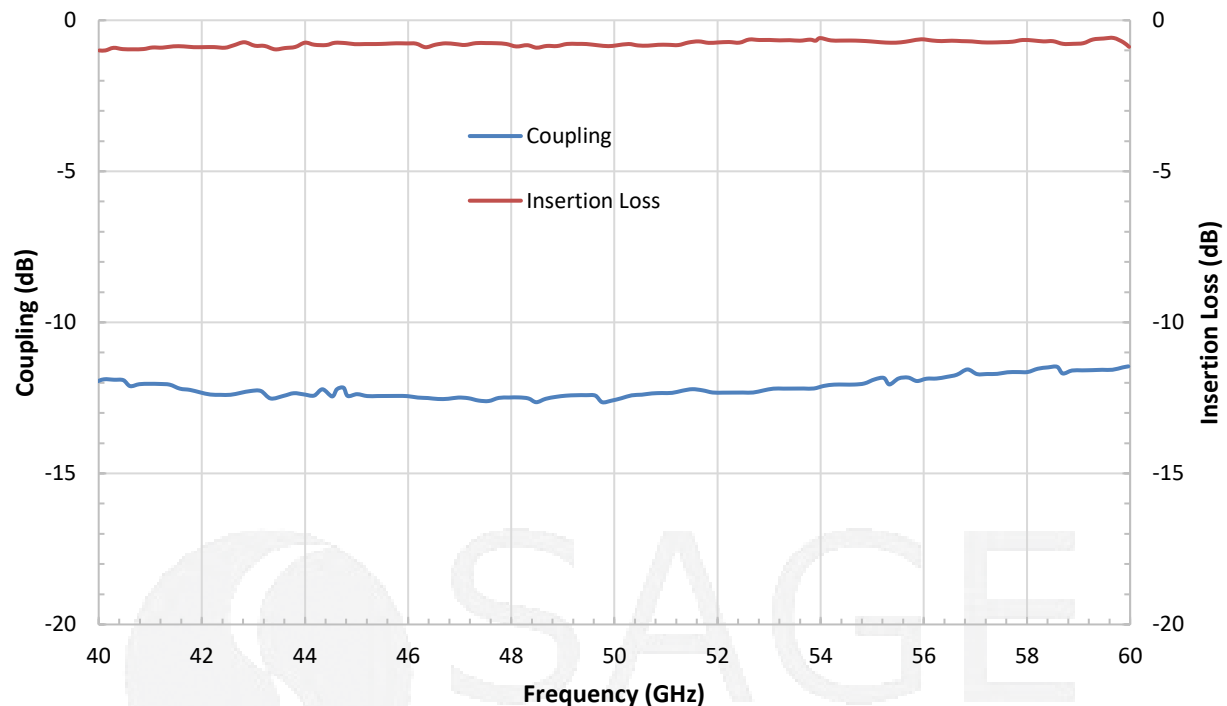


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### Mechanical Specifications:

Item	Specification
Through Ports	WR-19 Waveguide with UG-383/U-M Flange
Coupled Port	WR-19 Waveguide with UG-383/U-M Flange
Size	5.50" (L) X 1.30" (W) x 1.23" (H)
Material	Brass
Finish	Gold Plated
Weight	1.58 lb
Outline	WD-SB-U

### Typical Coupling and Insertion Loss vs. Frequency

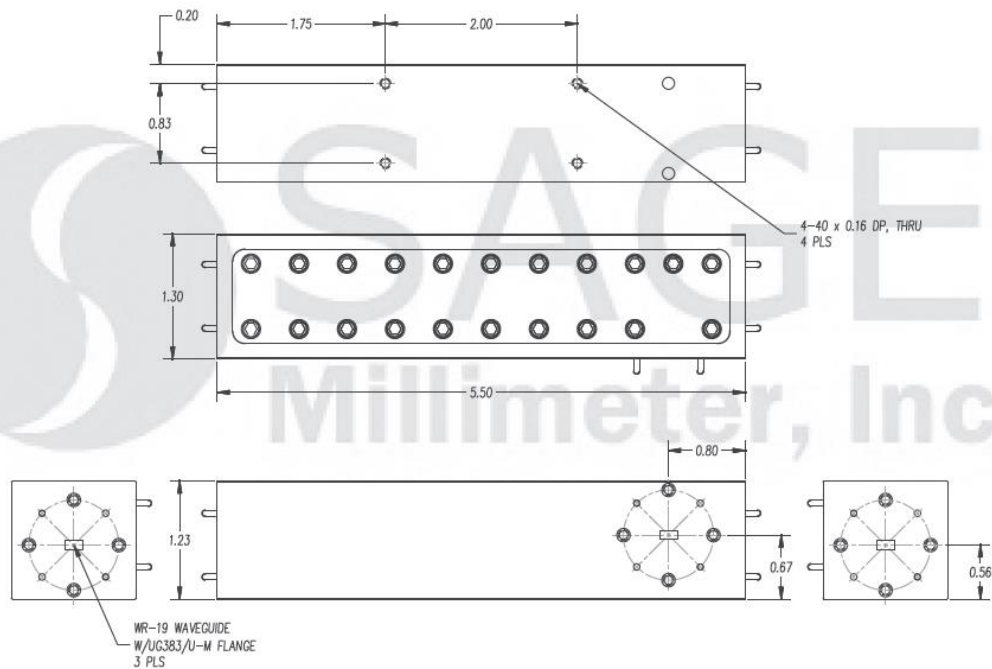


\*Insertion loss includes circuit loss



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



**Note:**

- All data was presented using a limited sample lot. Actual data may vary unit to unit.
- The insertion loss shown includes the loss due to coupling.
- 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.

