



## E-Band Waveguide Directional Coupler, 6 dB

### Description:

**Model SWD-0640H-12-SB** is an E band, three-port waveguide directional coupler that delivers a 6 dB nominal coupling level and 30 dB minimum directivity across the full waveguide band from 60 to 90 GHz. The three-port coupler uses a traditional multi-hole and split block design to achieve a flat coupling level, high directivity, and low insertion loss.



The interfaces of the coupler are WR-12 waveguides with UG-387/U anti-cocking flanges. Custom coupling levels are available under different model numbers.

### Features:

- Full Band Operation
- Low Insertion Loss
- High Directivity

### Applications:

- Test Labs
- Instrumentations
- Sub-assemblies

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	60 GHz		90 GHz
Insertion Loss*		0.8 dB	
Coupling*		6 dB	
Directivity*	30 dB	40 dB	
Return Loss		28 dB	26 dB
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 = $-10 \log_{10} [P3/P1]$	



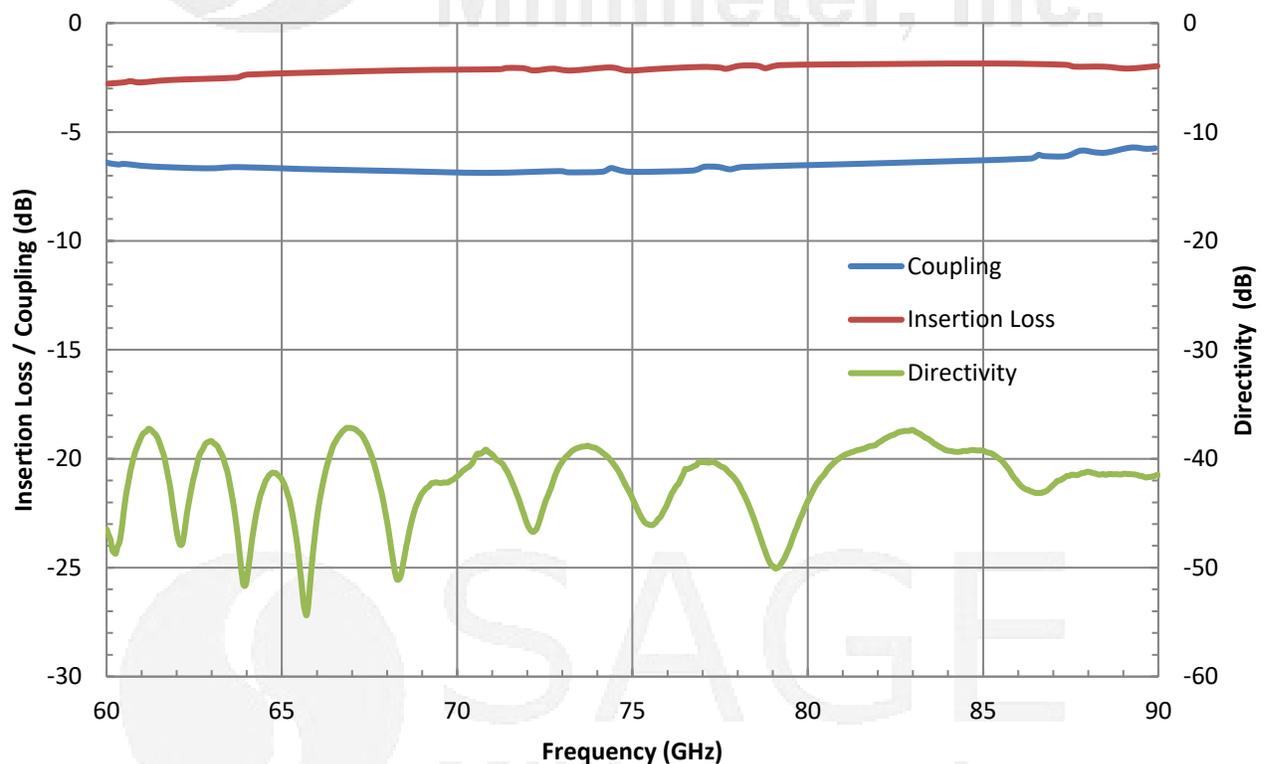


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### Mechanical Specifications:

Item	Specification
Through Ports	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
Coupled Port	WR-12 Waveguide with UG-387/U Anti-Cocking Flange
Size	3.60" (L) X 0.95" (W) x 0.83" (H)
Material	Brass
Finish	Gold Plated
Weight	7.5 Oz
Outline	WD-SB-E-A

### Typical Performance vs. Frequency



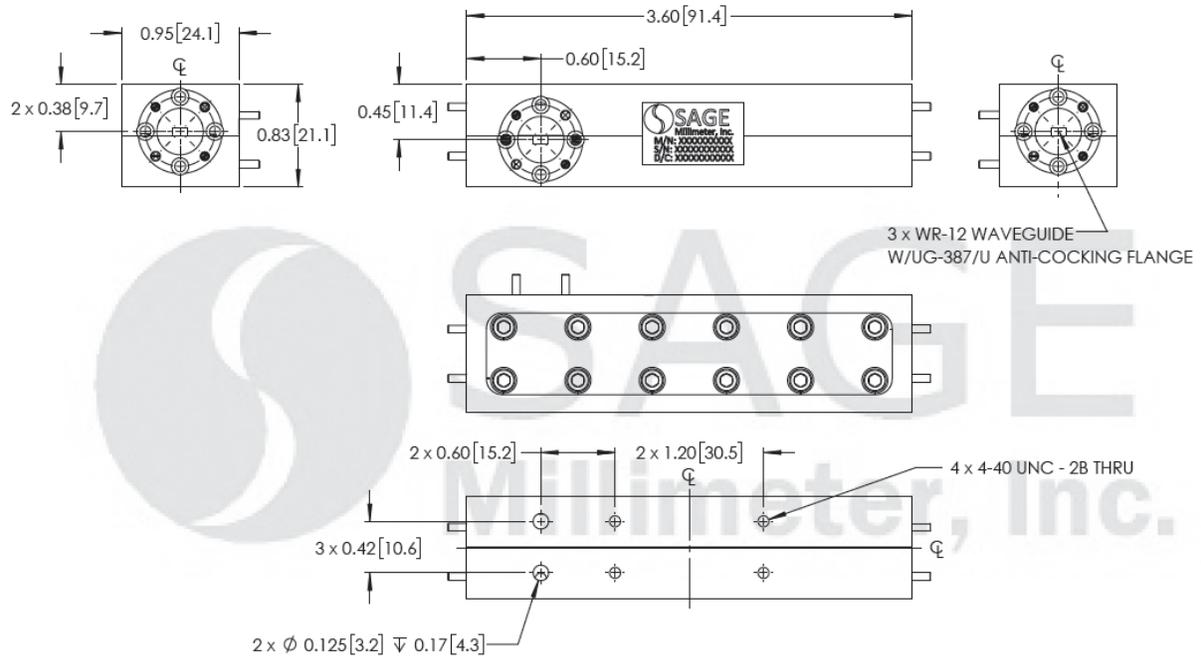
\*Insertion loss includes circuit loss





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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.
- 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.

