

E-Band Waveguide Bi-Directional Coupler, 20 dB

Description:

Model SWD-2040H-12-BB is an E band, four-port waveguide bi-directional coupler that delivers a 20 dB nominal coupling level and 30 dB minimum directivity across the full waveguide band from 60 to 90 GHz. The four-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:

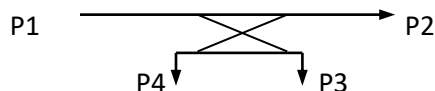
- Test Labs
- Instrumentation
- Sub-assemblies

Electrical Specifications:

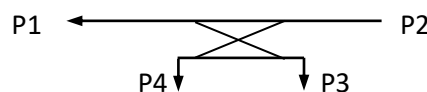
Parameter	Minimum	Typical	Maximum
Frequency	60 GHz		90 GHz
Insertion Loss*		0.8 dB	
Coupling*		20 dB	
Directivity*	30 dB	40 dB	
VSWR			1.1:1
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

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

Insertion Loss = $-10 \log_{10} [(P2+P3)/P1]$ when P4 is terminated.
Coupling Value = $-10 \log_{10} [P3/P1]$ when P4 is terminated.
or $-10 \log_{10} [P4/P2]$ when P3 is terminated.



Directivity = $-10 \log_{10} [P3/P2]$ when P4 is terminated.
Directivity = $-10 \log_{10} [P4/P1]$ when P3 is terminated.

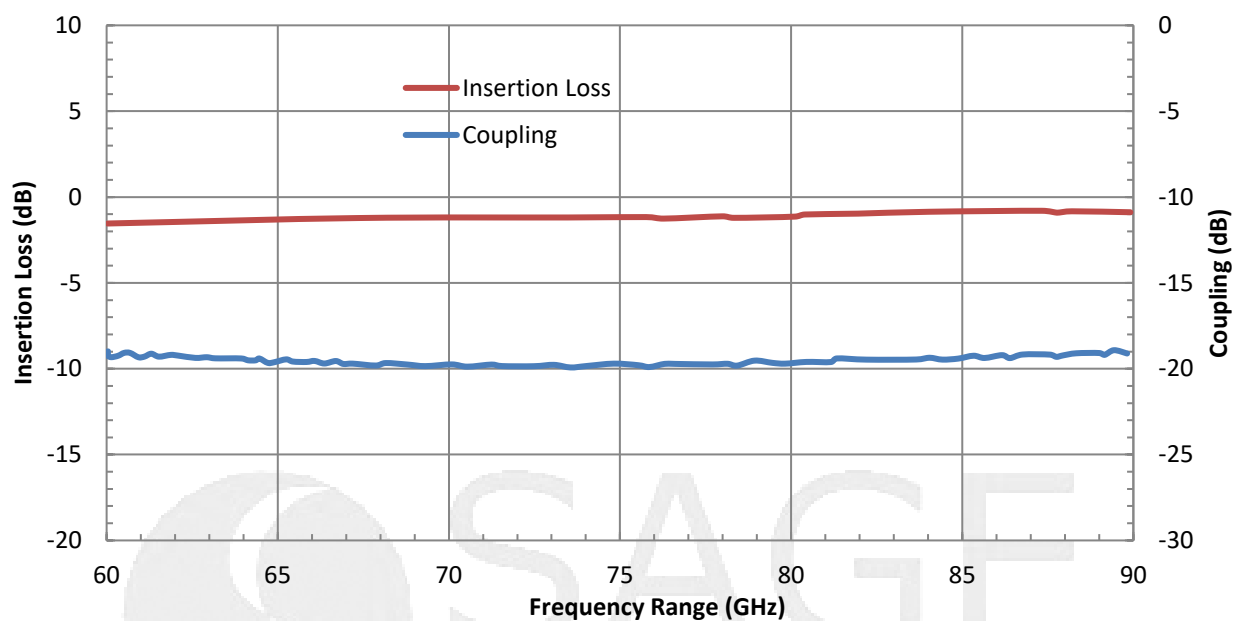


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Mechanical Specifications:

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-BB-E-A

Typical Insertion Loss and Coupling vs. Frequency

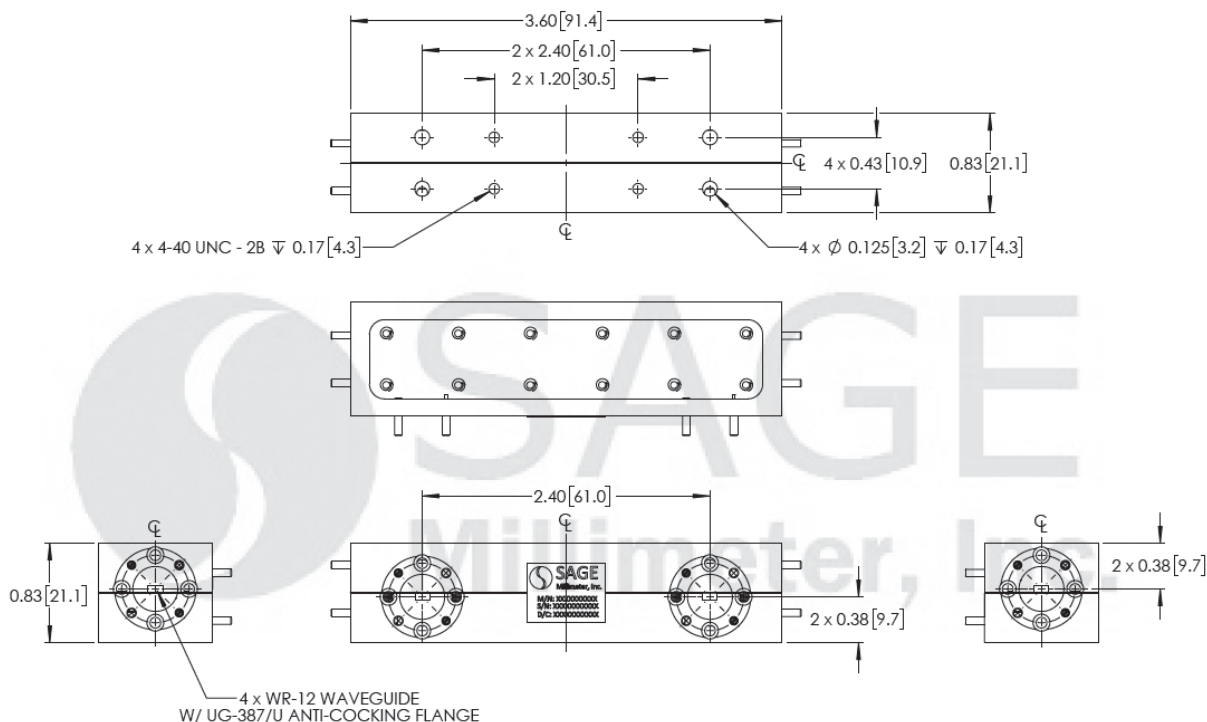


*Insertion loss includes circuit loss



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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.

