



## V-Band Waveguide Dual-Directional Coupler, 20 dB

### Description:

**Model SWD-2040H-15-DB** is a V-band, four-port waveguide dual-directional coupler that delivers a 20 dB nominal coupling level and 40 dB typical directivity across the full waveguide band from 50 to 75 GHz. The dual-directional coupler uses a traditional multi-hole and split block design to achieve a flat coupling level, high directivity, and low insertion loss. The waveguide interface of the coupler is WR-15 waveguides with UG-385/U Anti-Cocking flanges. Other coupling levels including custom coupling levels and asymmetrical forward/reverse coupling levels are available under different model numbers.



### Features:

- Full Band Operation
- Low Insertion Loss
- High Directivity
- Flat Coupling Level Across the Band

### Applications:

- Test Labs
- Instrumentations
- Sub-assemblies

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss*		1.1 dB	
Coupling*		20 dB	
Directivity*		40 dB	
Main Line Return Loss		25 dB	
Coupling Port Return Loss		25 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

\*The definition of the insertion loss, coupling and directivity is shown as following. The required termination on the waveguide port is 30 dB or better for accurate measurement.

\* The actual directivity and return loss are higher than shown due to the limitations of the network analyzer's dynamic range.

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 P1 and P4 are terminated.

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





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### Mechanical Specifications:

Item	Specification
Waveguide Ports	WR-15 Waveguide with UG-385/U Anti-Cocking Flange
Material	Brass
Finish	Gold Plated
Weight	1.3 lbs.
Outline	WD-DB-V-A

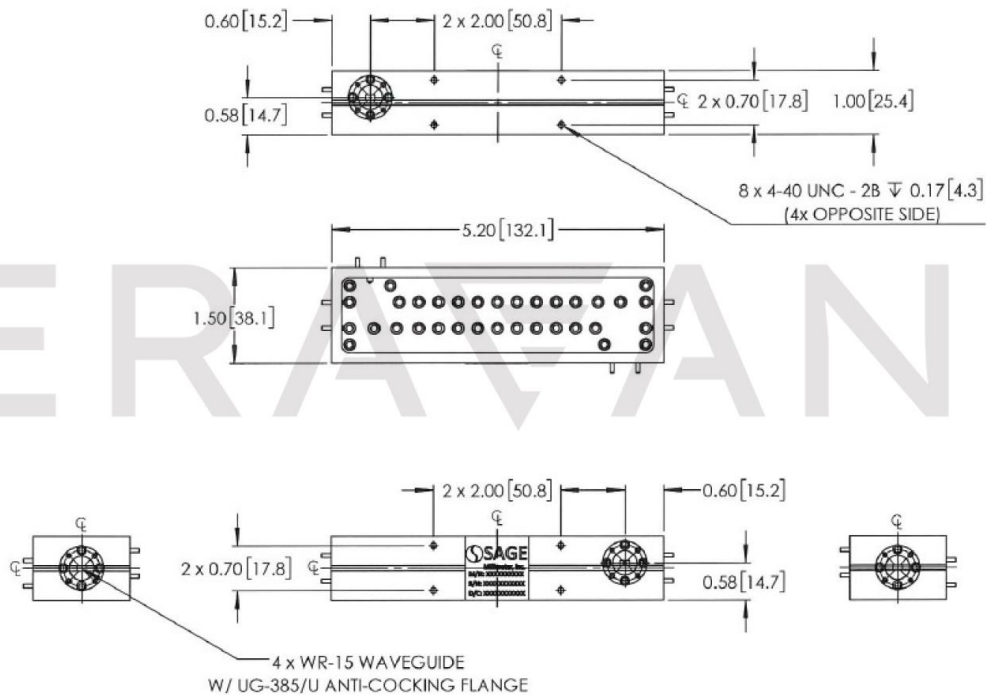
### Typical Performance vs. Frequency





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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.
- The insertion loss shown includes the loss due to coupling.
- Eravant reserves the right to change the information presented without notice.

**Caution:**

- Any foreign objects in the waveguide will cause performance degradation and possible device damage.

