

## Q-Band Waveguide Dual-Directional Coupler, 40 dB

### Description:

**Model SWD-4040H-22-DB** is a Q-band, four-port waveguide dual-directional coupler that delivers a 40 dB nominal coupling level and 40 dB typical directivity across the full waveguide band from 33 to 50 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-22 waveguides with UG-383/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

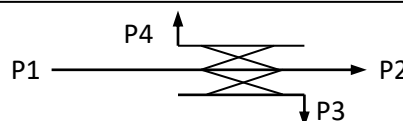
### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Insertion Loss*		0.9 dB	
Coupling*		40 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

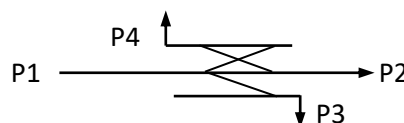
\*The definition of the insertion loss, coupling and directivity is shown as following. The required termination on the waveguide port is 30 dB or better for accurate measurement.

\* 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 P4 are terminated.

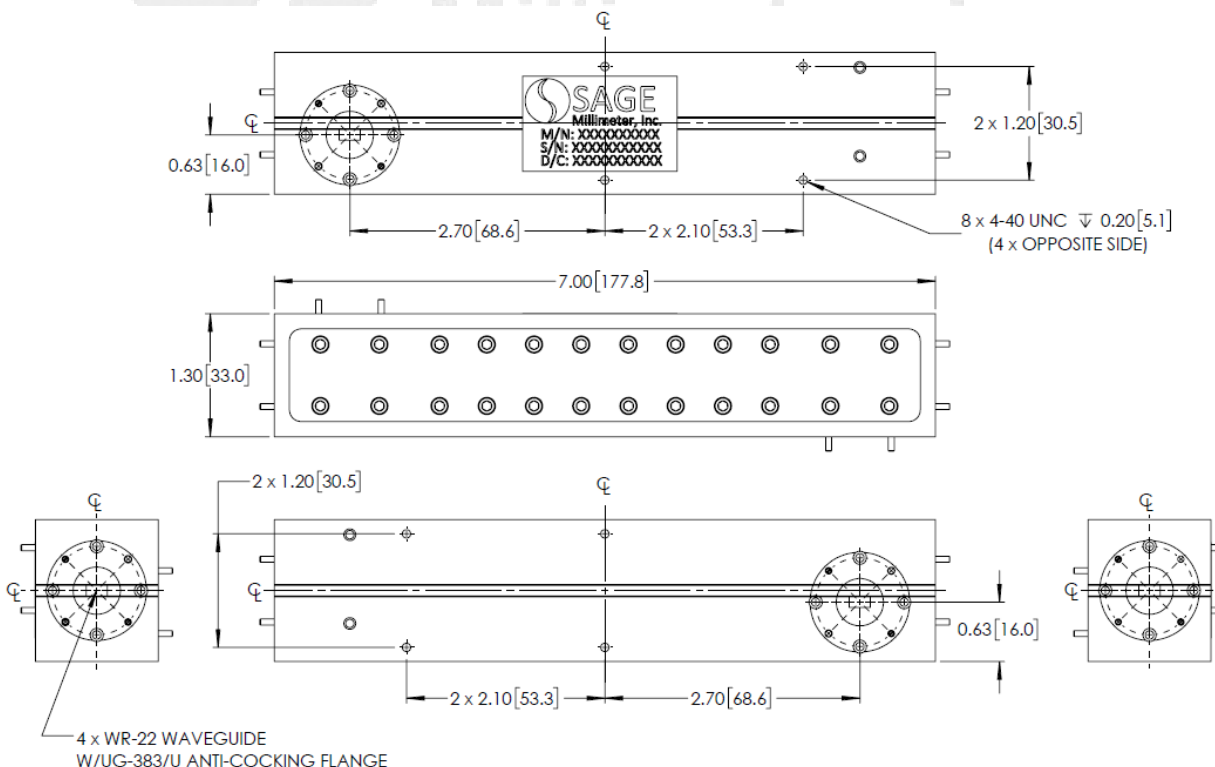


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### Mechanical Specifications:

Item	Specification
Waveguide Ports	WR-22 Waveguide with UG-383/U Anti-Cocking Flange
Material	Brass
Finish	Gold Plated
Weight	2.0 lbs.
Outline	WD-DB-Q-A

### Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



### Note:

- 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.