

Ka-Band Waveguide Bi-Directional Coupler, 30 dB

Description:

Model SWD-3040H-28-BB is a Ka band, four-port waveguide bi-directional coupler that delivers a 30 dB nominal coupling level and 35 dB minimum directivity across the full waveguide band from 26.5 to 40 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-28 waveguides with UG-599/U 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

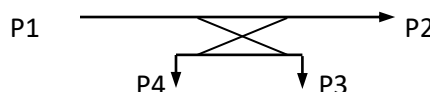
Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---------------------------|----------|---------|---------|
| Frequency | 26.5 GHz | | 40 GHz |
| Insertion Loss* | | 0.5 dB | |
| Coupling* | | 30 dB | |
| Directivity* | 35 dB | | |
| Return Loss | | | 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. The required termination on the waveguide port is 30 dB or better for accurate measurement.

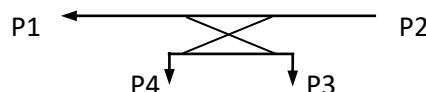
$$\text{Insertion Loss} = -10 \log_{10} [(P2+P3)/P1]$$

$$\text{Coupling Value} = -10 \log_{10} [P3/P1]$$



$$\text{Isolation} = -10 \log_{10} [P3/P2]$$

$$\text{Directivity} = \text{Isolation} - \text{Coupling Value}$$



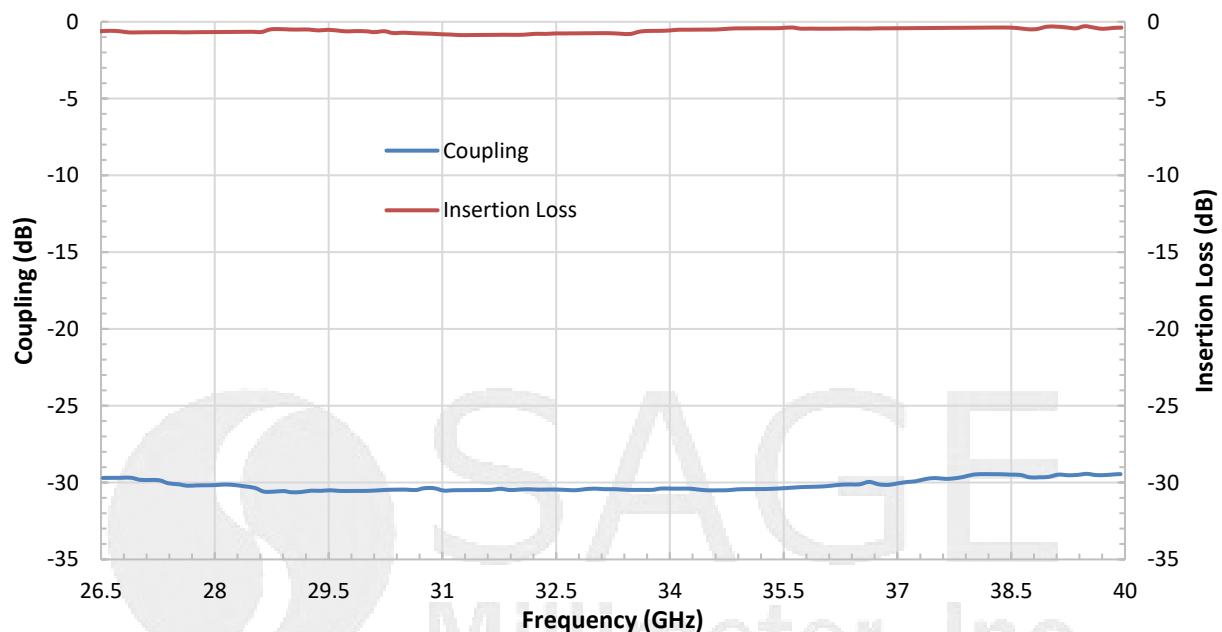


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Mechanical Specifications:

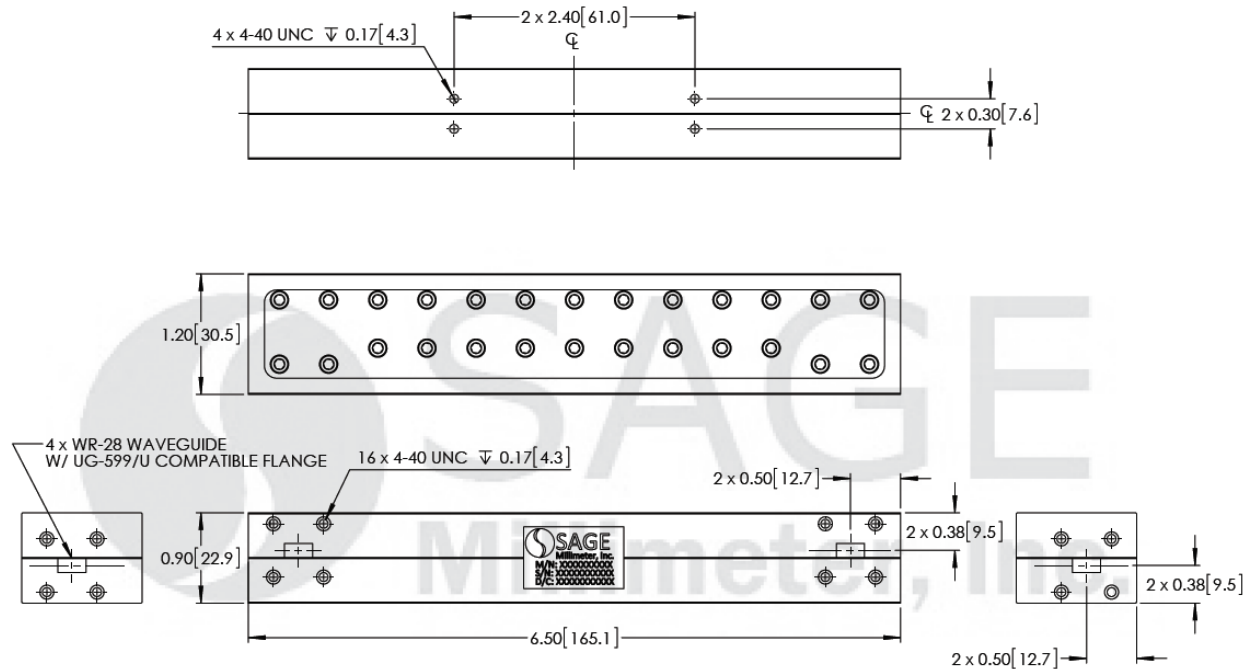
| Item | Specification |
|---------------|------------------------------------|
| Through Ports | WR-28 Waveguide with UG/599 Flange |
| Coupled Ports | WR-28 Waveguide with UG/599 Flange |
| Material | Brass |
| Finish | Gold Plated |
| Weight | 20 Oz |
| Size | 6.50" (L) X 1.20" (W) x 0.90" (H) |
| Outline | WD-BB-A |

Typical Coupling and Insertion Loss 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.
- 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.