



V-Band Waveguide Directional Coupler, 30 dB, Legacy Design

Description:

Model SWD-3040H-15-SB-MT is a V band, three-port waveguide directional coupler that delivers a 30 dB nominal coupling level and 30 dB minimum directivity across the full waveguide band from 50 to 75 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 RF ports of the coupler are WR-15 waveguides with UG-385/U flanges. Other standard coupling levels (3, 6, 10, 20, 30, and 40 dB) are available under different model numbers as **SWD-XX40H-15-SB-MT**, where **XX** is the desired coupling level.



Features:

- Full Band Operation
- Low Insertion Loss
- High Directivity

Applications:

- Test Labs
- Instrumentation

Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---------------------------|---------|---------|---------|
| Frequency | 50 GHz | | 75 GHz |
| Insertion Loss* | | 1.0 dB | |
| Coupling* | | 30 dB | |
| Directivity* | 30 dB | 40 dB | |
| Return Loss | | 25 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.

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

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

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

Directivity = Isolation – Coupling Value



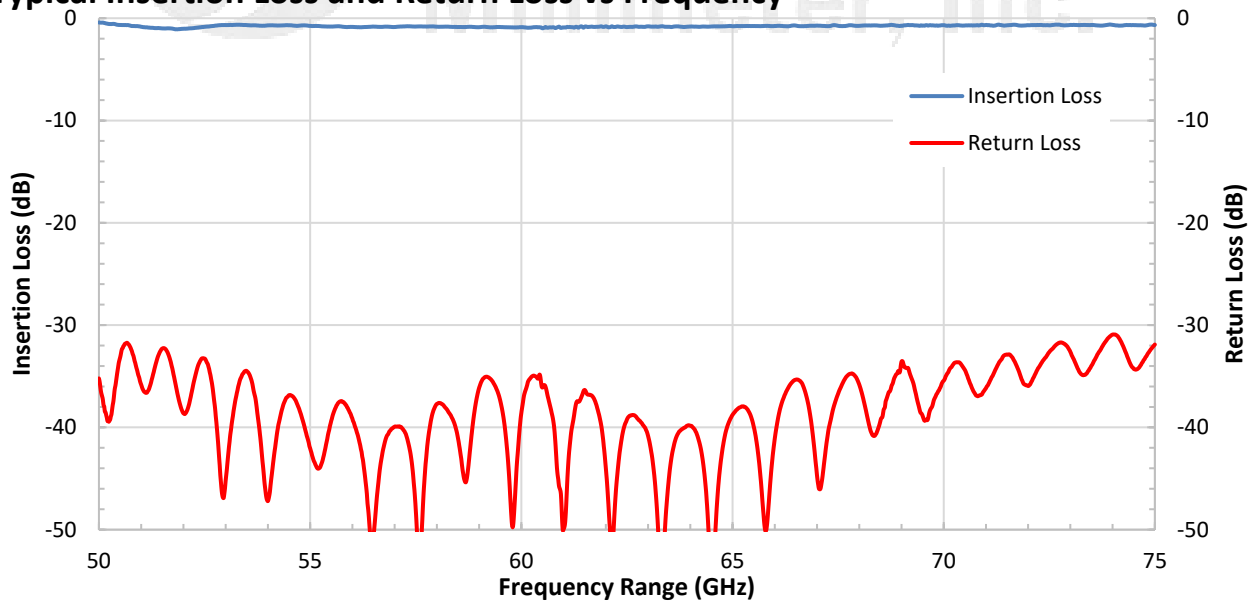


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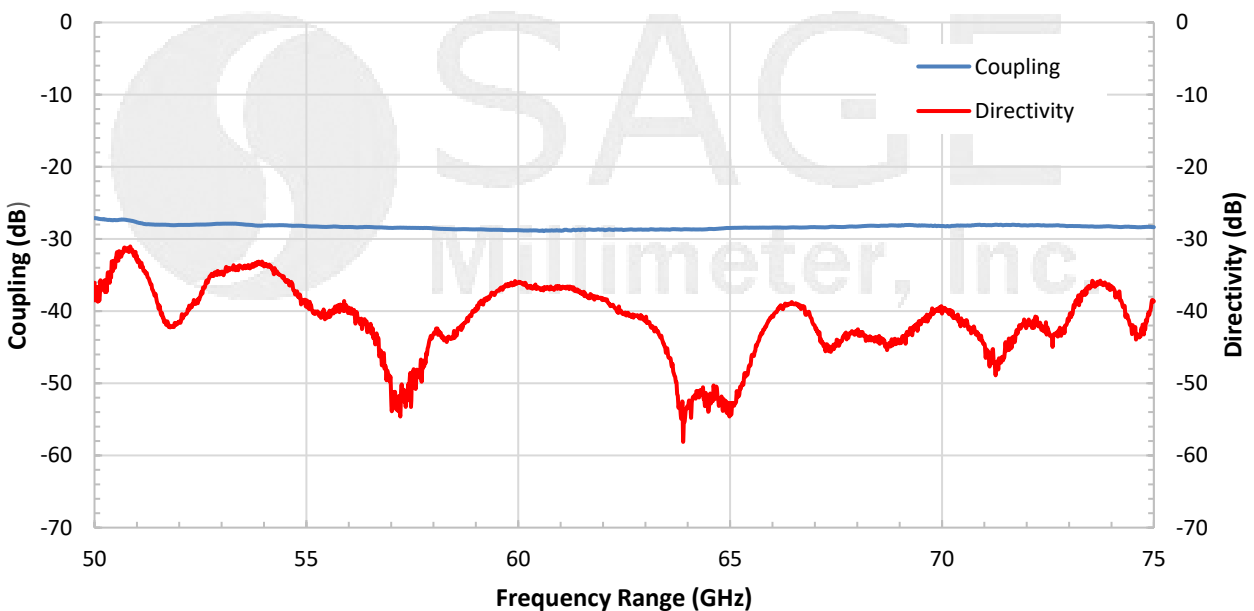
Mechanical Specifications:

| Item | Specification |
|----------|--------------------------------------|
| RF Ports | WR-15 Waveguide with UG-385/U Flange |
| Material | Brass |
| Finish | Gold Plated |
| Weight | 10.5 Oz |
| Outline | WD-SB-V-MT |

Typical Insertion Loss and Return Loss vs Frequency

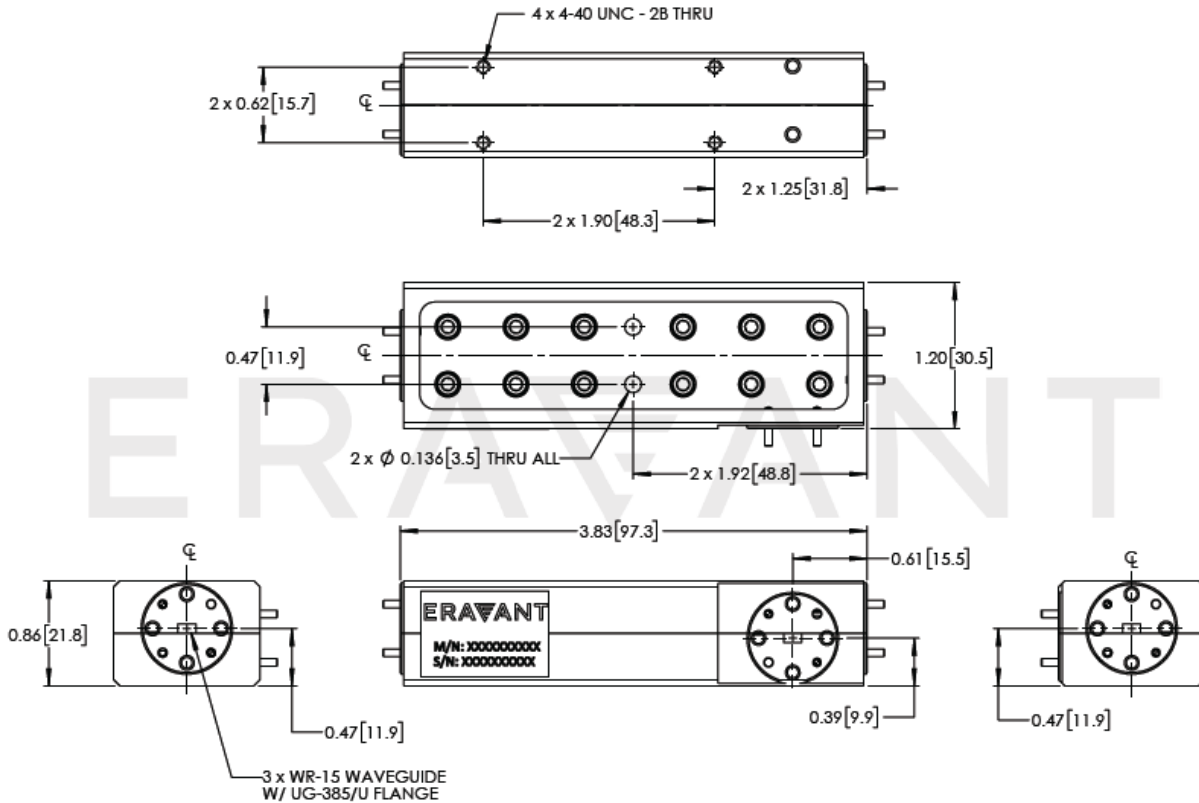


Typical Coupling and Directivity vs Frequency



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



Note:

- The -MT coupler series are based on a legacy Eravant design and have limited stock and availability. They are not recommended for use in high volume production applications.
- For new designs and volume needs, Eravant recommends our current standard coupler model (**SWD-3040H-15-SB**).
- The insertion loss shown includes the loss due to coupling.
- 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.
- 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.

