

# C20-1000WG

## WR-10 High Directivity Waveguide Coupler, 20dB, 75-110GHz

### DEVICE OVERVIEW

#### General Description

The C20-1000WG is a WR-10 20dB waveguide coupler featuring high 36 dB directivity over a 75-110GHz operational bandwidth. These waveguide components are built with high precision and then gold plated for high corrosion resistance. They have very low 1.15 dB insertion loss and excellent 35 dB return loss. Manufactured to rigid specifications, these transmission line components provide minimum detrimental effects on overall system VSWR.



[Download s-parameters here](#)

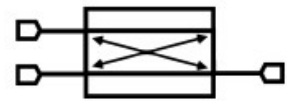
#### Features

- 19.5 dB Coupling
- Low 1.15 dB Insertion Loss
- High 36 dB Directivity
- WR-10 Waveguide
- UG-387/U Input and Output Flanges

#### Applications

- mmWave Applications

#### Functional Block Diagram



#### Part Ordering Options

| Part Number | Description   | Package | Green Status  | Product Lifecycle | Export Classification |
|-------------|---|---------|---------------|-------------------|-----------------------|
| C20-1000WG  | WR-10 High Directivity Waveguide Coupler, 20dB, 75-110GHz | WR-10   | REACH<br>RoHS | Released          | EAR99                 |

## C20-1000WG

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75-110GHz

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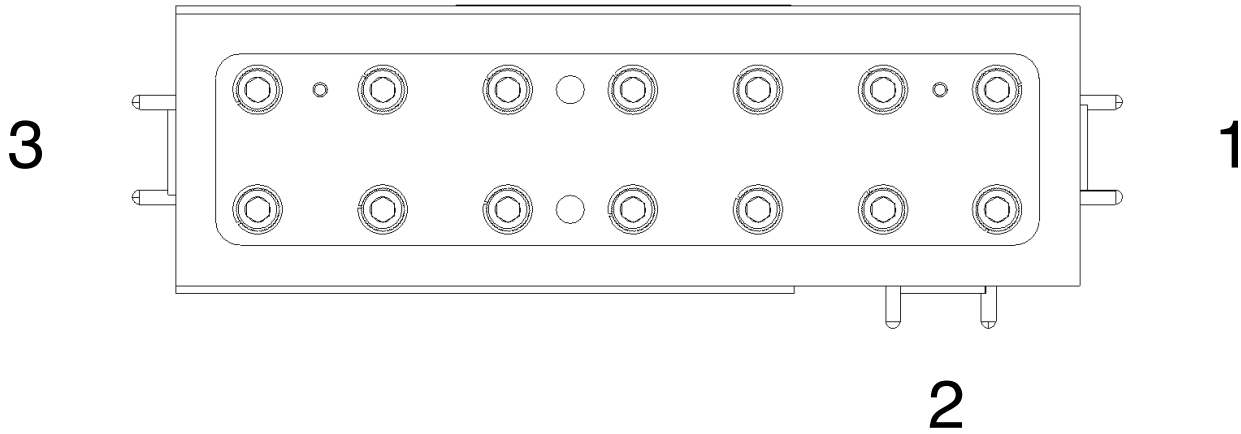
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### Revision History

| Revision Code | Revision Date | Comment         |
|---------------|---------------|-----------------|
| -             | 2025-08-11    | Initial Release |

**Port Configuration and Functions**

**Port Diagram**



**Port Functions**

| Port   | Function | Connector Type | Description               | Equivalent Circuit for Package |
|--------|----------|----------------|---------------------------|--------------------------------|
| Port 1 | Input    | WR-10-UG-387/U | -                         | -                              |
| Port 2 | Coupled  | WR-10-UG-387/U | -20dB coupled output port | -                              |
| Port 3 | Output   | WR-10-UG-387/U | -                         | -                              |

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### Specifications

#### Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

| Parameter                     | Maximum Rating | Unit |
|-------------------------------|----------------|------|
| Maximum Operating Temperature | 85             | °C   |
| Maximum Storage Temperature   | 125            | °C   |
| Minimum Operating Temperature | -40            | °C   |
| Minimum Storage Temperature   | -55            | °C   |

#### Package Information

| Parameter  | Details                              | Rating                   |
|------------|--------------------------------------|--------------------------|
| ESD        | This device is not sensitive to ESD. | N/A                      |
| Weight     | Package name: WR-10                  | 250g                     |
| Dimensions | -                                    | 83.31 x 30.48 x 21.84 mm |

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### Electrical Specifications

Min and Max limits are guaranteed at Ta = 25°C

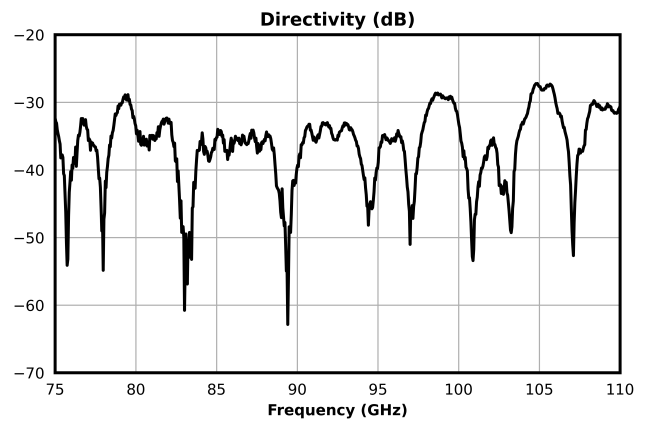
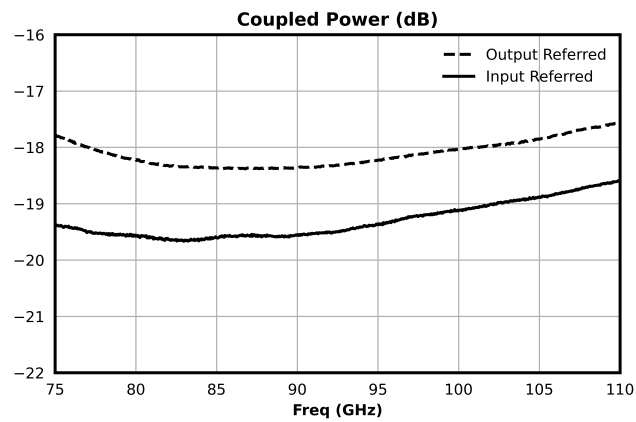
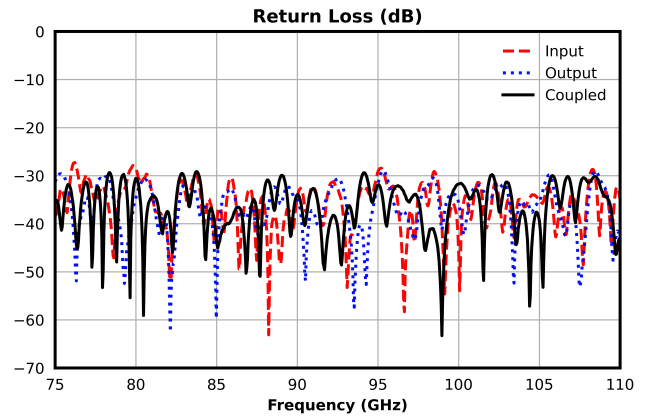
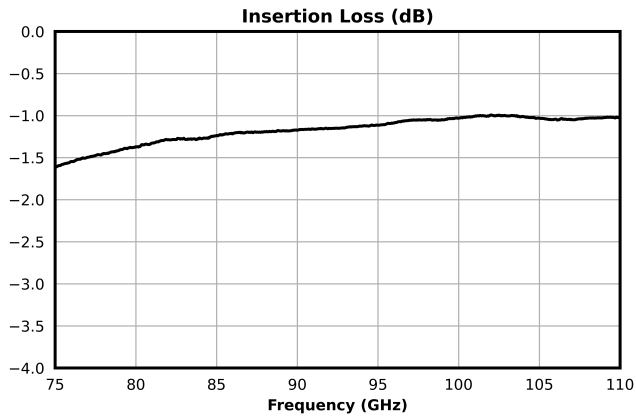
| Parameter                       | Test Conditions              | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ  | Max | Unit |
|---------------------------------|------------------------------|-------------------------|-------------------------|-----|------|-----|------|
| Amplitude Flatness <sup>1</sup> | Configuration A, Temp = 25°C | 75                      | 110                     | -   | 0.26 | -   | dB   |
| Coupled Power                   | Configuration A, Temp = 25°C | 75                      | 110                     | -   | 19.5 | -   | dB   |
| Directivity                     | Configuration A, Temp = 25°C | 75                      | 110                     | -   | 36   | -   | dB   |
| Insertion Loss                  | Configuration A, Temp = 25°C | 75                      | 110                     | -   | 1.15 | -   | dB   |
| Return Loss                     | Configuration A, Temp = 25°C | 75                      | 110                     | -   | 35   | -   | dB   |

<sup>[1]</sup> Amplitude Flatness = Median value of ABS(Measured Coupling Power – Average Coupling Factor)

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### Typical Performance Plot

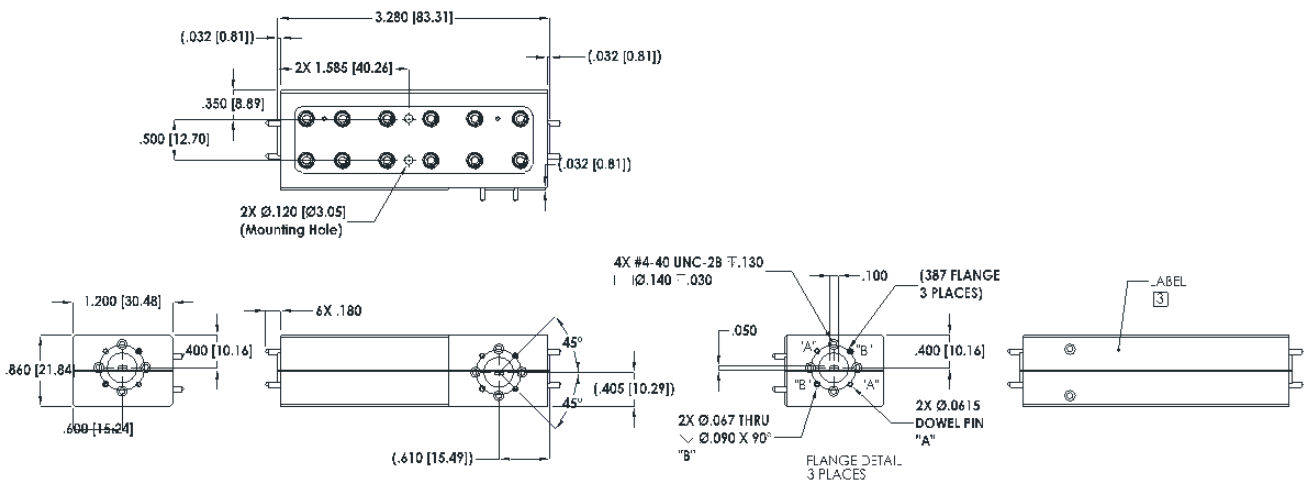


### Mechanical Data

### Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)

| DRAWING NUMBER | DESCRIPTION                  | SHIM                 |
|----------------|------------------------------|----------------------|
| C10-1000WG-OUT | Outline, WR-10 Coupler, 10dB | 421-116901-0 [10dB]  |
| C20-1000WG-OUT | Outline, WR-10 Coupler, 20dB | 421-117001-20 [20dB] |
| C30-1000WG-OUT | Outline, WR-10 Coupler, 30dB | 421-117101-30 [30dB] |
| C40-1000WG-OUT | Outline, WR-10 Coupler, 40dB | 421-117201-40 [40dB] |



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