

## Coaxial 50W 20dB Directional Coupler 2GHz-8GHz



### Product Description

RFDC2G8G20 is a coaxial directional coupler with a frequency range of 2 to 8GHz.

The max power input of this directional coupler is 50W. The insertion loss is 0.4dB with a typical directivity of 22dB.

The working temperature of this product is between - 40°C and + 85°C.

### Features

- High power handling up to 50W
- Wide band operation
- High directivity within operational band
- Low Insertion Loss

### Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

### Electrical Specifications, TA = +25°C

| Parameter                       | Min                                    | Typ                                       | Max  | Units |
|---------------------------------|--|---|------|-------|
| Frequency Range                 | 2                                      |   | 8    | GHz   |
| Nominal Coupling                | 19                                     | 20  | 21   | dB    |
| Frequency Sensitivity           |  | ±0.7                                      | ±1.0 | dB    |
| Directivity                     | 20                                     | 22  |      | dB    |
| Insertion Loss (Excl. Coupling) |  |   | 0.4  | dB    |
| Insertion Loss (True)           |  | 0.25                                      | 0.4  | dB    |
| VSWR Primary                    |  | 1.15                                      | 1.2  | : 1   |
| VSWR Secondary                  |  | 1.15                                      | 1.2  | : 1   |
| Power Rating                    | Average                                | 50  |      | W     |
|                                 | Peak                                   | 500<br>(10% Duty Cycle, 1 us Pulse Width) |      | W     |
| Weight                          |  | 0.07 Max.                                 |      | lbs   |
| Impedance                       |  | 50  |      | Ω     |
| Input / Output Connectors       | SMA-Female(Input) – SMA-Female(Output) |   |      |       |
| Package                         | Epoxy Sealed (Standard)                |   |      |       |
|                                 | Hermetically Sealed (Optional)         |   |      |       |

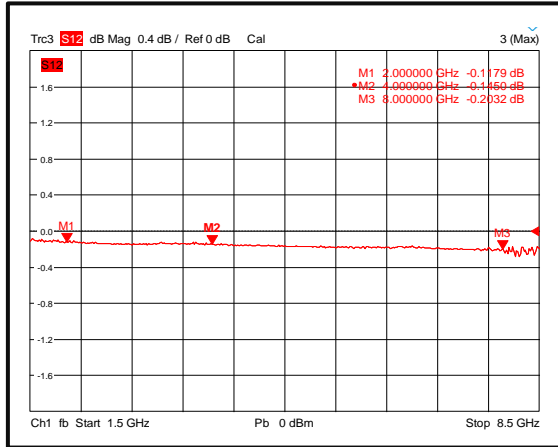
**Environmental Specifications and Test Standards**

| Parameter                         | Description   |
|-----------------------------------|---|
| Operational Temperature           | -40°C to +85°C<br>(Case Temperature)  |
| Storage Temperature               | -50°C to +105°C   |
| Thermal Shock                     | -40°C → +85°C<br>(5 Cycles / 10 hours)  |
| *Random Vibration                 | MIL-STD-202G<br>Table 214-I, Test Condition Letter C<br>1.5 Hours Per Axis  |
| Shock                             | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude                          | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)   |
| Hermetically Sealed<br>(Optional) | MIL-STD-883 (For Hermetically Sealed Units)   |

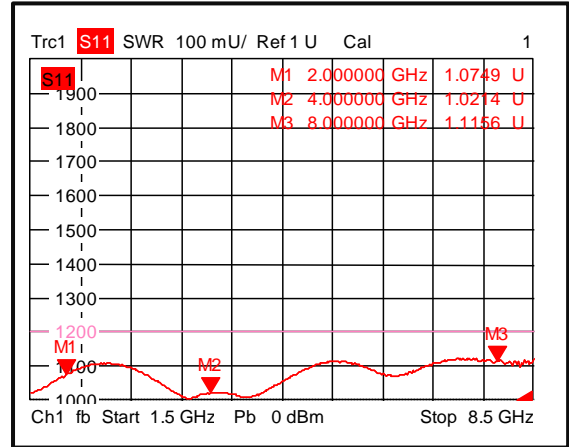
\*For vibration testing details please see additional information section.

Typical Performance Plots

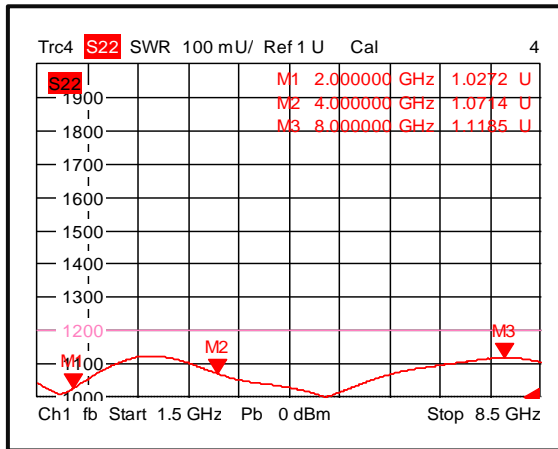
Insertion Loss



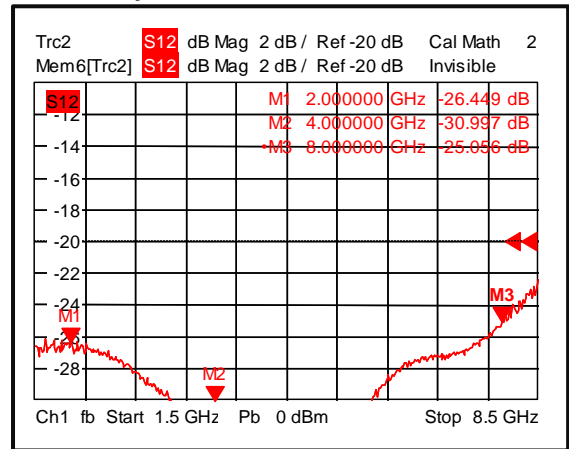
Primary VSWR



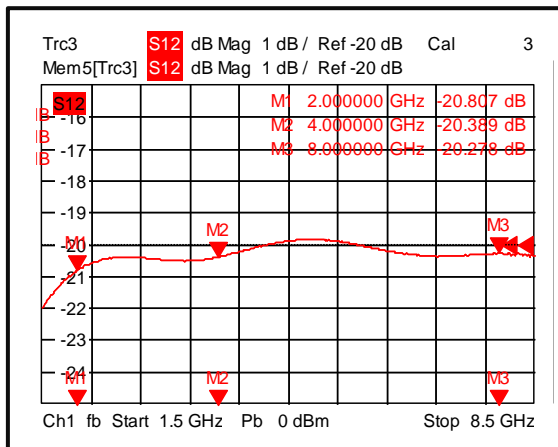
Secondary VSWR



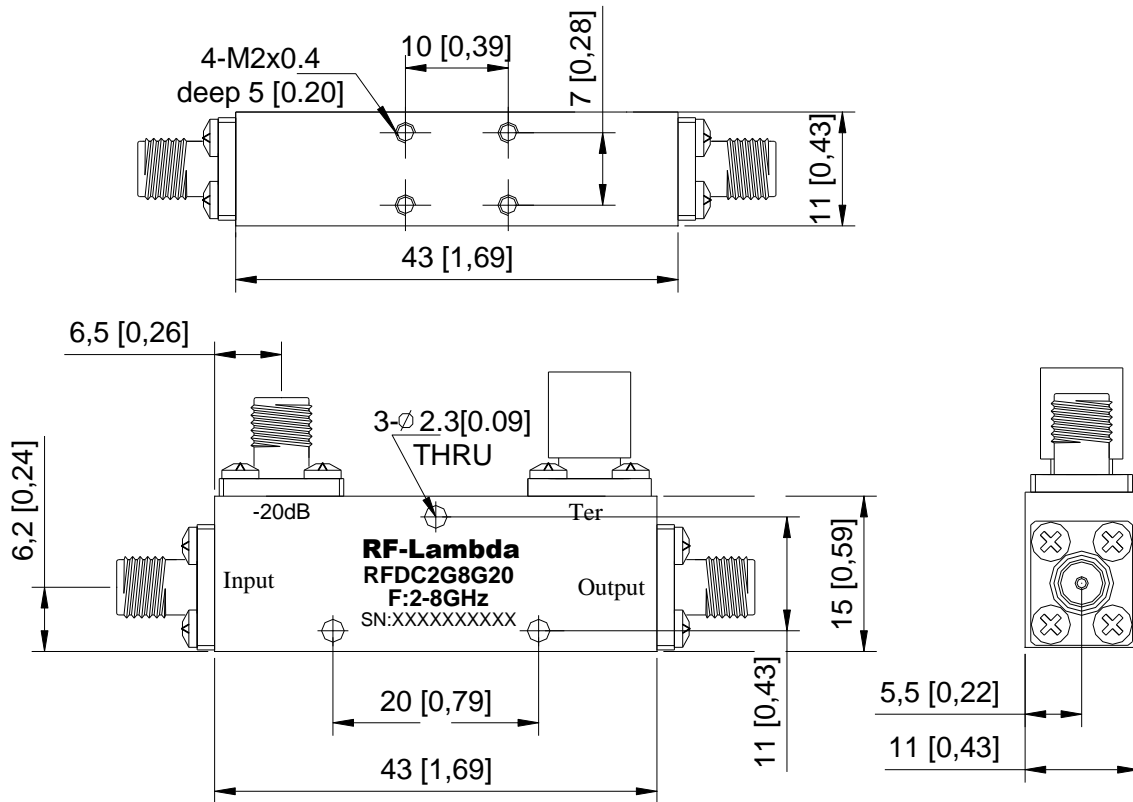
Directivity



Nominal Coupling

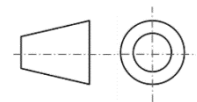


**Outline Drawing**



Notes:

1. Package Material: Aluminum.
2. Finish: Blue Paint.
3. All dimensions are in millimeters [inches].
4. Outline Tolerances  $\pm 0.5$  [0.02], Mounting Hole Tolerances  $\pm 0.2$  [0.008] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.



Additional Information

| Documentation                   | Webpage   |
|---------------------------------|---|
| Connector Torque Specifications | <a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>                                   |
| Random Vibration Test Standard  | <a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a> |

**Ordering Information**

| Part Number | Modification | Description                   |
|-------------|--------------|-------------------------------|
| RFDC2G8G20  | Standard     | 2GHz-8GHz Directional Coupler |

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