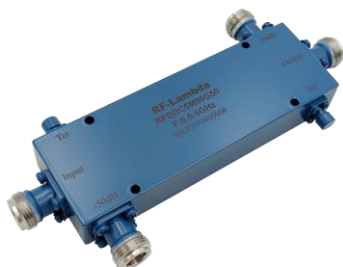


## Coaxial 250W 50dB Dual Directional Coupler 0.5GHz-6GHz



### Product Description

RFDDC5M06G50 is a coaxial dual directional coupler with a frequency range of 0.5 to 6GHz.

The power handling for this dual directional coupler is 250W. The Insertion Loss is 0.5dB with a typical directivity of 12dB.

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

### Features

- Power handling up to 250W
- Ultra 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                 |         | 0.5 |                                         | 6    | GHz   |
| Nominal Coupling                |         | 48  | 50                                      | 52   | dB    |
| Frequency Sensitivity           |         |     | ±0.7                                    | ±1.0 | dB    |
| Directivity                     |         | 10  | 12                                      |      | dB    |
| Insertion Loss (Excl. Coupling) |         |     |                                         | 0.5  | dB    |
| Insertion Loss (True)           |         |     | 0.25                                    | 0.5  | dB    |
| VSWR Primary                    |         |     | 1.2                                     | 1.25 | : 1   |
| VSWR Secondary                  |         |     | 1.2                                     | 1.25 | : 1   |
| Power Rating                    | Average |     | 250                                     |      | W     |
|                                 | Peak    |     | 3<br>(10% Duty Cycle, 1 us Pulse Width) |      | KW    |
| Weight                          |         |     | 0.86 Max.                               |      | lbs   |
| Impedance                       |         |     | 50                                      |      | Ω     |
| Input / Output Connectors       |         |     | N-Female(Input) – N-Female(Output)      |      |       |
| Package                         |         |     | Epoxy Sealed (Standard)                 |      |       |
|                                 |         |     | Hermetically Sealed (Optional)          |      |       |

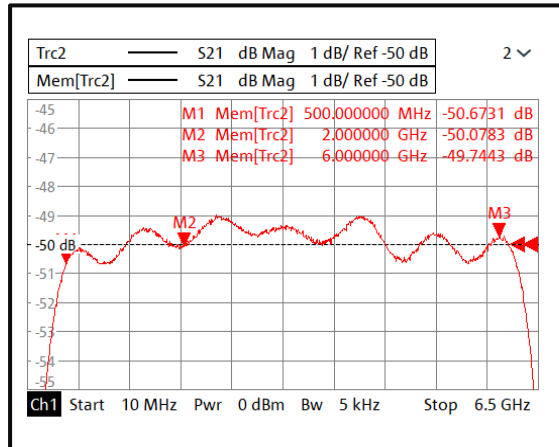
## Environmental Specifications and Test Standards

| 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)                                                                                                                                                                     |

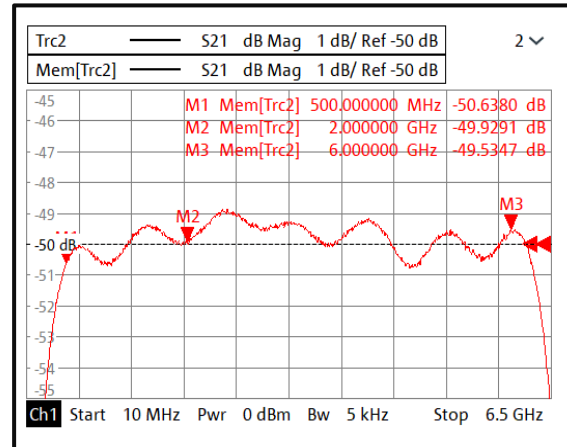
\*\*For vibration testing details please see additional information section.

Typical Performance Plots

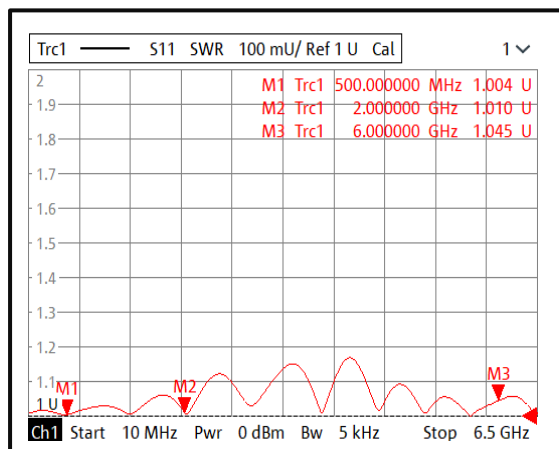
Nominal Coupling 1



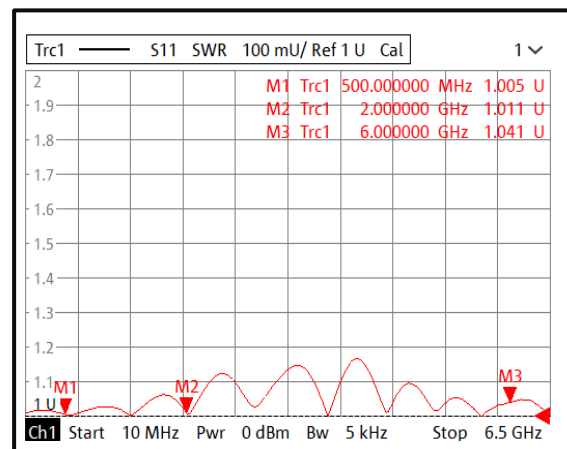
Nominal Coupling 2



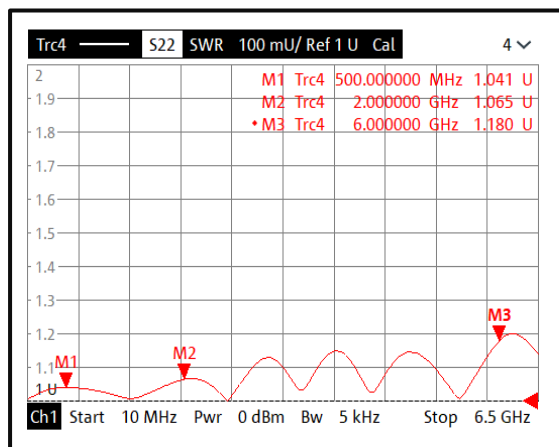
Primary VSWR 1



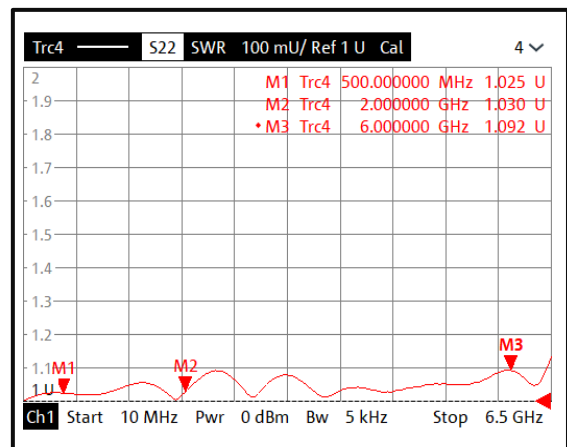
Primary VSWR 2



Secondary VSWR 1

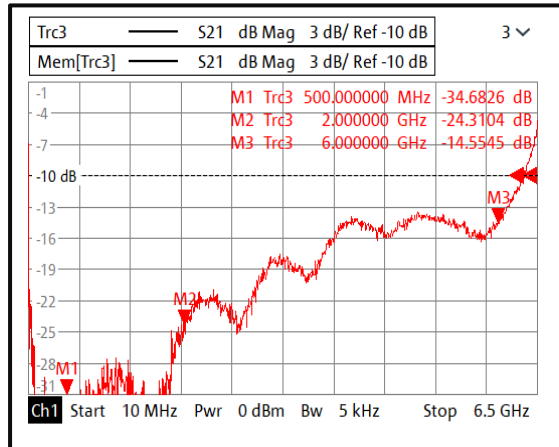


Secondary VSWR 2

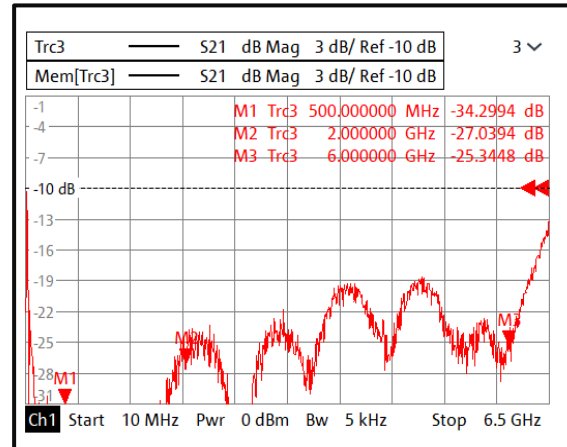


## Typical Performance Plots

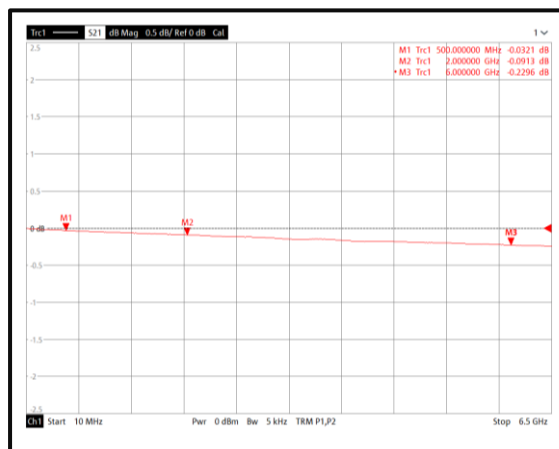
**Directivity 1**



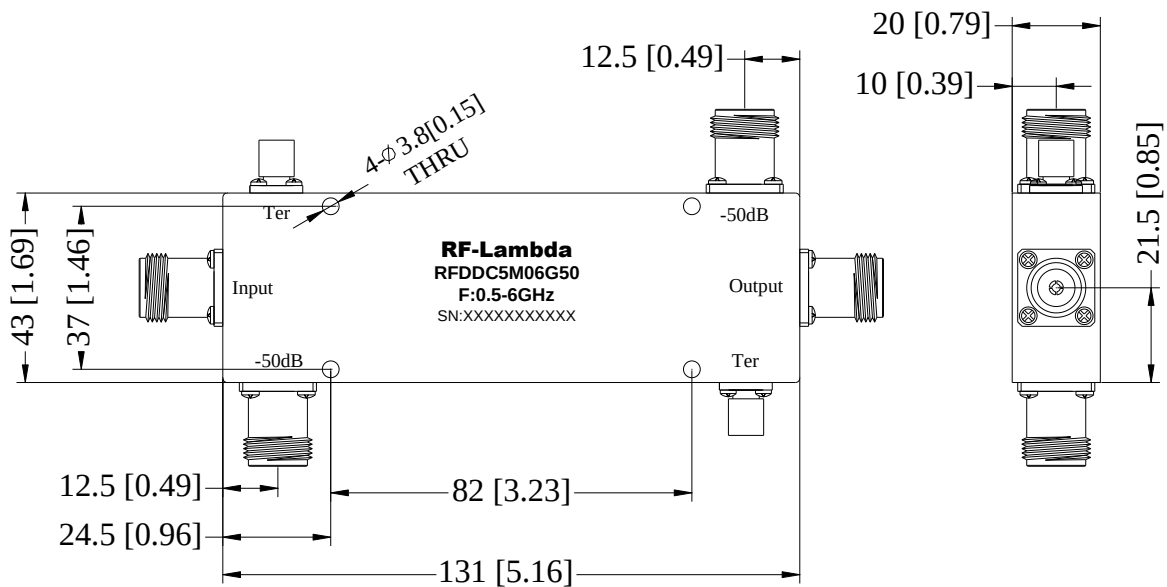
**Directivity 2**



**Insertion Loss**

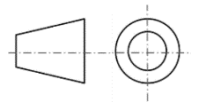


**Outline Drawing**



**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**

Connector Torque Specifications

[https://www.rflambda.com/pdf/Torque\\_Specifications.pdf](https://www.rflambda.com/pdf/Torque_Specifications.pdf)

Random Vibration Test Standard

[https://www.rflambda.com/pdf/rflambda\\_random\\_vibration\\_MIL-STD-202G.pdf](https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf)

**Webpage**

**Ordering Information**

| Part Number  | Modification                                              | Description                          |
|--------------|-----------------------------------------------------------|--------------------------------------|
| RFDDC5M06G50 | Input Connector N-Female<br>and Output Connector N-Female | 0.5GHz-6GHz Dual Directional Coupler |

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