

## Coaxial 50W 30dB Dual Directional Coupler 2GHz-18GHz



### Product Description

RFDDC2G18G30N is a coaxial dual directional coupler with a frequency range of 2 to 18GHz.

The power handling for this dual directional coupler is 500W. The Insertion Loss is 0.7dB with a typical directivity of 12dB.

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

### Features

- 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                                       | Typ  | Units |
|------------------------------------|------------------------------------|---|------|-------|
| Frequency Range                    | 2                                  |   | 18   | GHz   |
| Nominal Coupling                   | 29                                 | 30  | 31.5 | dB    |
| Frequency Sensitivity              |                                    | ±0.7                                      | ±1.0 | dB    |
| Directivity                        | 10                                 | 12  |      | dB    |
| Insertion Loss<br>(Excl. Coupling) |                                    | 0.7                                       | 1.2  | dB    |
| Insertion Loss (True)              |                                    | 0.7                                       | 1.2  | dB    |
| VSWR Primary                       |                                    | 1.3                                       | 1.5  | : 1   |
| VSWR Secondary                     |                                    | 1.3                                       | 1.5  | : 1   |
| Power Rating                       | Average                            | 50  |      | W     |
|                                    | Peak                               | 500<br>(10% Duty Cycle, 1 us Pulse Width) |      | W     |
| Weight                             |                                    | 0.42 Max.                                 |      | lbs   |
| Impedance                          |                                    | 50  |      | Ω     |
| Input / Output Connectors          | N-Female(Input) – N-Female(Output) |   |      |       |
| Package                            | Epoxy Sealed (Standard)            |   |      |       |
|                                    | Hermetically Sealed (Optional)     |   |      |       |

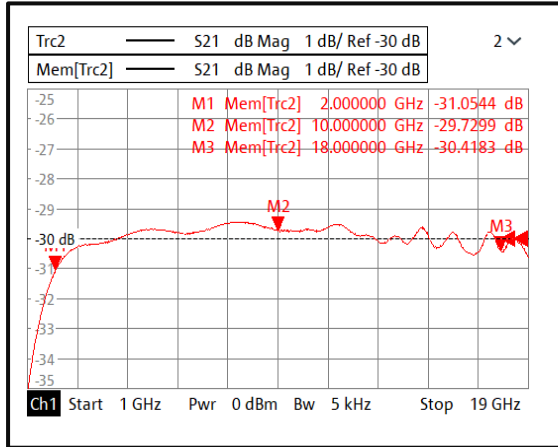
**Environmental Specifications and Test Standards**

| 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)   |

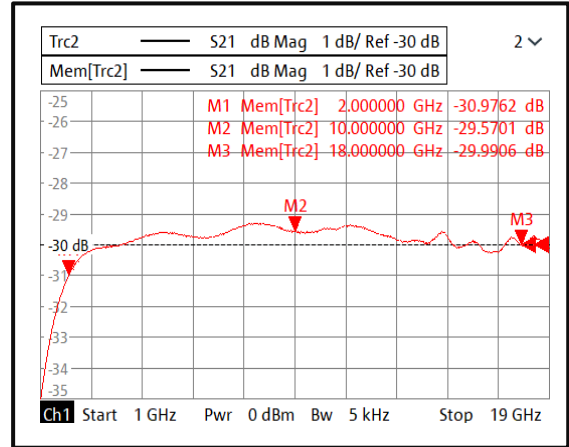
\*\*For vibration testing details please see additional information section.

Typical Performance Plots

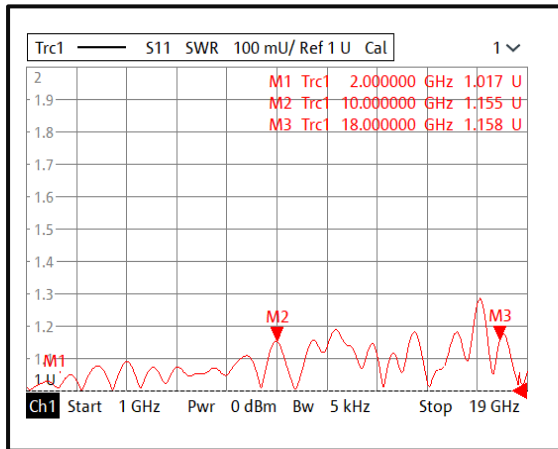
Nominal Coupling 1



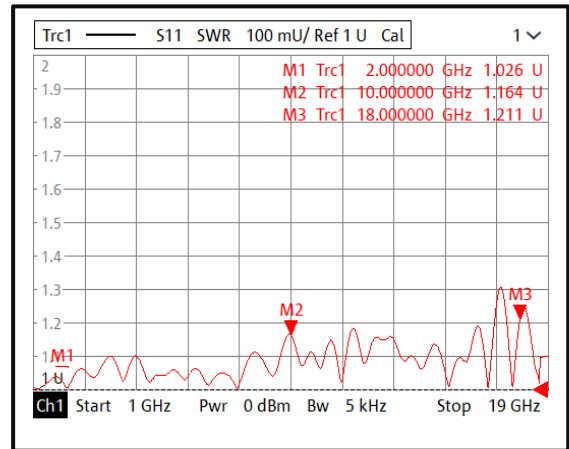
Nominal Coupling 2



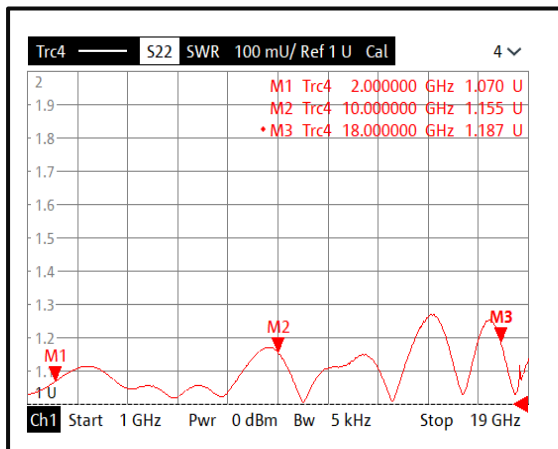
Primary VSWR 1



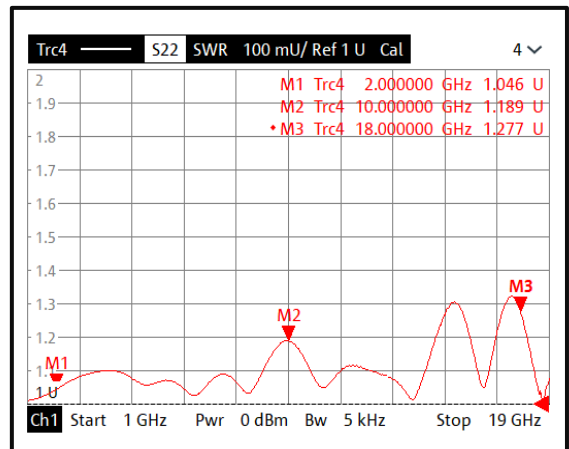
Primary VSWR 2



Secondary VSWR 1

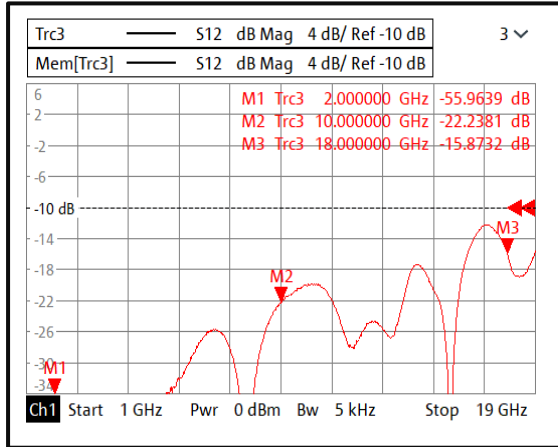


Secondary VSWR 2

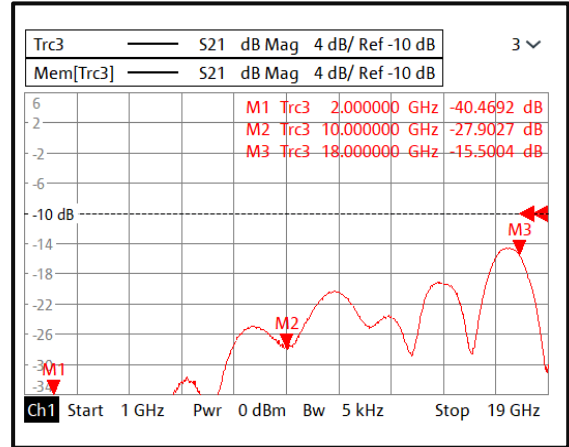


Typical Performance Plots

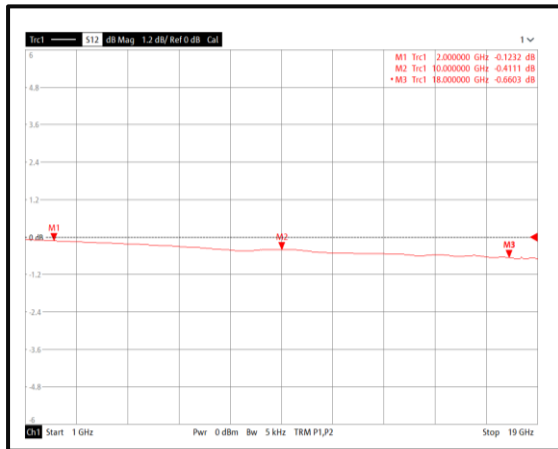
Directivity 1



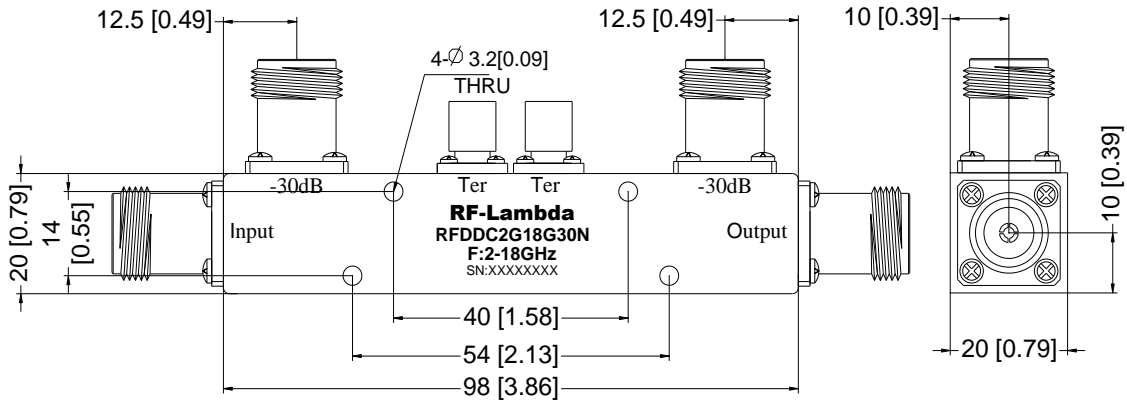
Directivity 2



Insertion Loss

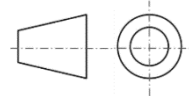


**Outline Drawing**



**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                   | 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                         |
|---------------|---------------------|-------------------------------------|
| RFDDC2G18G30N | Connectors N-Female | 2GHz-18GHz Dual Directional Coupler |

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