

Coaxial 50W 20dB Dual Directional Coupler 0.5GHz-18GHz



Product Description

RFDDC5M18G20N is a coaxial dual directional coupler with a frequency range of 0.5 to 18GHz.

The power handling for this dual directional coupler is 50W. The insertion loss is 1.6dB 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
- 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 | Min | Typ | Max | Units |
|--------------------------------|---------|------|--|-----|------|------|-------|
| Frequency Range | 0.5 | | 6 | 6 | | 18 | GHz |
| Nominal Coupling | 19 | 20 | 21.5 | 19 | 20 | 21.5 | dB |
| Frequency Sensitivity | | ±0.7 | ±1.0 | | ±0.7 | ±1.0 | dB |
| Directivity | 12 | 14 | | 10 | 12 | | dB |
| Insertion Loss (Excl Coupling) | | | 1.0 | | | 1.9 | dB |
| Insertion Loss (True) | | 0.8 | 1.1 | | 1.6 | 2.0 | dB |
| VSWR Primary | | 1.4 | 1.5 | | 1.5 | 1.7 | : 1 |
| VSWR Secondary | | 1.4 | 1.5 | | 1.5 | 1.7 | : 1 |
| Power Rating | Average | | 50 | | | | W |
| | Peak | | 500 (10% Duty Cycle, 1us Pulse Width) | | | | W |
| Weight | | | 0.54 Max. | | | | lbs |
| Impedance | | | 50 | | | | Ω |
| Input / Output Connectors | | | N-Female(Input) – N-Female(Output) | | | | |
| Package | | | Epoxy Sealed (Standard) | | | | |
| | | | Hermetically Sealed (Optional) | | | | |

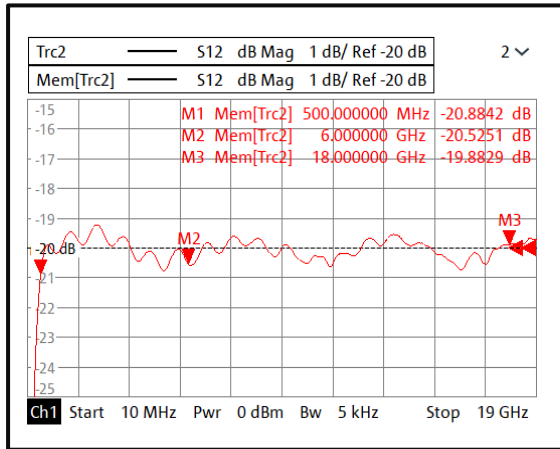
Environmental Specifications and Test Standards

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

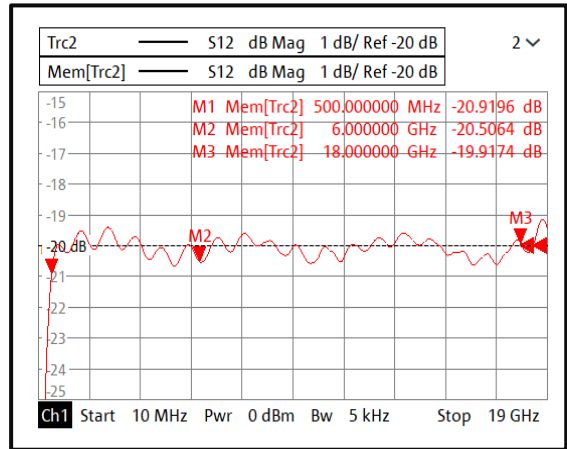
**For vibration testing details please see additional information section.

Typical Performance Plots

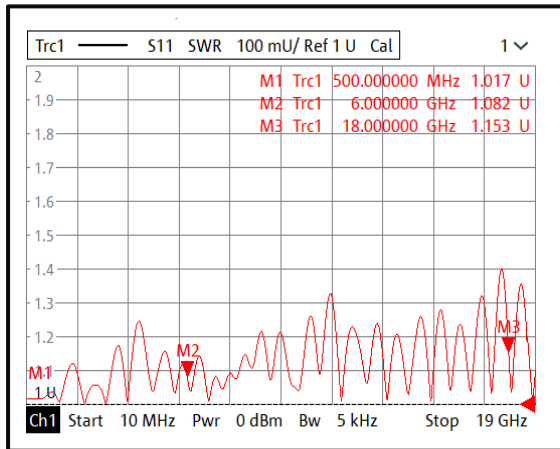
Nominal Coupling 1



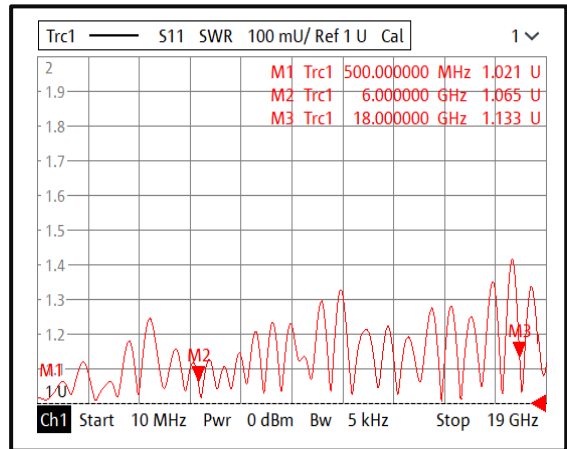
Nominal Coupling 2



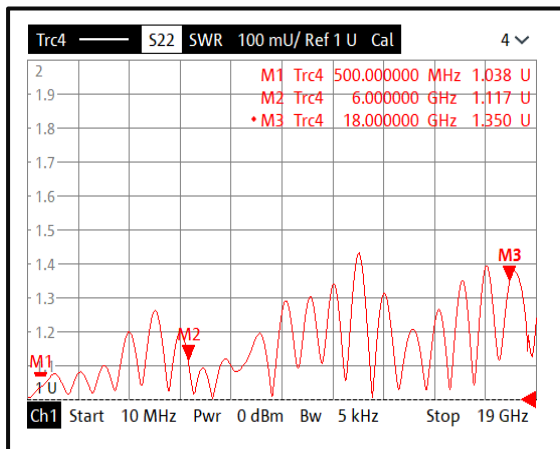
Primary VSWR 1



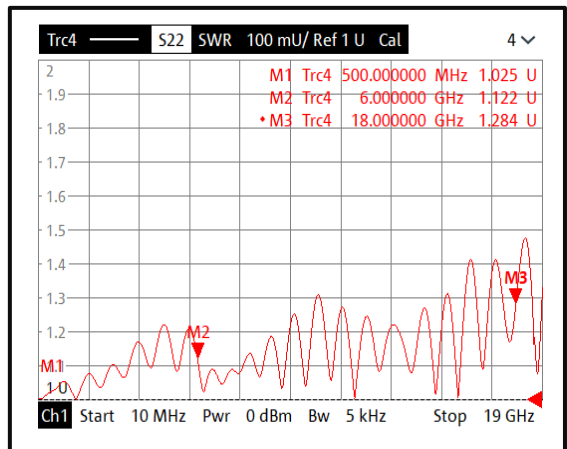
Primary VSWR 2



Secondary VSWR 1

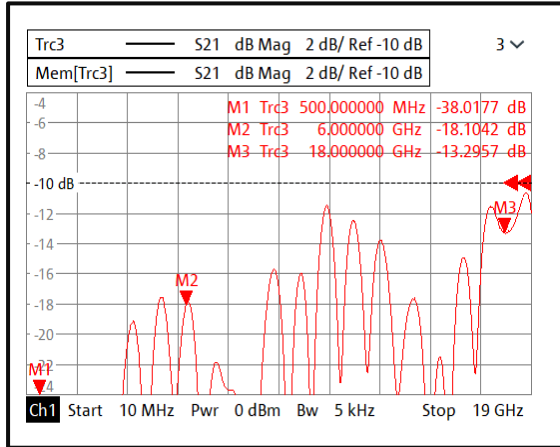


Secondary VSWR 2

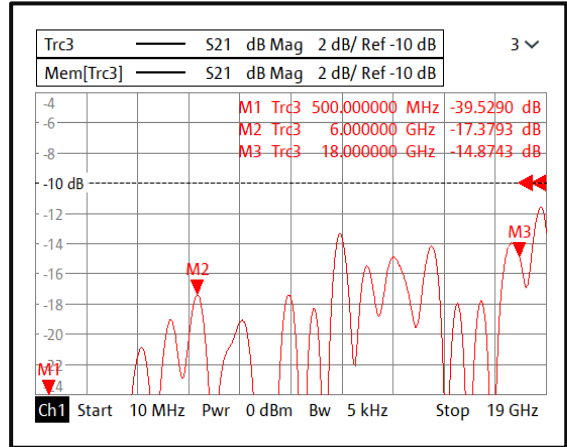


Typical Performance Plots

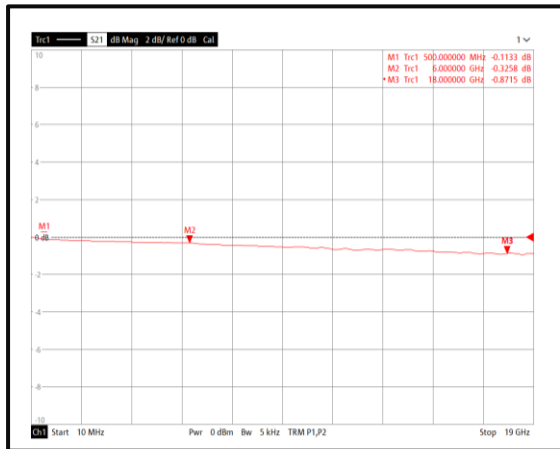
Directivity 1



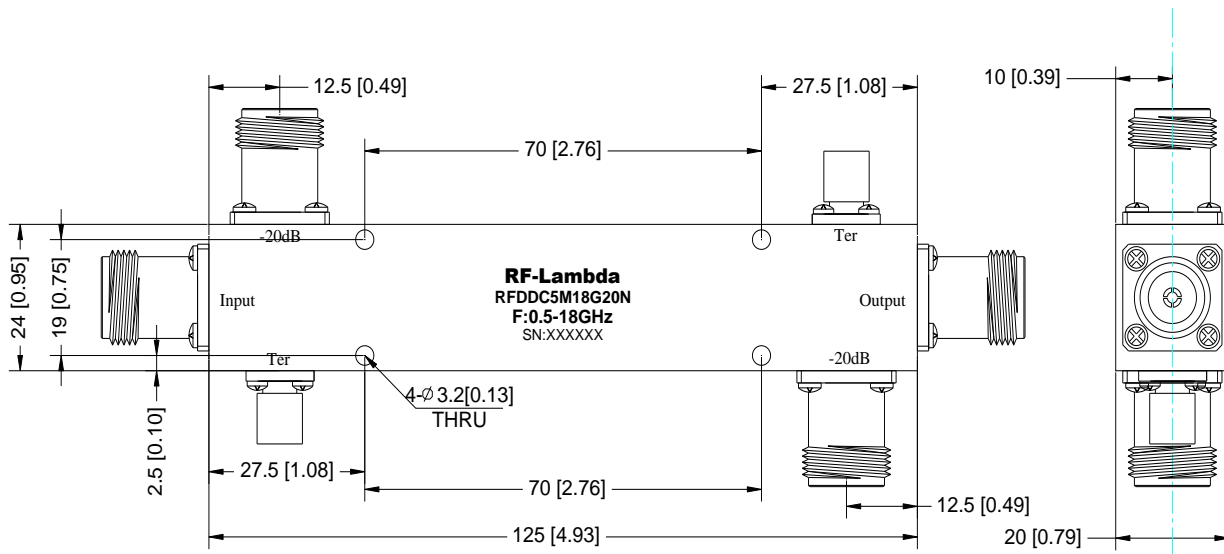
Directivity 2



Insertion Loss

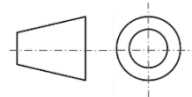


Outline Drawing



Notes:

1. Package Material: Aluminum
2. Finish: Blue Paint
3. All dimensions are in millimeters [inches].
4. Outline Tolerances ± 0.5 [0.02], Mounting Hole Tolerances ± 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 | https://www.rflambda.com/pdf/Torque_Specifications.pdf |
| Random Vibration Test Standard | https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf |

Ordering Information

| Part Number | Modification | Description |
|---------------|---------------------|---------------------------------------|
| RFDDC5M18G20N | Connectors N-Female | 0.5GHz-18GHz Dual Directional Coupler |

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