

## Coaxial 50W 10dB Directional Coupler 0.1GHz-18GHz



### Product Description

RFDC1M06G10 is a coaxial directional coupler with a frequency range of 0.1 to 18GHz.

The power of this directional coupler is 50W. The insertion loss is 0.5dB with a typical directivity of 20dB.

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

### Features

- High 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	Min	Typ	Max	Units
Coupling Frequency Range	0.1		0.2	0.2		4.5	4.5		18	GHz
Nominal Coupling	9	14	15	9	10	11.5	8.5	10	11.5	dB
Frequency Sensitivity		±1.5	±2.0		±0.7	±1.2		±1.0	±1.5	dB
Directivity	20			18	20			12		dB
Insertion Loss (Excl Coupling)			0.5			0.5			0.5	dB
Insertion Loss (True) @0.1-6GHz(1.6dB Max.)		0.5	1.0		1.15	1.5		2.5	3.0	dB
VSWR Primary		1.1	1.2		1.2	1.25		1.6		: 1
VSWR Secondary		1.1	1.2		1.2	1.25		1.6		: 1
Power Rating	Average				50				W	
	Peak				500		(10% Duty Cycle, 1 us Pulse Width)		W	
Weight					0.42 Max.				lbs	
Impedance					50				Ω	
Input / Output Connectors					SMA-Female(Input) – SMA-Female(Output)					
Package					Epoxy Sealed (Standard)					
					Hermetically Sealed (Optional)					

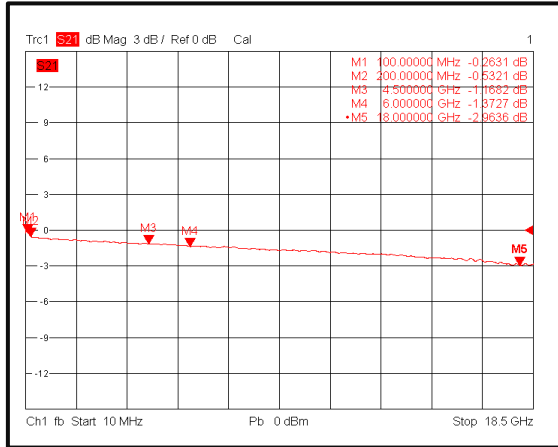
**Environmental Specifications and Test Standards**

Parameter	Description
Operational Temperature	-40°C to +85°C (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)

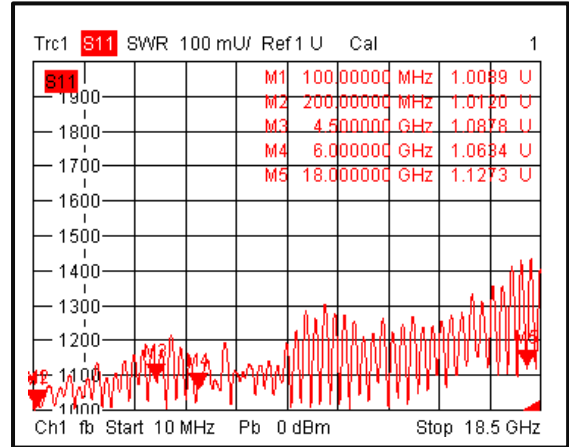
\*For vibration testing details please see additional information section.

Typical Performance Plots

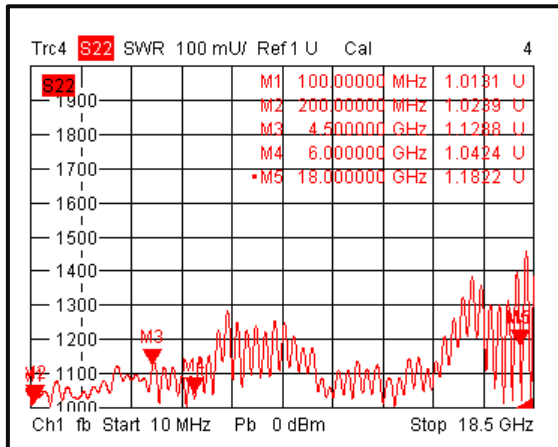
Insertion Loss



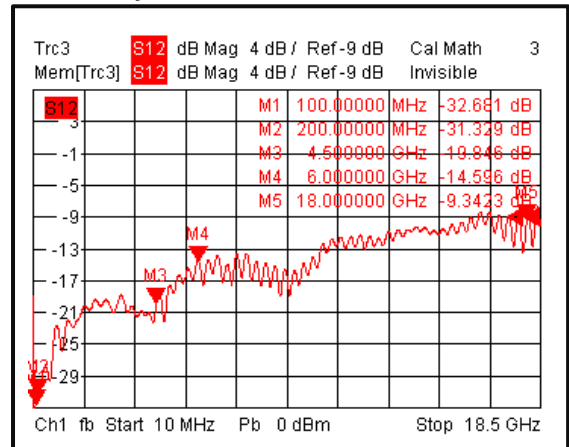
Primary VSWR



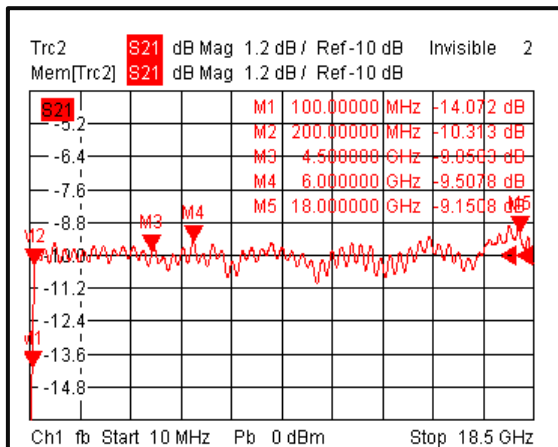
Secondary VSWR



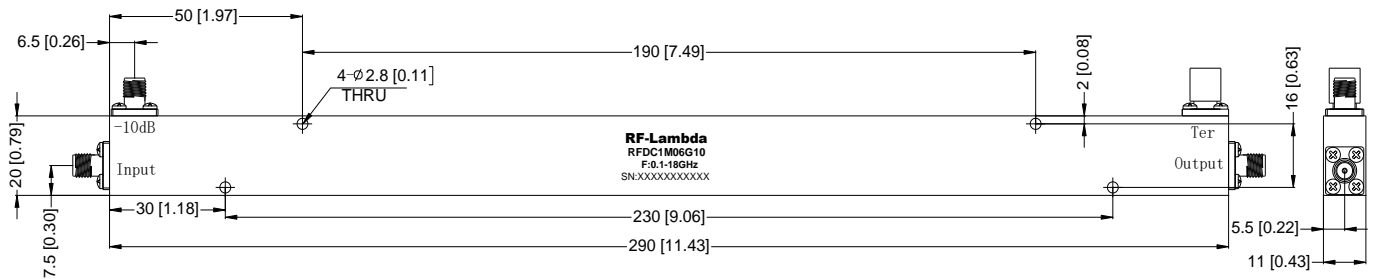
Directivity



Nominal Coupling

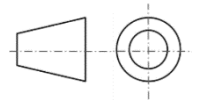


**Outline Drawing**



**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
RFDC1M06G10	Standard	0.1GHz-18GHz Directional Coupler

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