

## Coaxial 50W 30dB Directional Coupler 0.8GHz-2.5GHz



Note: The photo is for illustration purposes only.  
Please refer to outline drawing

### Product Description

The RFDC8M3G30D is a coaxial directional coupler with a frequency range of 0.8 to 2.5GHz.

The power of this directional coupler is 50W. The Insertion Loss is 0.5dB 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
- 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

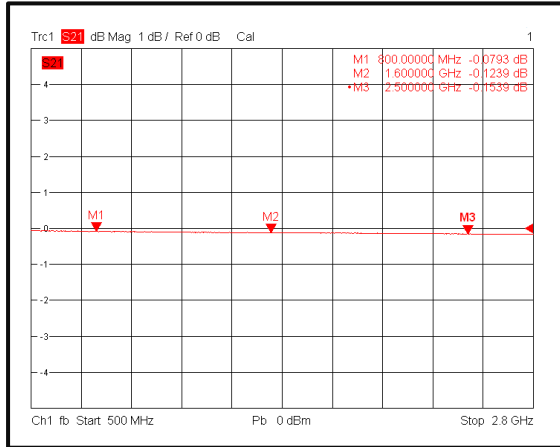
Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.8		1.6	1.6		2.5	GHz
Nominal Coupling	29	30	31	29	30	31	dB
Frequency Sensitivity		±0.4	±0.5		±0.3	±0.5	dB
Directivity	20	22		20	22		dB
Insertion Loss (Excl Coupling)			0.4			0.5	dB
Insertion Loss (True)		0.2	0.5		0.2	0.5	dB
VSWR Primary		1.15	1.2		1.15	1.2	: 1
VSWR Secondary		1.15	1.2		1.15	1.2	: 1
Power Rating	Average		50				W
	Peak		1 (10% Duty Cycle, 1 us Pulse Width)				KW
Weight			0.13				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**

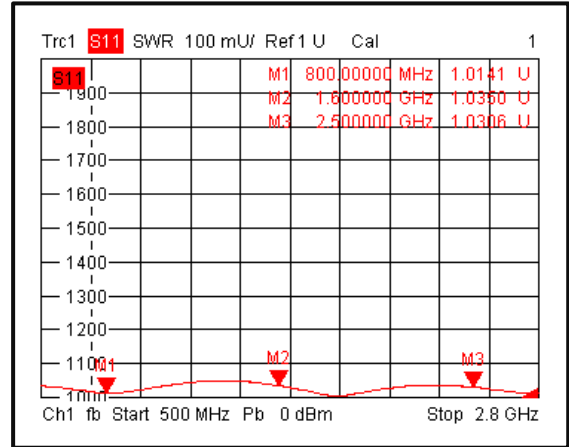
Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
**Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
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)

**Typical Performance Plots**

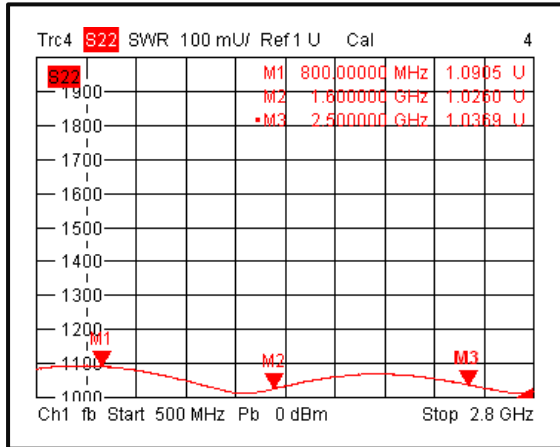
**Insertion Loss**



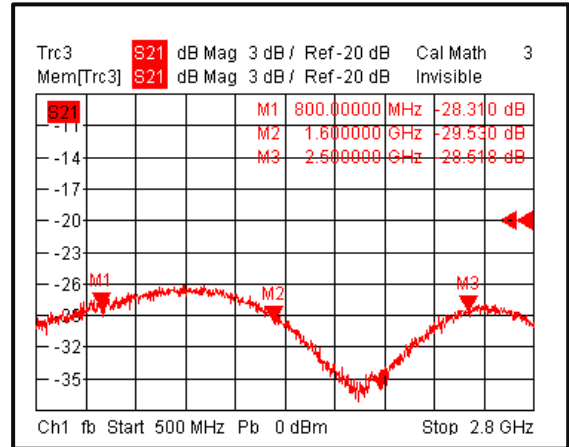
**Primary Return Loss**



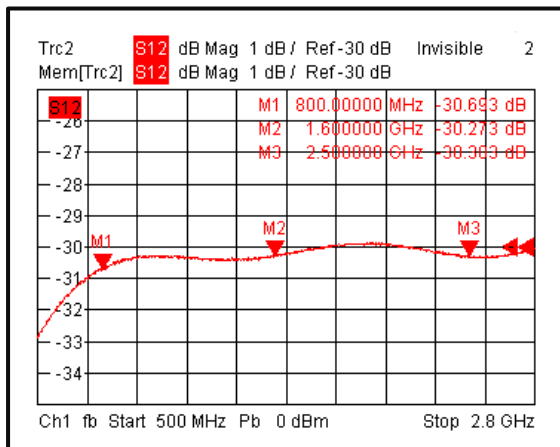
**Secondary Return Loss**



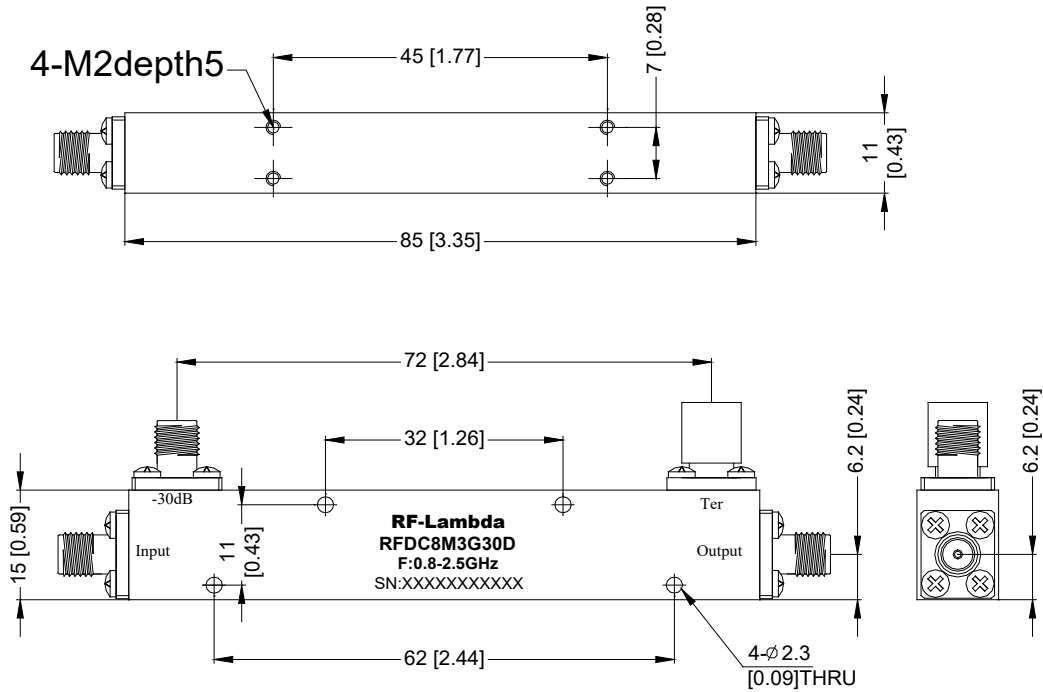
**Directivity**



**Nominal Coupling**



**Outline Drawing**



Notes:

1. Package Material: Aluminum
2. Finish: Painted
3. All dimensions are in millimeters [inches].
4. Outline Tolerances  $\pm 0.05$  [0.02], Mounting Hole Tolerances  $\pm 0.2$  [0.008] unless otherwise specified.



Additional Information

Documentation	Webpage
---------------	---------

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)

**Ordering Information**

Part Number	Modification	Description
RFDC8M3G30D	Standard	0.8-2.5GHz Directional Coupler

**Important Notice**

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.