

Coaxial 50W 180° Hybrid Coupler 3GHz-5GHz



Product Description

RFHB03G05GPI is a coaxial hybrid coupler with a frequency range of 3 to 5GHz.

The power of this hybrid coupler is 50W. The insertion loss is 0.4dB with a typical isolation of 22dB.

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

Features

- High power handling up to 50W
- Wide band operation
- High isolation 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		3		5	GHz
Nominal Coupling			3		dB
Insertion Loss			0.35	0.4	dB
Isolation		20	22		dB
Amplitude Imbalance			±0.3	±0.5	dB
Phase Imbalance			±4	±6	deg
VSWR			1.2	1.25	: 1
Power Rating	Average		50		W
	Peak	(10% Duty Cycle, 1 us Pulse Width)			KW
Weight			0.181 Max.		lbs
Impedance			50		Ω
Input / Output Connectors		SMA-Female(Input) – SMA-Female(Output)			
Package	Epoxy Sealed (Standard)				
	Hermetically Sealed (Optional)				

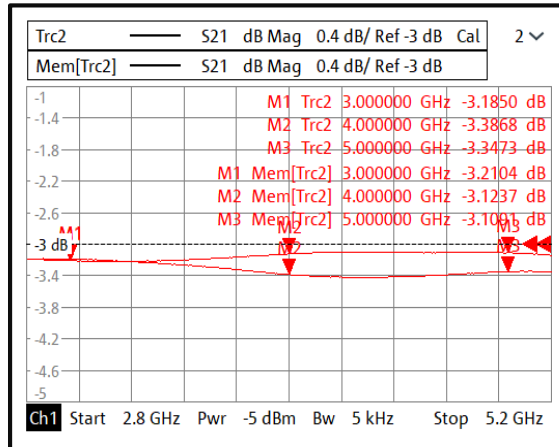
Environmental Specifications and Test Standards

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)

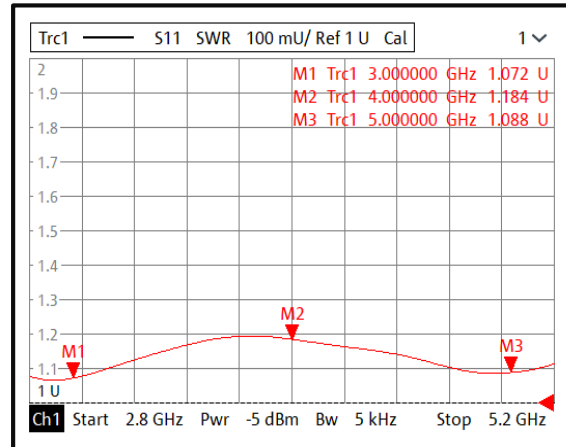
*For vibration testing details please see additional information section.

Typical Performance Plots

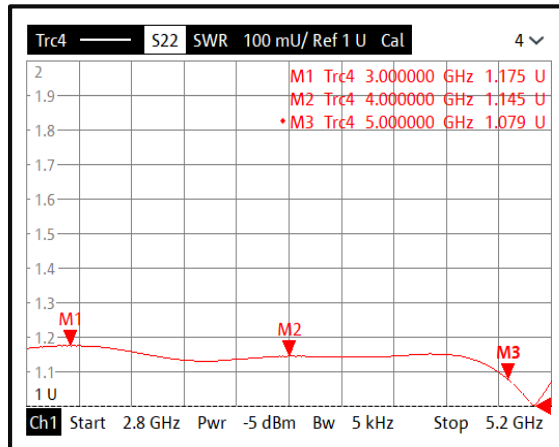
Loss & Amplitude Imbalance



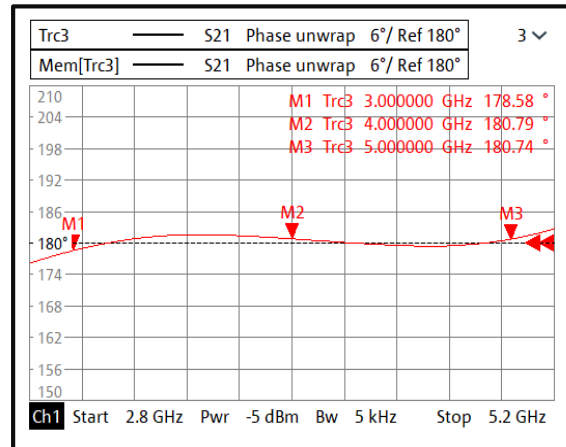
Input VSWR



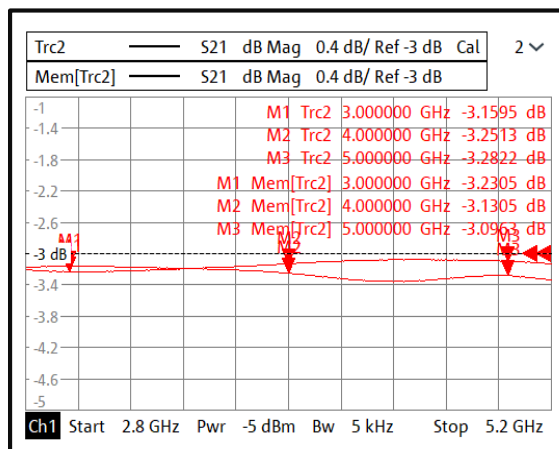
Output VSWR



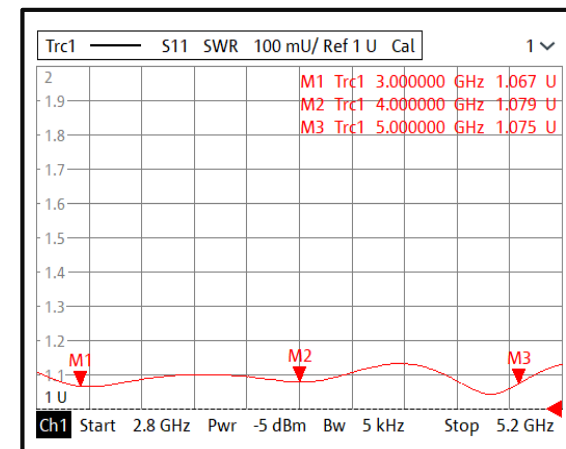
Phase Imbalance



Loss & Amplitude Imbalance

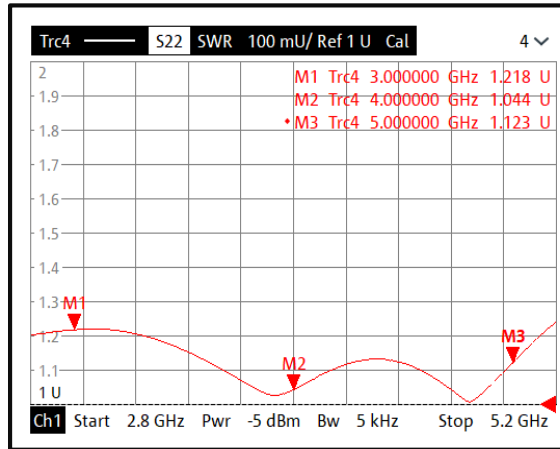


Input VSWR

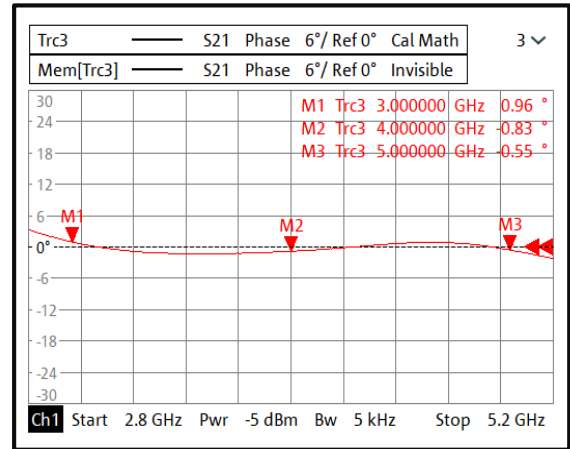


Typical Performance Plots

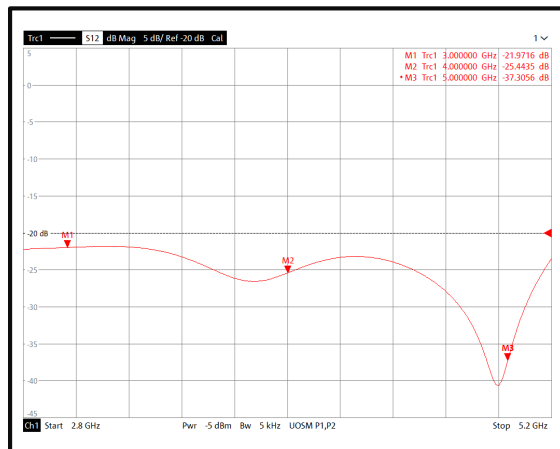
Output VSWR



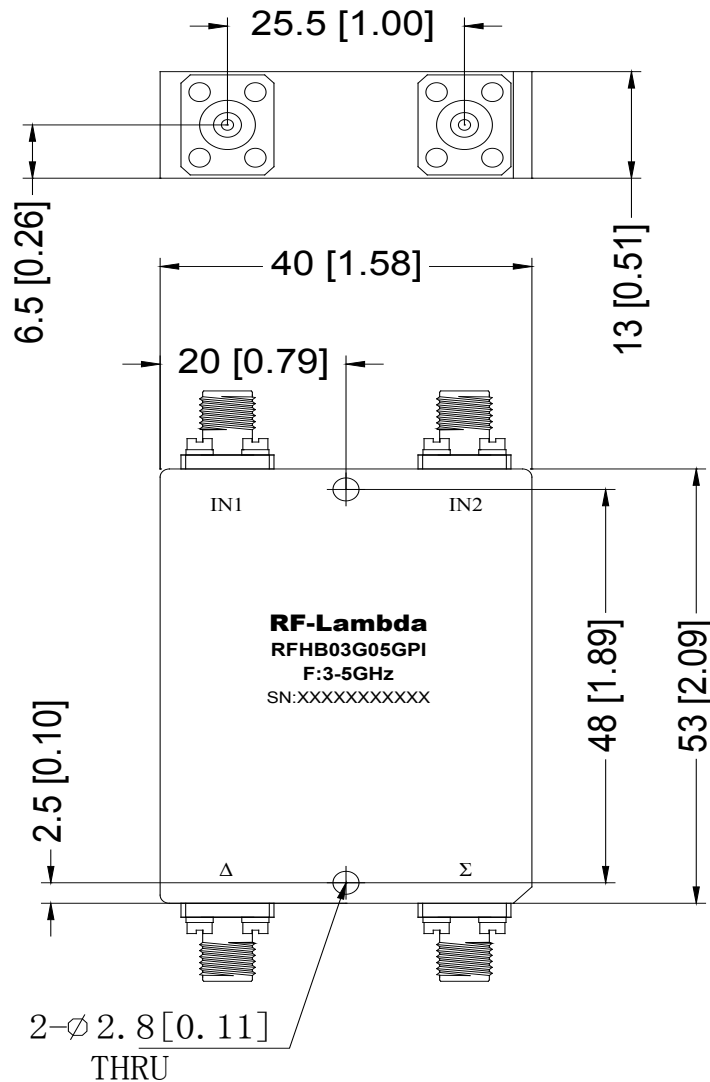
Phase Imbalance



Isolation

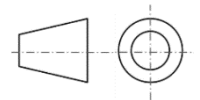


Outline Drawing



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

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

Webpage

Ordering Information

Part Number	Modification	Description
RFHB03G05GPI	Standard	3GHz-5GHz Hybrid Coupler

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