

Hermetically Sealed Reflective Coaxial SP2T Switch 0.02GHz-3.5GHz



Product Description

RFSP2TR3M4G100W-H is a hermetically sealed reflective coaxial single pole double throw switch with a frequency range of 0.02 to 3.5GHz.

The maximum power input of this switch is 100W. The insertion loss is 0.8dB with a typical isolation of 30dB.

The product features fast switching speed, low insertion loss and high isolation.

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

Features

- TTL compatible driver included
- Fast Switching Speed
- High Power Cold Switching
- Insertion Loss 0.8dB Typical
- Isolation 30dB Typical
- 50 Ohm Matched

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), Vdd = +5V, TTL = 0 / +5V

Parameter		Min	Typ	Max	Min	Typ	Max	Units
Frequency Range			0.02 - 3.0			3 - 3.5		GHz
Insertion Loss			0.8	1.1		0.9	1.2	dB
Insertion Loss Temperature Coefficient			0.003			0.003		dB/ °C
Isolation		28	30		25	28		dB
Input VSWR			1.5	1.8		1.5	1.8	: 1
Output VSWR			1.5	1.8		1.5	1.8	: 1
RF Input Power (CW)				100				W
DC Power Dissipation				0.25				W
0.1dB Compression Point (P0.1dB)				50				dBm
IIP3				45				dBm
Switching Speed				12 Typ.				us
Bias Current (+5V)				50Typ.				mA
Weight	Net			0.10 Max.				lbs
	Including Heat sink			1.04 Max.				
Impedance				50				Ω
Input / Output Connectors			SMA-Female(Input) – SMA-Female(Output)					
Package			Hermetically Sealed (Laser Welded)					

Absolute Maximum Ratings

Parameter	Rating
Biasing	+5V±10%

Notes:

1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
2. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

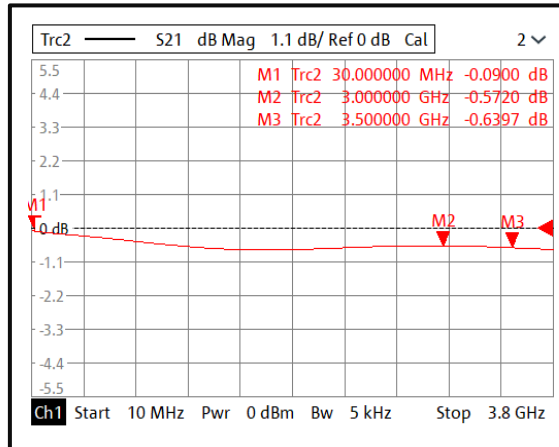
Environmental Specifications and Test Standards

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)

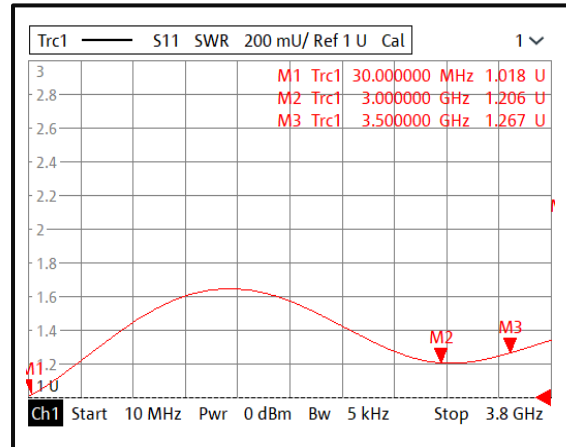
** For vibration testing details please see additional information section.

Typical Performance Plots

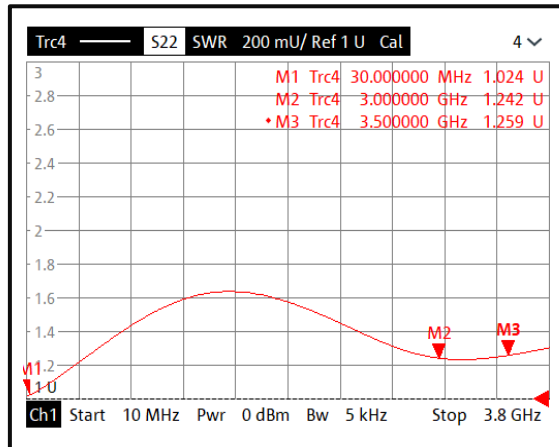
Insertion Loss @+25°C



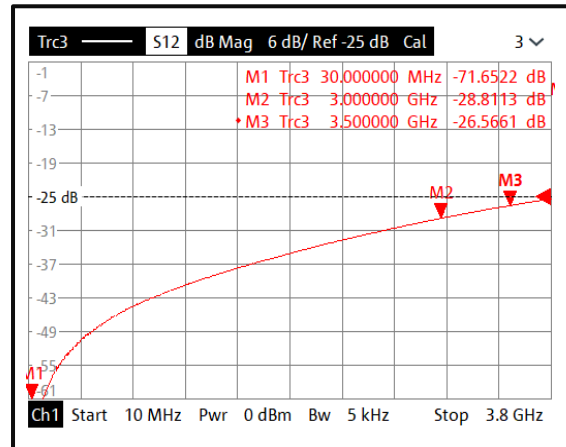
Input VSWR @+25°C



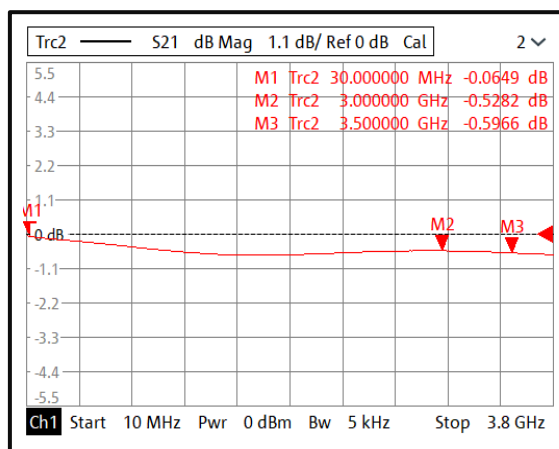
Output VSWR @+25°C



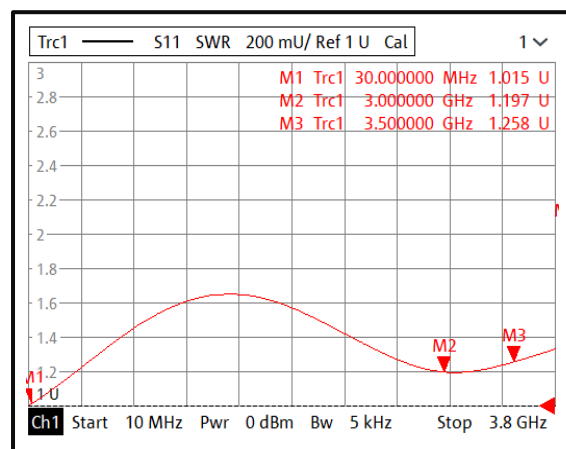
Isolation @+25°C



Insertion Loss @-40°C

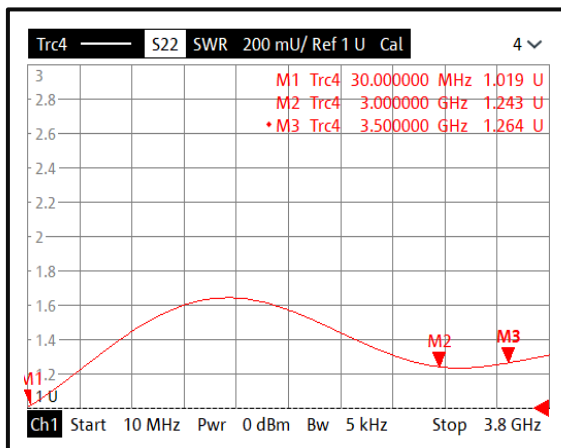


Input VSWR @-40°C

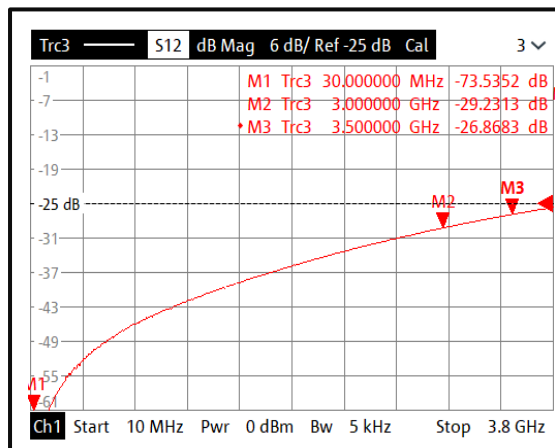


Typical Performance Plots

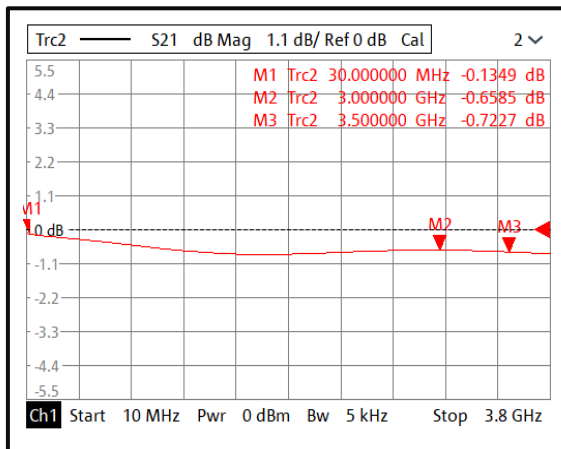
Output VSWR @-40°C



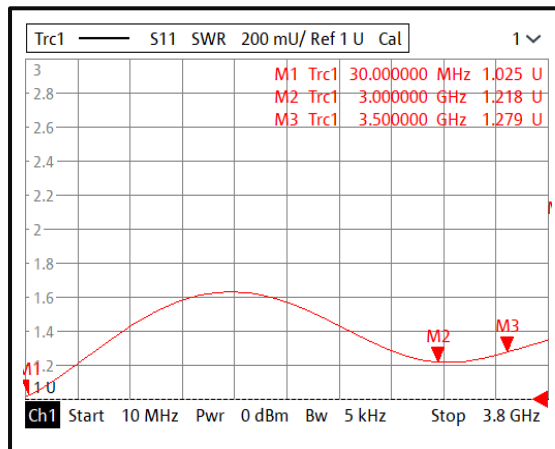
Isolation @-40°C



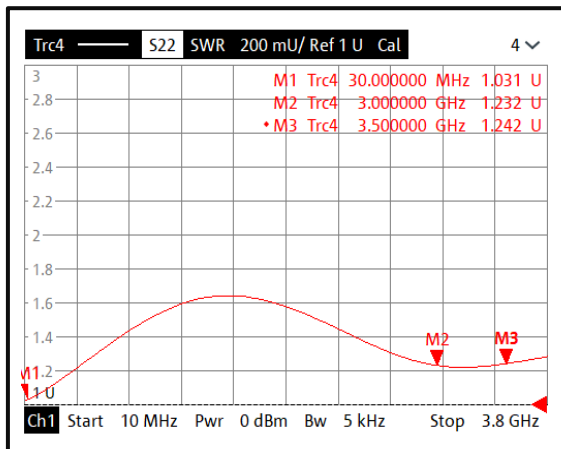
Insertion Loss @+85°C



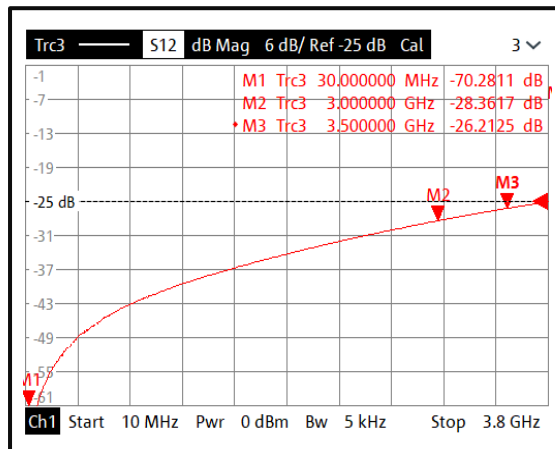
Input VSWR @+85°C



Output VSWR @+85°C

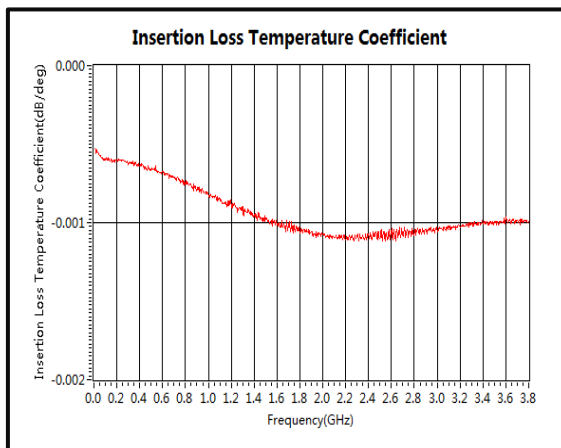


Isolation @+85°C

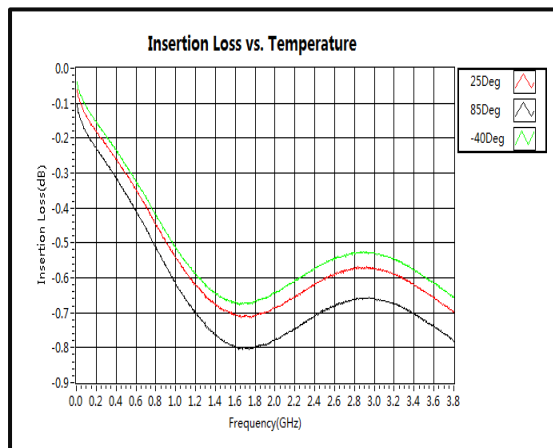


Typical Performance Plots

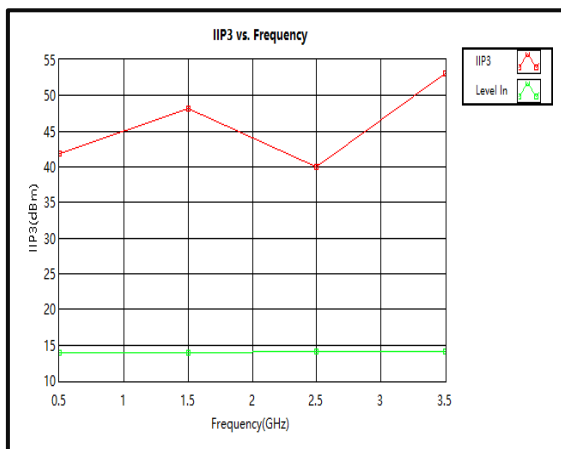
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



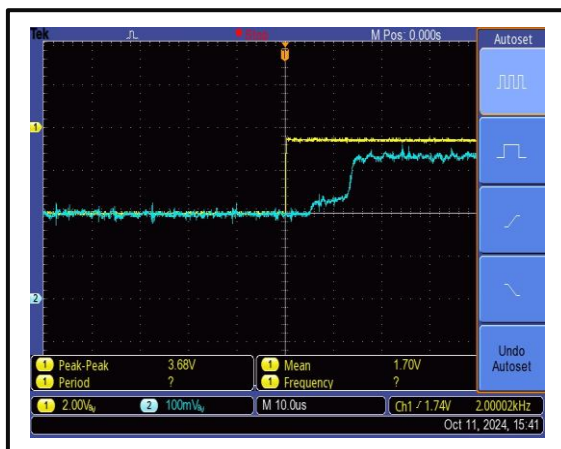
IIP3



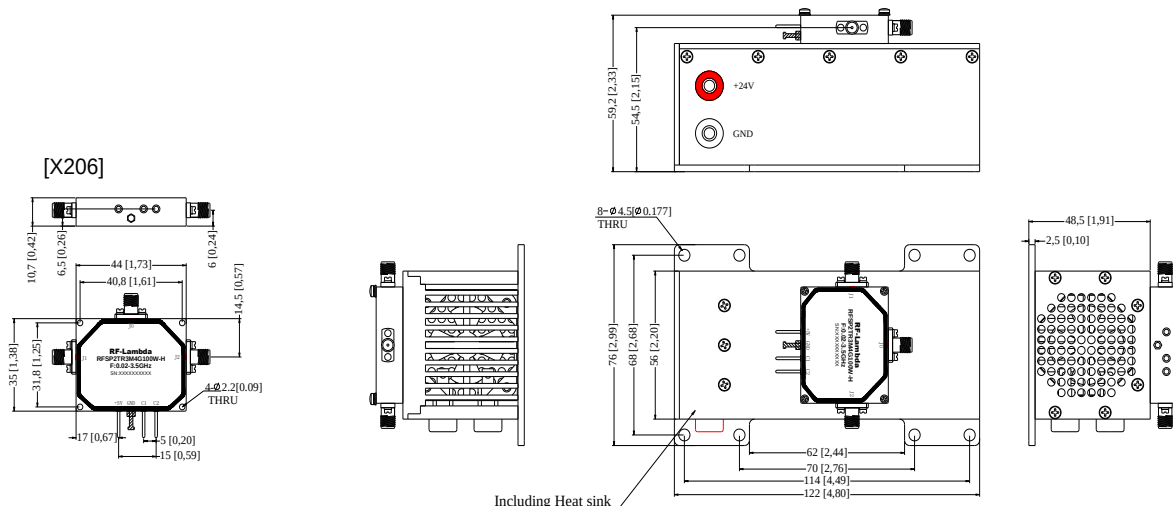
Switching Speed



Switching Speed



Outline Drawing

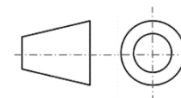


Notes:

1. Package Material: Aluminum
2. Finish: Gold Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ± 0.1 [0.004] unless otherwise specified(Excl Heat Sink).
5. Heatsink Required - Mandatory for High Power Operation .Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
6. Standard torque wrench must be used to secure RF connectors.

Truth Table

TTL Control Voltage	Low(0)=0~0.8V	
THRESHOLD	High(1)=2.8~5V	
Control Input	Signal Path State	
TTL		
C1	C2	
0	1	ALL OFF
0	0	J0-J1
1	0	J0-J2
1	1	Not Used
Control Pin	Customization available upon request	



Additional Information

Documentation

Webpage

ESD Policy

https://rflambda.com/pdf/rflambda_esd_control.pdf

Heatsink Lookup Specifications

https://rflambda.com/search_heatsink.jsp

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
RFSP2TR3M4G100W-H	Standard	0.02GHz-3.5GHz Hermetically Sealed SP2T PIN Diode Switch

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