

## Absorptive Coaxial SPST Switch 0.1GHz-50GHz



### Product Description

RFSPSTA5M50G is an absorptive coaxial single pole single throw switch with a frequency range of 0.1 to 50GHz.

The maximum power input of this switch is 23dBm. The insertion loss is 2.5dB with a typical isolation of 80dB.

The product features of 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
- Low Power Cold Switching
- Insertion Loss 2.5dB
- Isolation 80dB 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/-5V, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.1		18	18		50	GHz
Insertion Loss		2.5	3.2		5.5	6.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	60	80		60	70		dB
Input VSWR		1.5	2.2		2.1	2.5	: 1
Output VSWR		1.5	2.2		2.1	2.5	: 1
RF Input Power (CW)			23			23	dBm
DC Power Dissipation		0.4			0.4		W
0.1dB Compression Point (P0.1dB)		23			23		dBm
IIP3		43			38		dBm
Switching Speed			100 Max.				ns
Bias Current ( +5V / -5V )			55/50 Max.				mA
Weight			0.035 Max.				lbs
Impedance			50				Ω
Input / Output Connectors	2.4mm-Female(Input) – 2.4mm-Female(Output)						
Package	Epoxy Sealed (Standard) Hermetically Sealed (Optional)						

\* J0: Absorptive Port J1: Reflective port

**Absolute Maximum Ratings**

Parameter	Rating
Biasing	+5V±10%/-5V±10%

\* TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

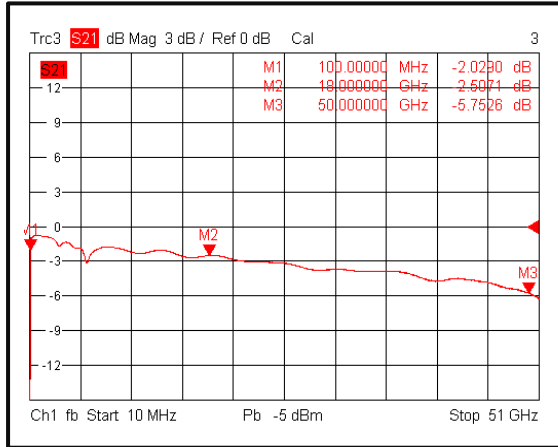
**Environmental Specifications and Test Standards**

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)

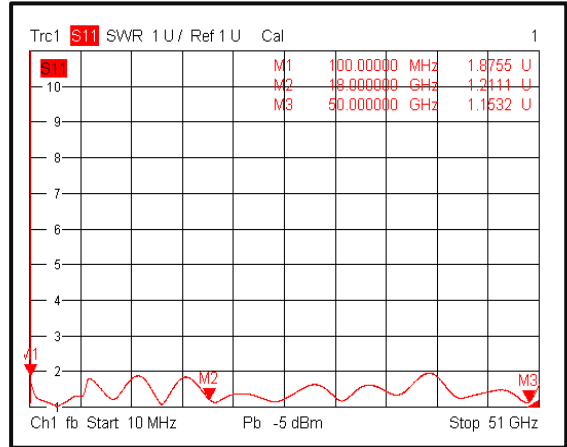
\*\* For vibration testing details please see additional information section.

Typical Performance Plots

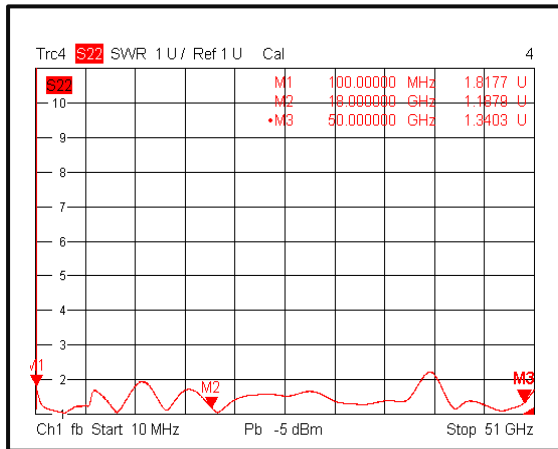
Insertion Loss @+25°C



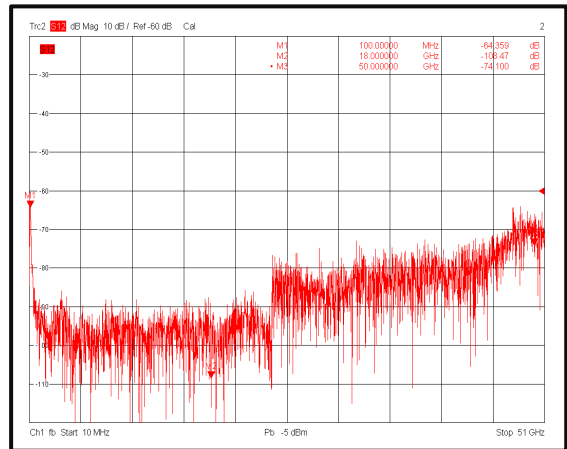
Input VSWR @+25°C



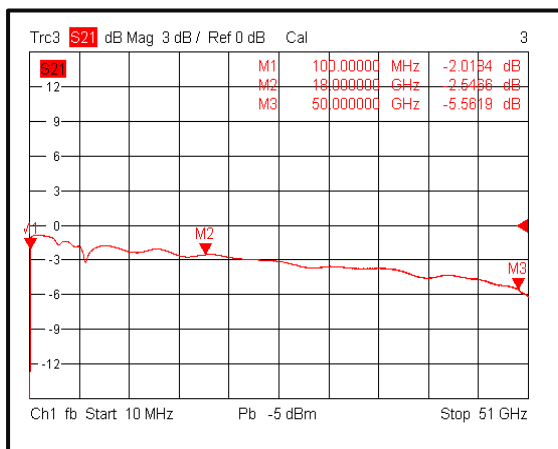
Output VSWR @+25°C



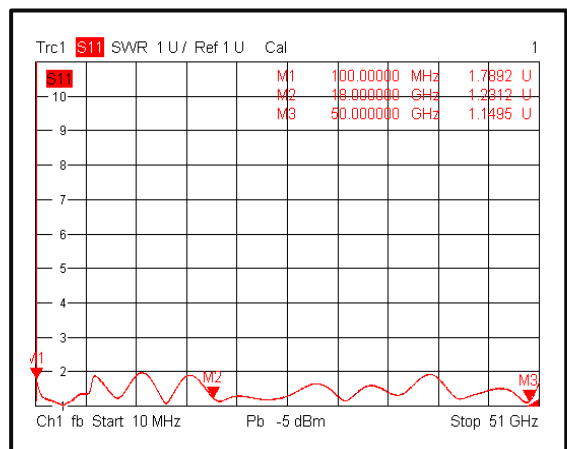
Isolation @+25°C



Insertion Loss @-40°C

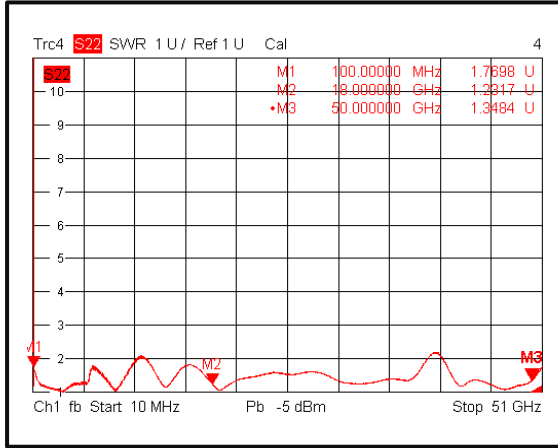


Input VSWR @-40°C

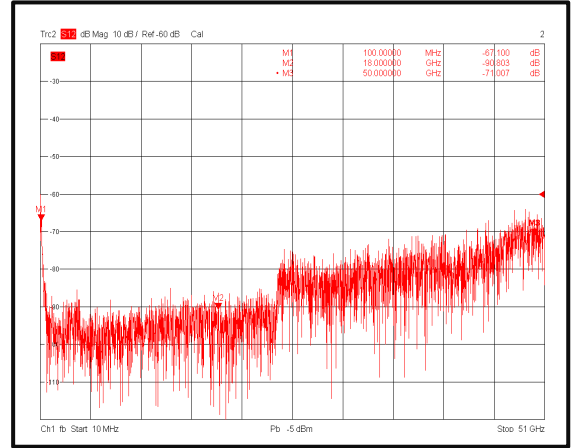


Typical Performance Plots

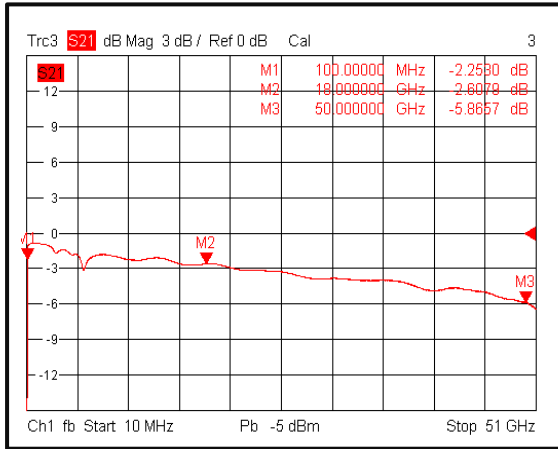
Output VSWR @-40°C



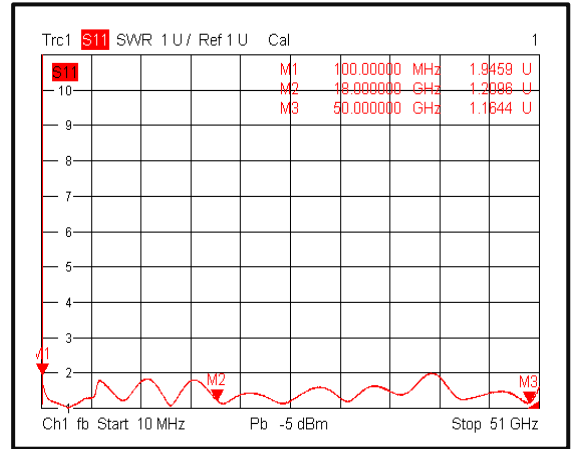
Isolation @-40°C



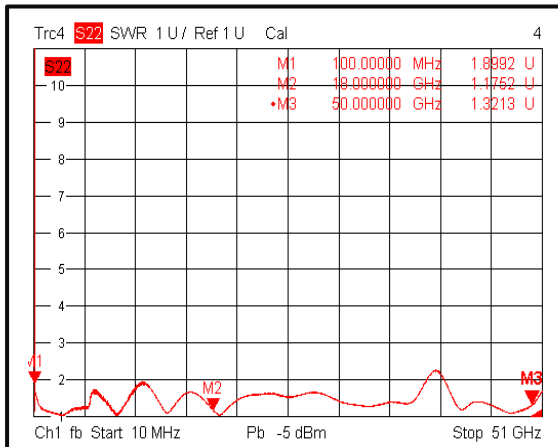
Insertion Loss @+85°C



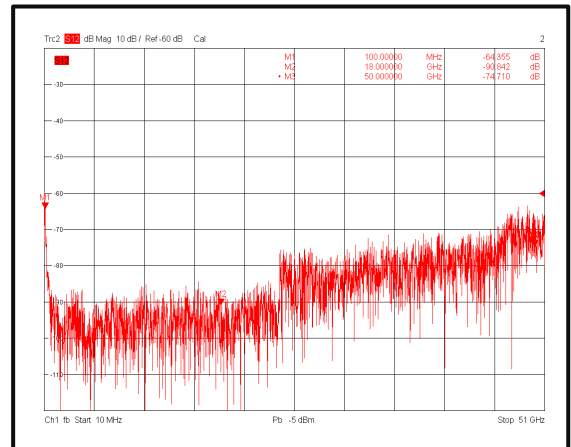
Input VSWR @+85°C



Output VSWR @+85°C

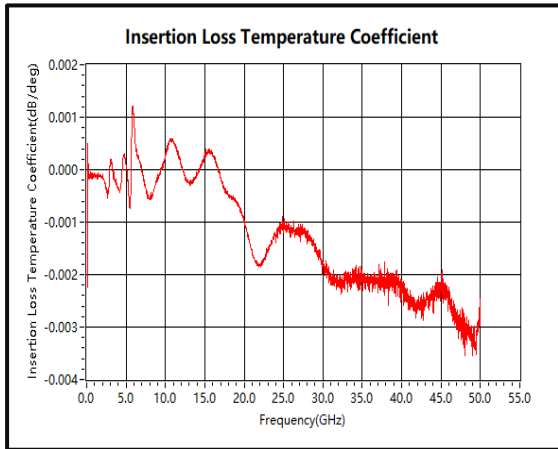


Isolation @+85°C

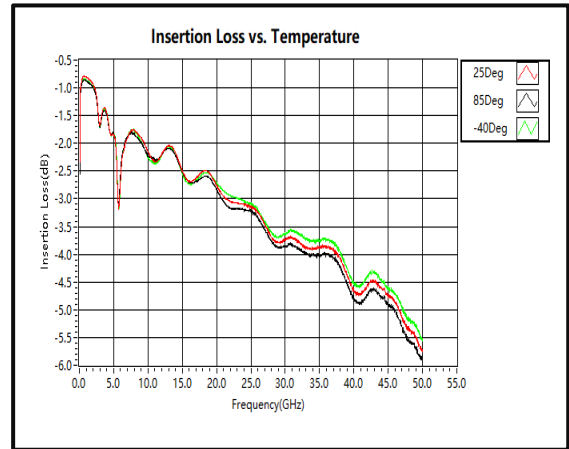


**Typical Performance Plots**

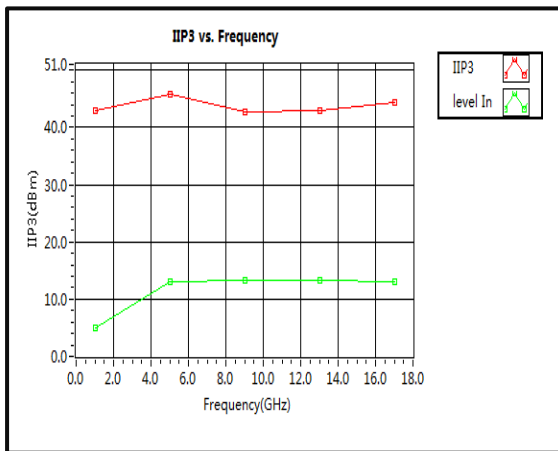
**Insertion Loss Temperature Coefficient**



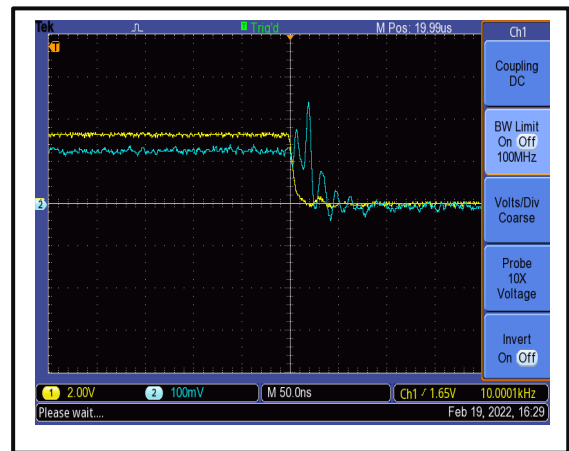
**Insertion Loss vs. Temperature**



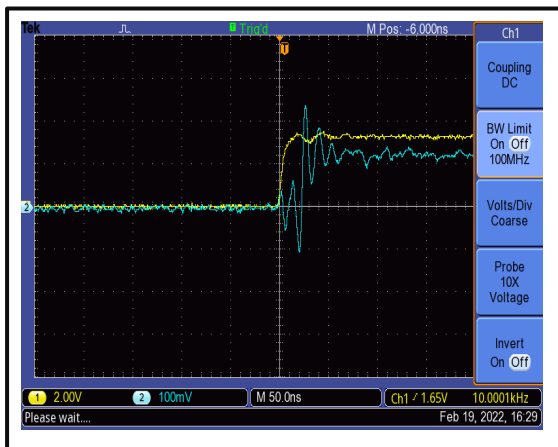
**IIP3**



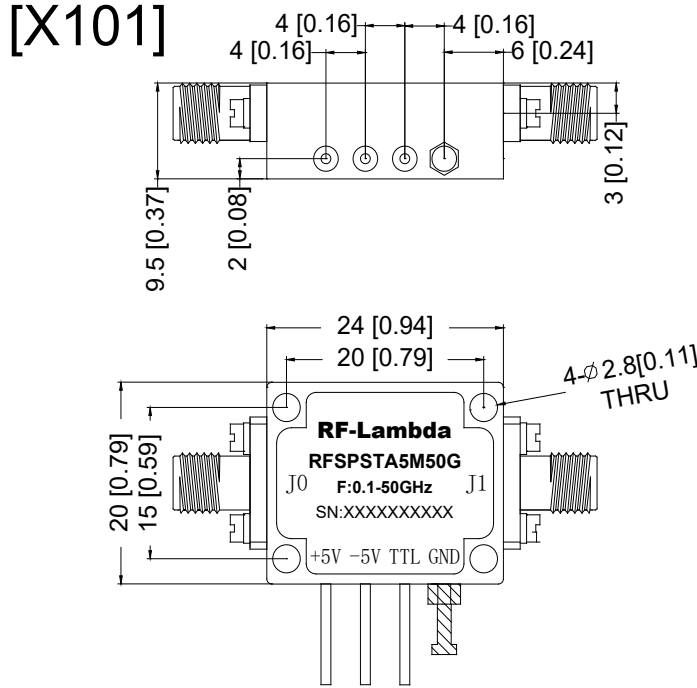
**Switching Speed**



**Switching Speed**



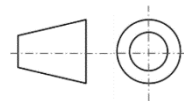
**Outline Drawing**



Truth Table	
TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	High(1)=2.8~5V
Control Input TTL	State
0	OFF
1	ON
Control Pin	Customization available upon request

Notes:

1. Package Material: Aluminum
2. Plating: Gold
3. All dimensions are in millimeters [inches].
4. Housing Tolerances  $\pm 0.1$  [0.004] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.



Additional Information

Documentation	Webpage
ESD Policy	<a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>
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
RFSPSTA5M50G	Connectors 2.4mm-Female	0.1-50GHz SPST PIN Diode Switch

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