

Absorptive Coaxial SP8T Switch 0.02GHz-3GHz



Product Description

RFSP8TA0003G is an absorptive coaxial single pole eight throw switch with a frequency range of 0.02 to 3GHz.

The power input of this switch is 30dBm max. The insertion loss is 1.5dB with a typical isolation of 75dB.

The switch uses a Micro-D connector. 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
- Low Power Cold Switching
- Insertion Loss 1.5dB
- Isolation 75dB
- 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	0.02		3	3		13	GHz
Insertion Loss		1.5	2.0		5.5	6.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	65	75		50	60		dB
Input VSWR		1.3	1.5		1.5	2.0	: 1
Output VSWR		1.3	1.5		1.5	2.0	: 1
RF Input Power (CW)			30			30	dBm
DC Power Dissipation		1.8			1.8		W
0.1dB Compression Point (P0.1dB)		30			30		dBm
IIP3		40			38		dBm
Switching Speed		150	200		150	200	ns
Bias Current (+5V / -5V)			350/50 Max.				mA
Weight			0.16 Max.				lbs
Impedance			50				Ω
Input / Output Connectors	SMA-Female(Input) – SMA-Female(Output)						
Interface and control connector	Micro-D9(Female)						
Package	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

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.

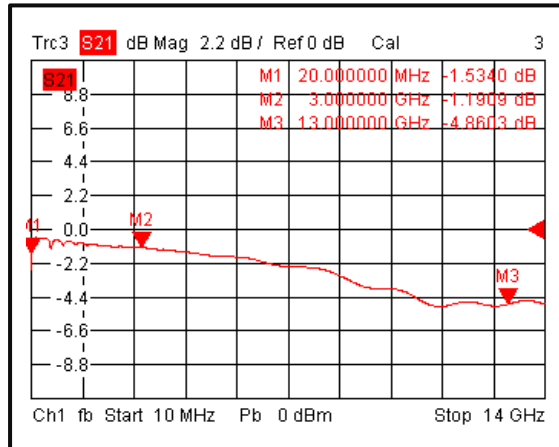
Environmental Specifications and Test Standards

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)

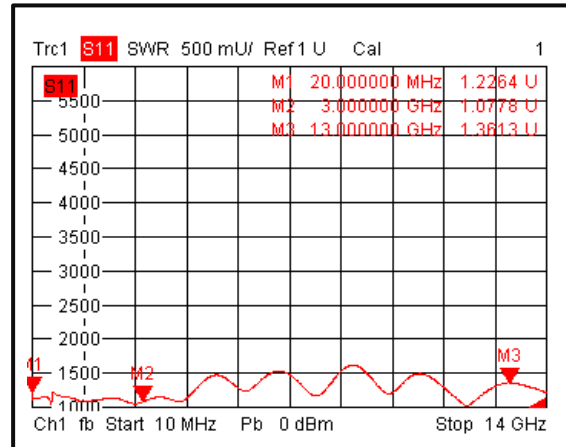
*For vibration testing details please see additional information section.

Typical Performance Plots

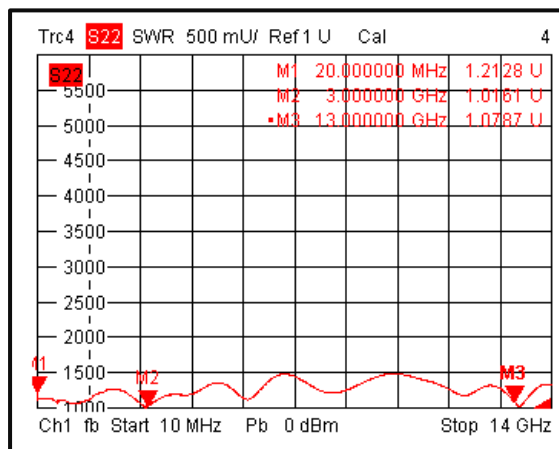
Insertion Loss @+25°C



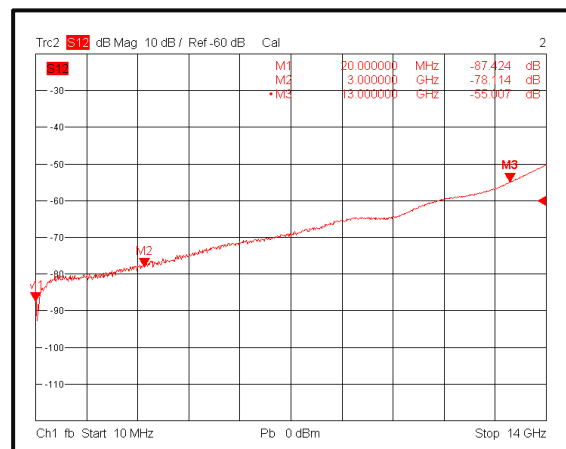
Input VSWR @+25°C



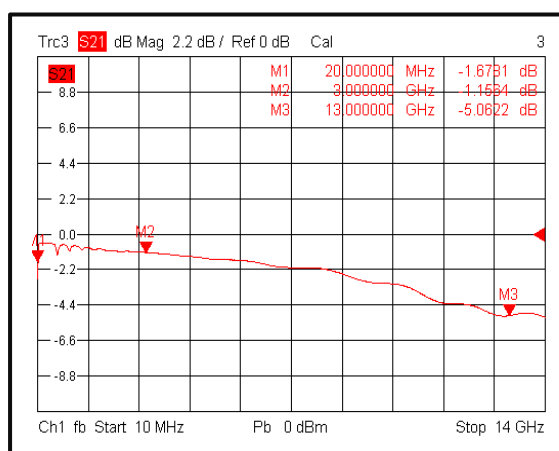
Output VSWR @+25°C



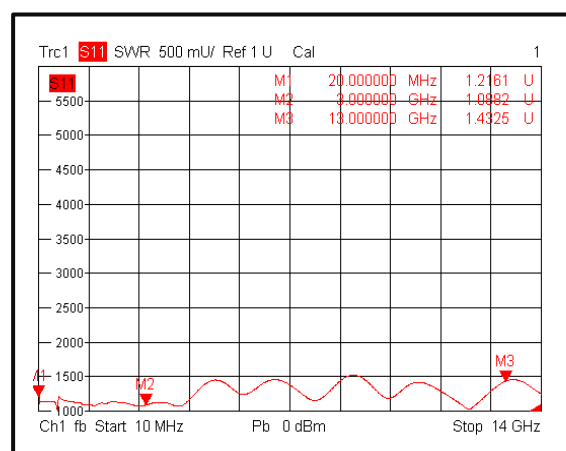
Isolation @+25°C



Insertion Loss @-40°C

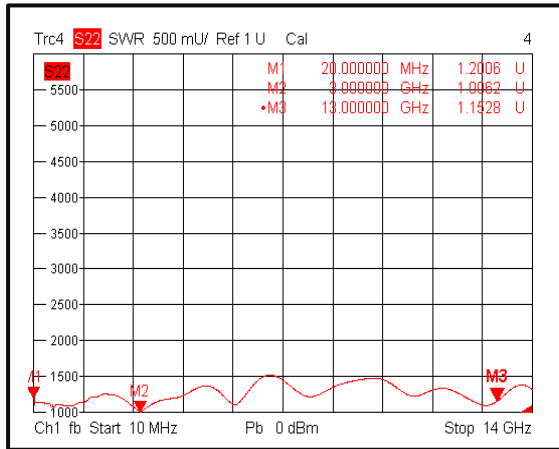


Input VSWR @-40°C

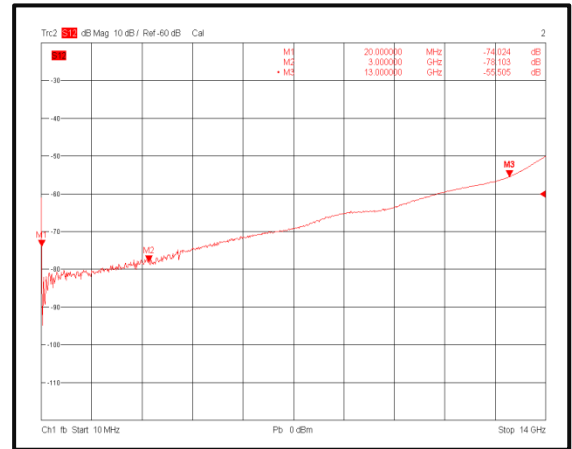


Typical Performance Plots

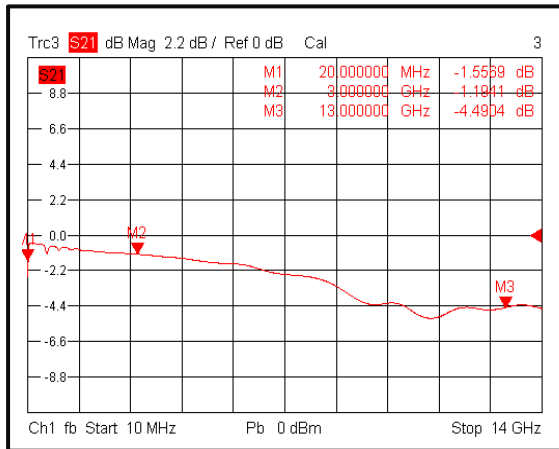
Output VSWR @-40°C



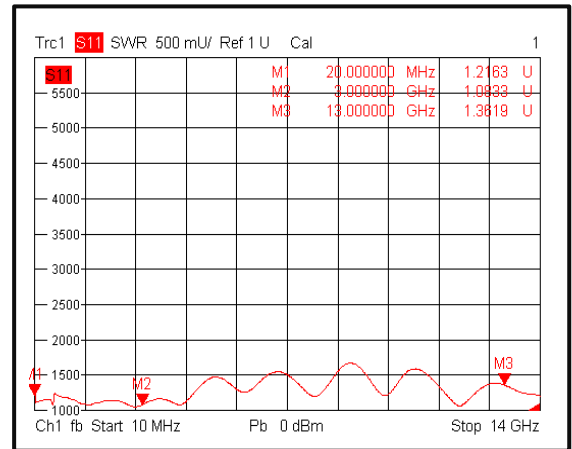
Isolation @-40°C



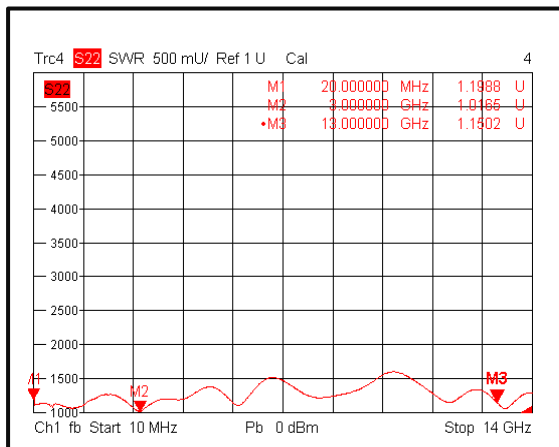
Insertion Loss @+85°C



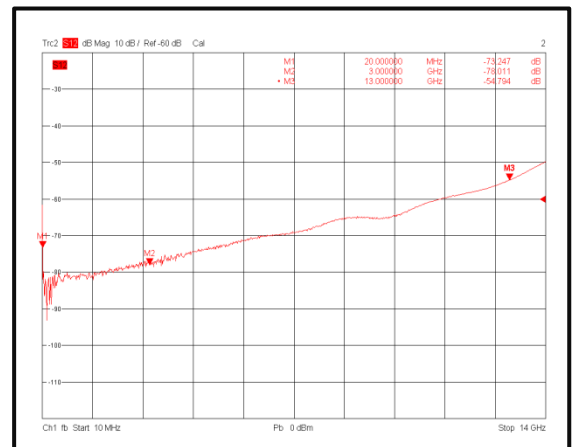
Input VSWR @+85°C



Output VSWR @+85°C

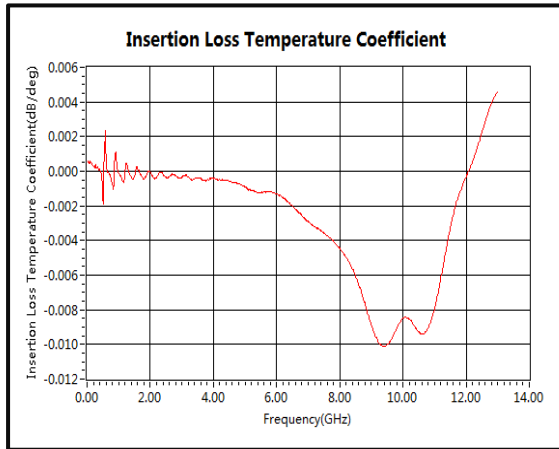


Isolation @+85°C

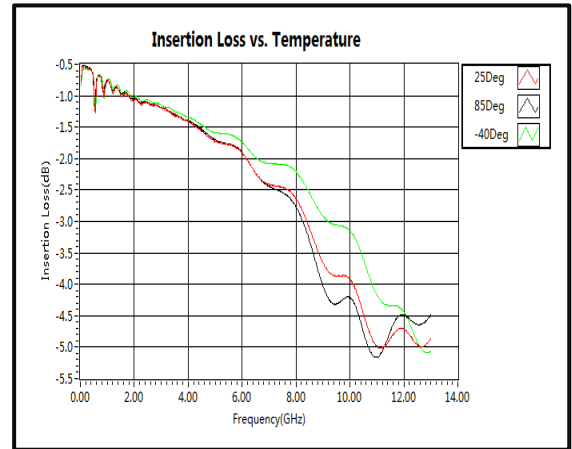


Typical Performance Plots

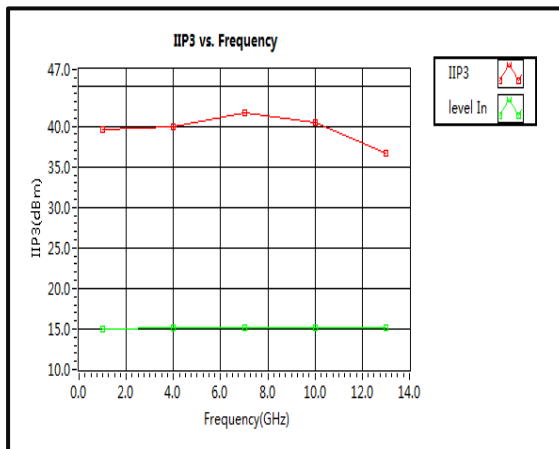
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



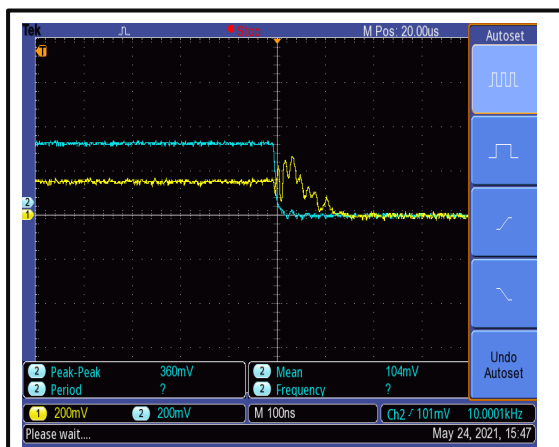
IIP3



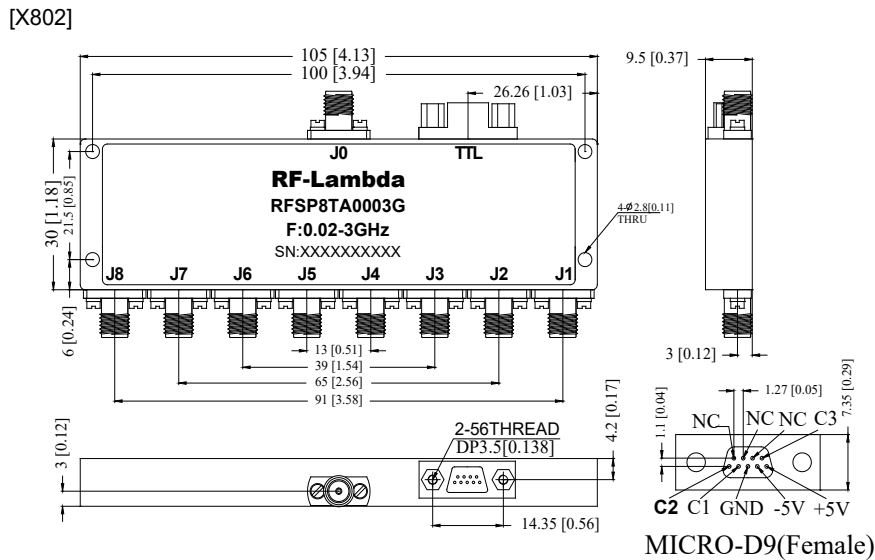
Switching Speed



Switching Speed



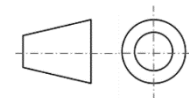
Outline Drawing



Truth Table			
TTL Control Voltage THRESHOLD	Low(0)=0~0.8V		
	High(1)=2.8~5V		
Control Input TTL		Signal Path State	
C3	C2		
0	0	0	J0-J1
0	0	1	J0-J2
0	1	0	J0-J3
0	1	1	J0-J4
1	0	0	J0-J5
1	0	1	J0-J6
1	1	0	J0-J7
1	1	1	J0-J8
Control Pin Customization available upon request			

Notes:

1. Package Material: Aluminum
2. Plating: Gold
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ± 0.2 [0.008] unless otherwise specified.



Additional Information

Documentation

Webpage

ESD Policy

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

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
RFSP8TA0003G	Connectors 2.92mm-Female	0.02-13GHz SP8T PIN Diode Switch

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