

Absorptive Coaxial SP8T Switch 0.1GHz-40GHz



Features

- TTL compatible driver included
- Low Power Cold Switching
- Fast Switching Speed
- Insertion Loss 7.0dB Typical
- Isolation 75dB Typical
- 50 Ohm Matched

Product Description

RFSP8TA01M40G is an absorptive coaxial single pole eight throw switch with a frequency range of 0.1 to 40GHz.

The max power input of this switch is 23dBm. The insertion loss is 7.0dB with a typical isolation of 75dB.

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

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/-15V, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.1		18	18		40	GHz
Insertion Loss		7.0	9.0		8.5	11.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	70	75		65	70		dB
Input VSWR		2.5	3		2.5	3	: 1
Output VSWR		2.5	3		2.5	3	: 1
RF Input power			23			23	dBm
DC Power Dissipation		0.8			0.8		W
0.1dB Compression Point(P0.1dB)		23			23		dBm
IIP3		42			35		dBm
Switching Speed			100 Max.				ns
Weight			0.2 Max.				lbs
Impedance			50				Ω
Bias Current (+5V/-15V)			350/80 Max.				mA
Input / Output Connectors			2.92mm-Female (Input) – 2.92mm-Female (Output)				
Package			Epoxy Sealed (Standard)				
			Hermetically Sealed (Optional)				

Absolute Maximum Ratings

Parameter	Rating
Biasing	+5V±10%/-15V±10%

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

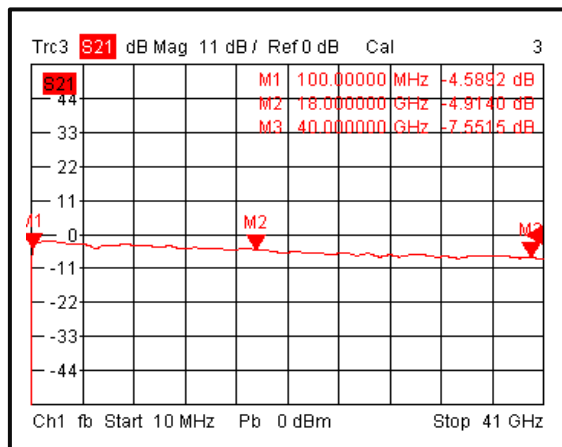
Environmental Specifications and Test Standards

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)

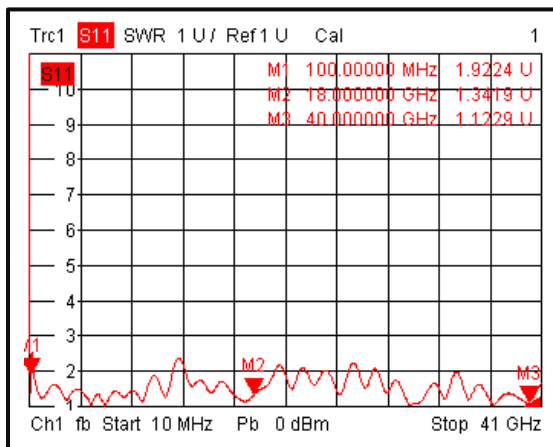
**For vibration testing details please see additional information section.

Typical Performance Plots

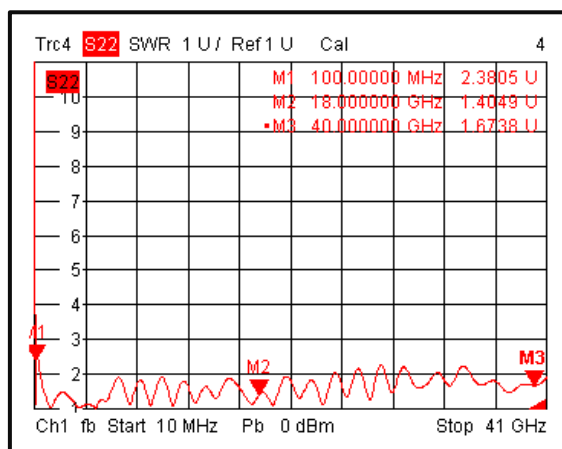
Insertion Loss @+25°C



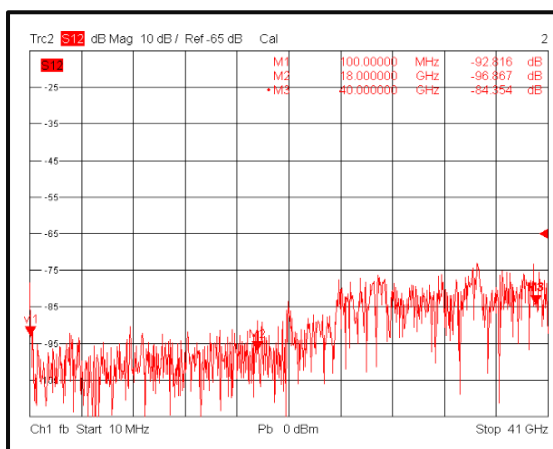
Input VSWR @+25°C



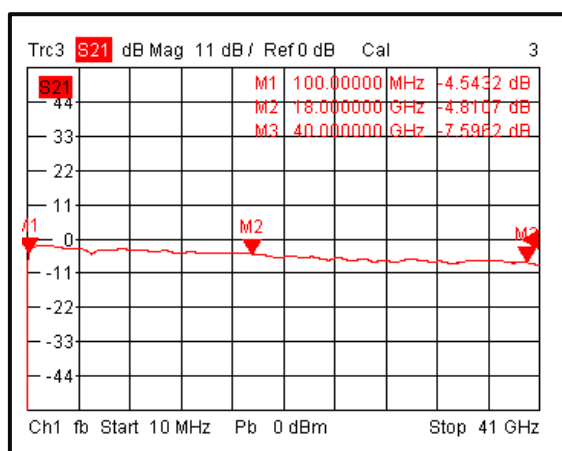
Output VSWR @+25°C



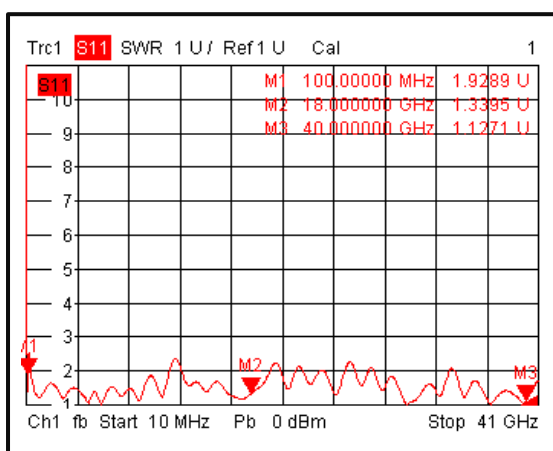
Isolation @+25°C



Insertion Loss @-40°C

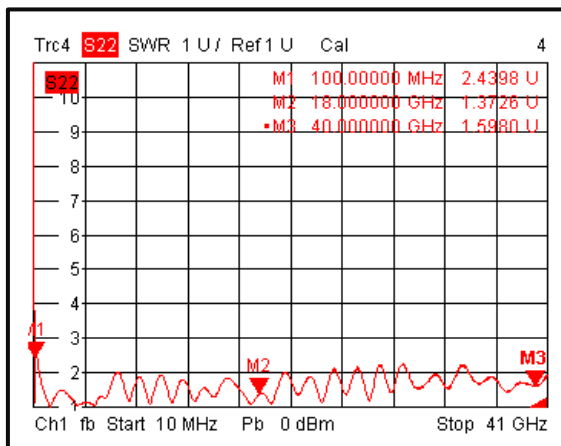


Input VSWR @-40°C

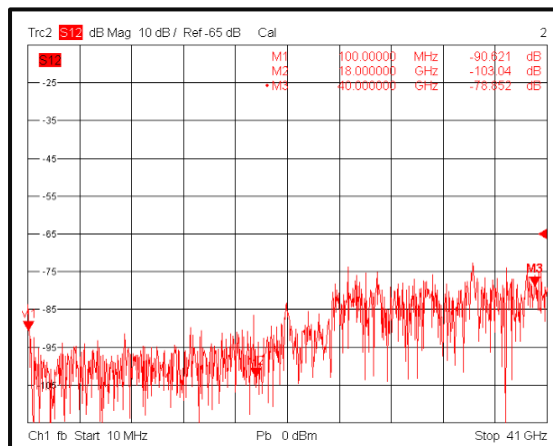


Typical Performance Plots

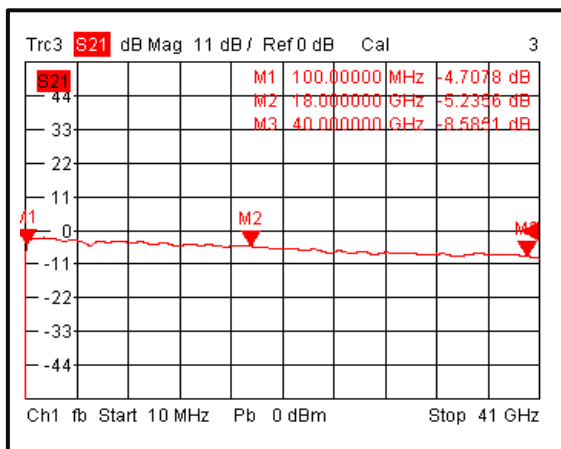
Output VSWR @-40°C



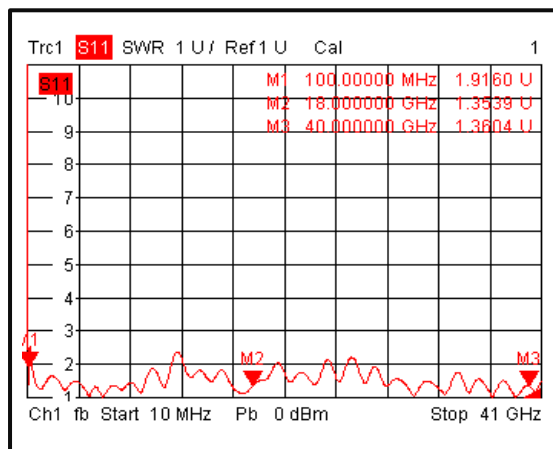
Isolation @-40°C



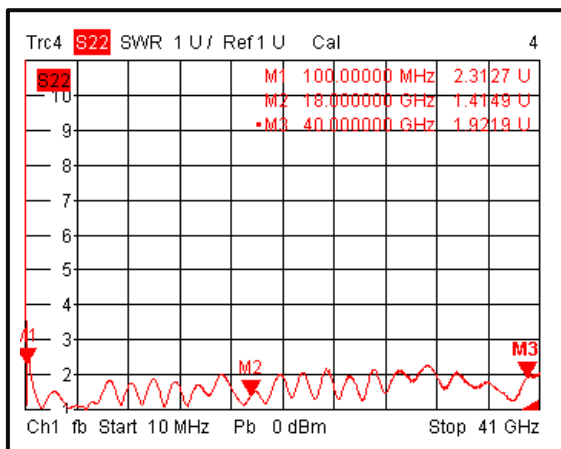
Insertion Loss @+85°C



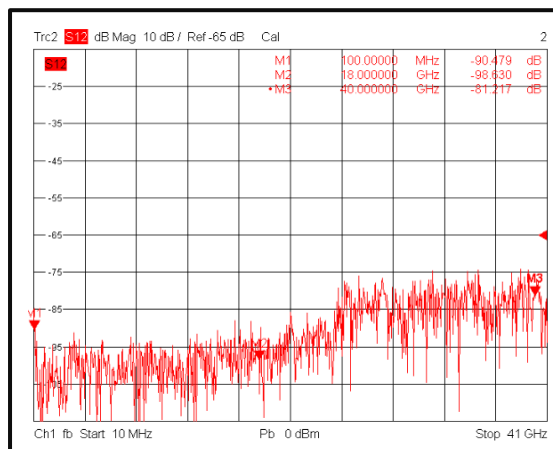
Input VSWR @+85°C



Output VSWR @+85°C

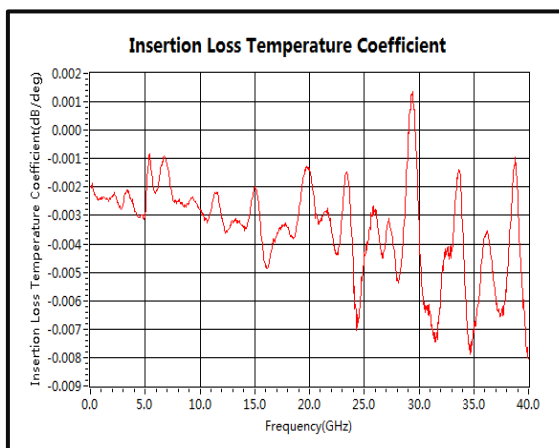


Isolation @+85°C

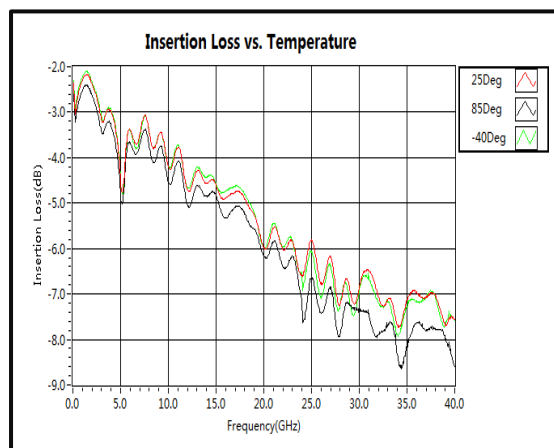


Typical Performance Plots

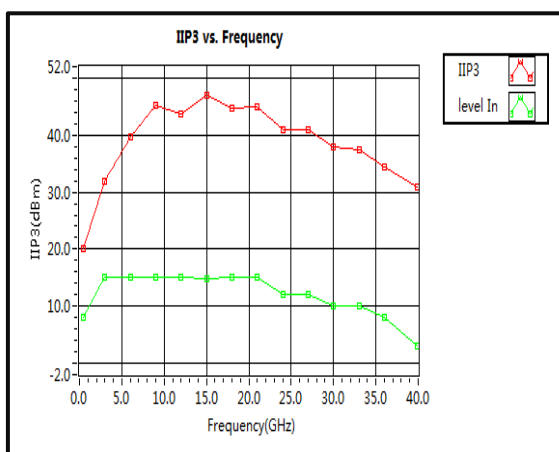
Insertion Loss Temperature Coefficient



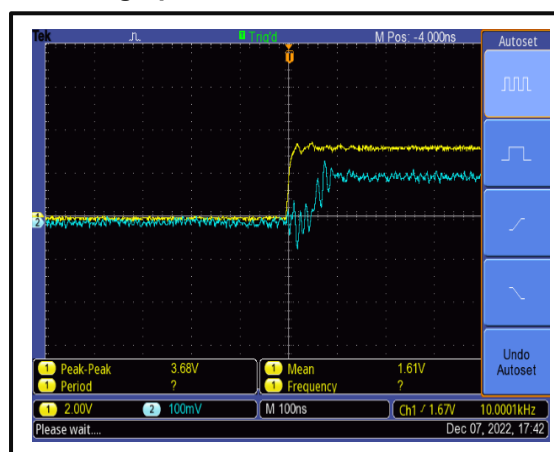
Insertion Loss vs. Temperature



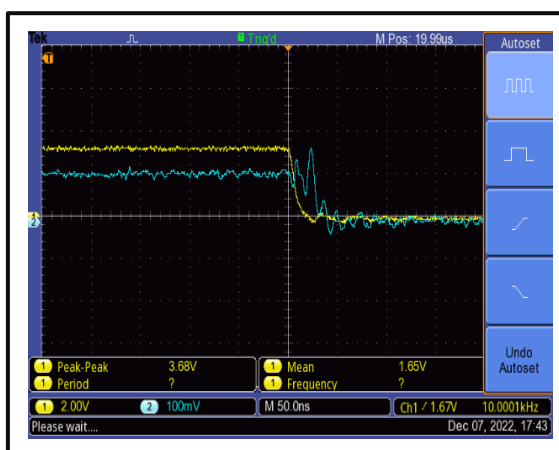
IIP3



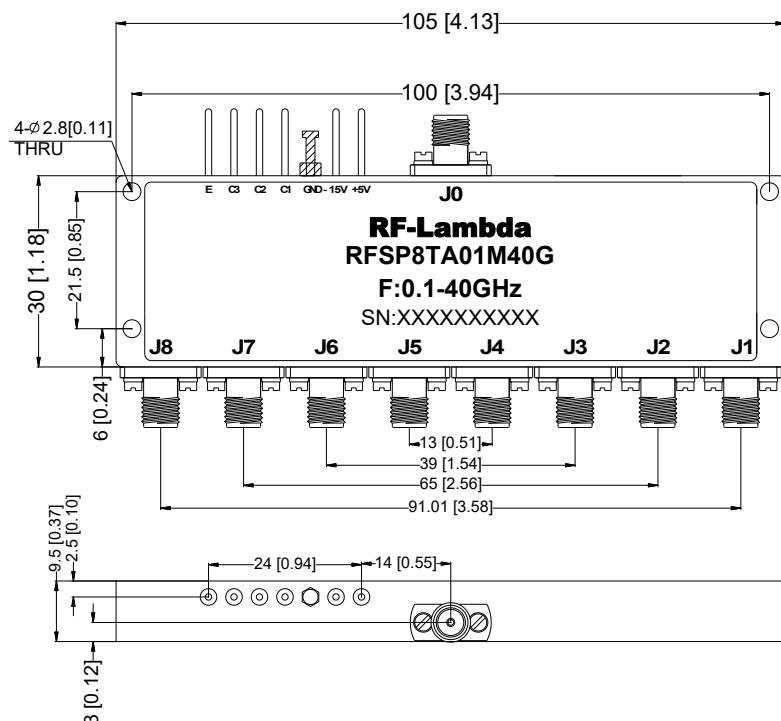
Switching Speed



Switching Speed



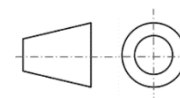
Outline Drawing



Notes:

1. Package Material: Aluminum
2. Finish: Gold Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ± 0.2 [0.008] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.

Truth Table				
TTL Control Voltage THRESHOLD				Low(0)=0~0.8V High(1)=2.8~5V
Control	Input TTL			Signal Path State
E	C3	C2	C1	
1	X	X	X	ALL port off(50Ω)
0	0	0	0	J0-J1
0	0	0	1	J0-J2
0	0	1	0	J0-J3
0	0	1	1	J0-J4
0	1	0	0	J0-J5
0	1	0	1	J0-J6
0	1	1	0	J0-J7
0	1	1	1	J0-J8
Control Pin Customization available upon request				



Additional Information

Documentation

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

Webpage

Ordering Information

Part Number	Modification	Description
RFSP8TA01M40G	Connectors 2.92mm-Female	0.1GHz-40GHz SP8T PIN Diode Switch

Important Notice

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