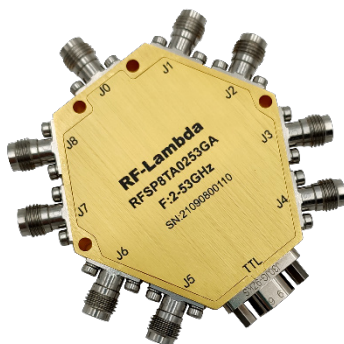


Absorptive Coaxial SP8T Switch 2GHz-53GHz



Product Description

RFSP8TA0253GA is an absorptive coaxial single pole eight throw switch with a frequency range of 2 to 53GHz.

The power input of this switch is 23dBm Max. The Insertion Loss is 7.5dB with a typical isolation of 55dB.

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 7.5dB
- Isolation 55dB
- 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	Min	Typ	Max	Units
Frequency Range	2		18	18		40	40		53	GHz
Insertion Loss		5.5	6.5		7.5	8.5		10.5	11.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	70		50	55		38	45		dB
Input VSWR		2.2	3.0		2.2	3.0		2.5	3.0	: 1
Output VSWR		2.2	3.0		2.2	3.0		2.5	3.0	: 1
RF Input Power (CW)			23			23			23	dBm
DC Power Dissipation		0.8			0.8			0.8		W
0.1dB Compression Point (P0.1dB)		23			23			23		dBm
IIP3		43			38			36		dBm
Switching Speed					100 Max.					ns
Bias Current (+5V/-5V)					270/50 Max.					mA
Weight					0.16Max.					lbs
Impedance					50					Ω
Input / Output Connectors	1.85mm-Female(Input) – 1.85mm-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.

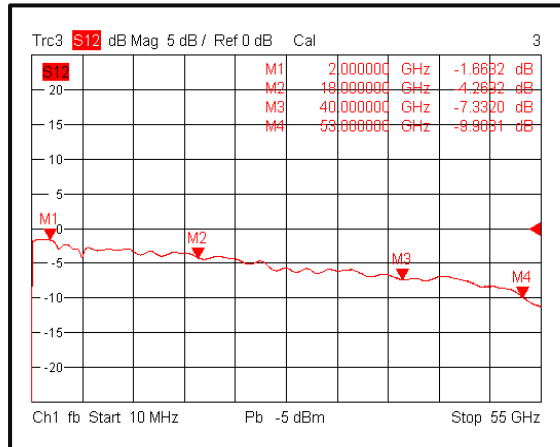
Environmental Specifications and Test Standards

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)

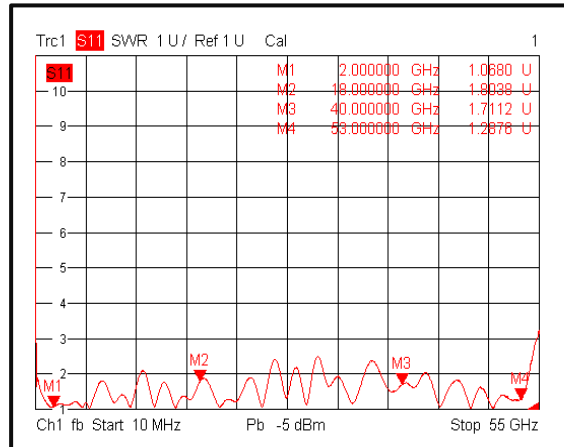
**For vibration testing details please see additional information section.

Typical Performance Plots

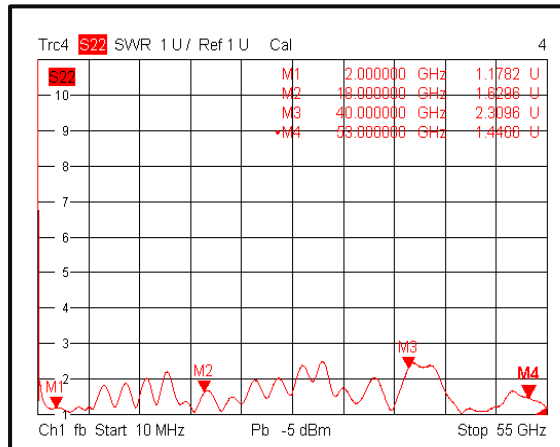
Insertion Loss @+25°C



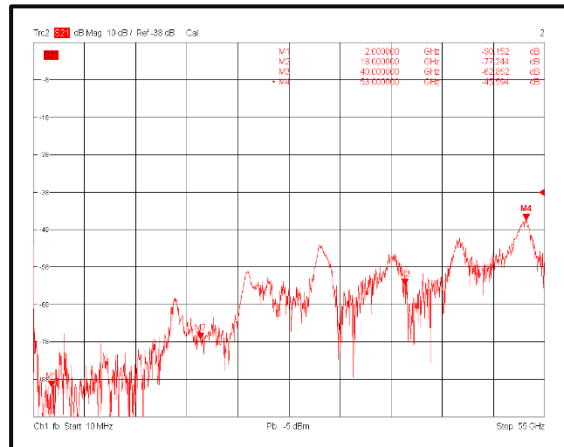
Input VSWR @+25°C



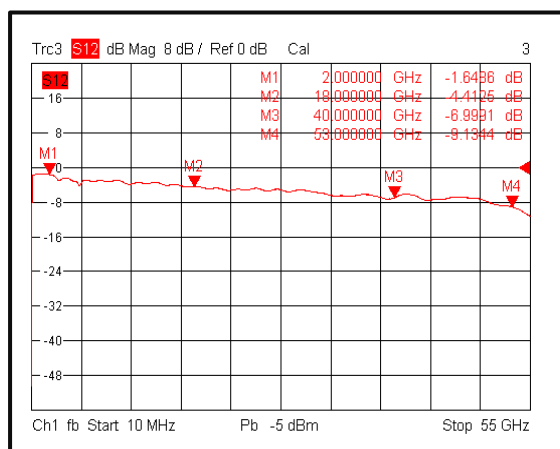
Output VSWR @+25°C



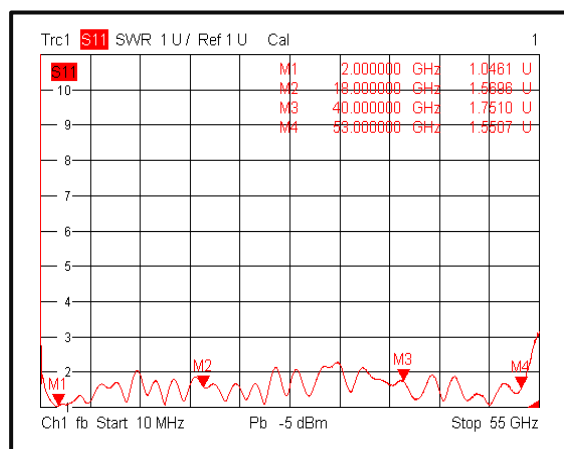
Isolation @+25°C



Insertion Loss @-40°C

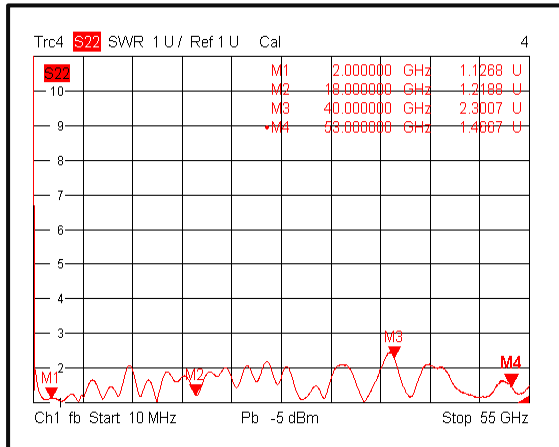


Input VSWR @-40°C

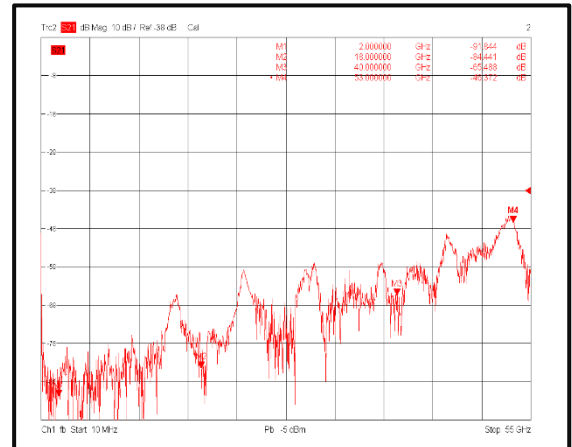


Typical Performance Plots

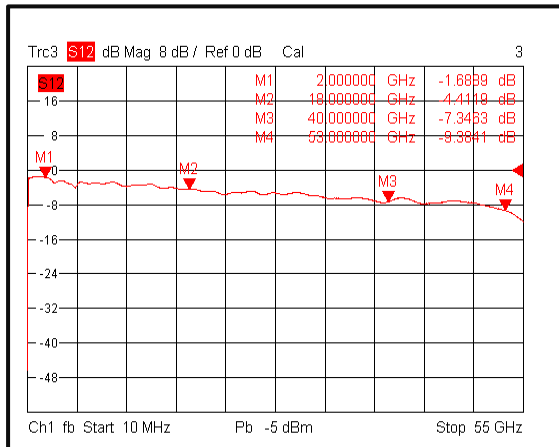
Output VSWR @-40°C



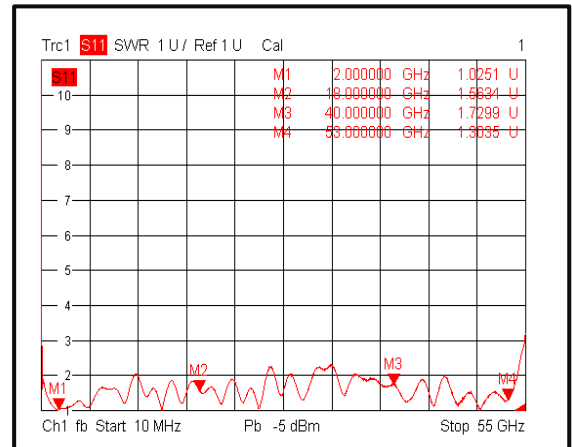
Isolation @-40°C



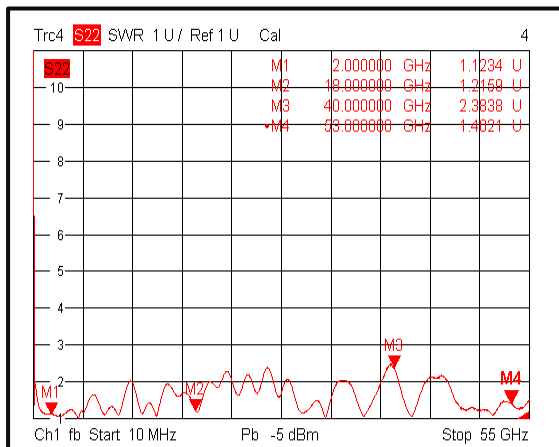
Insertion Loss @+85°C



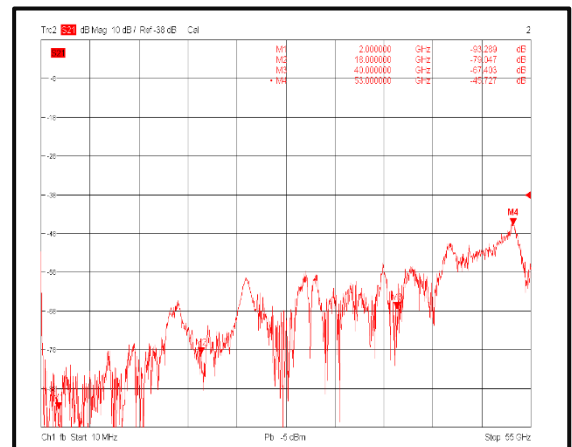
Input VSWR @+85°C



Output VSWR @+85°C

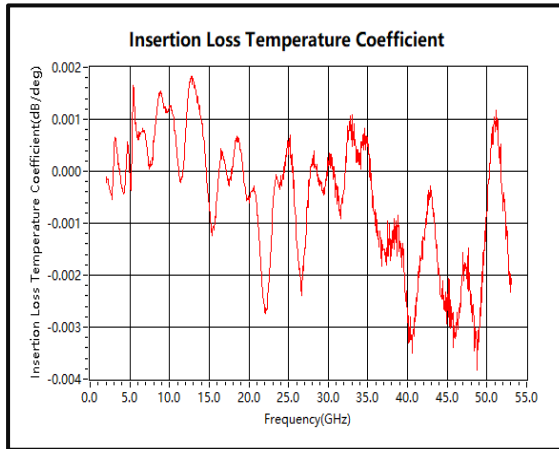


Isolation @+85°C

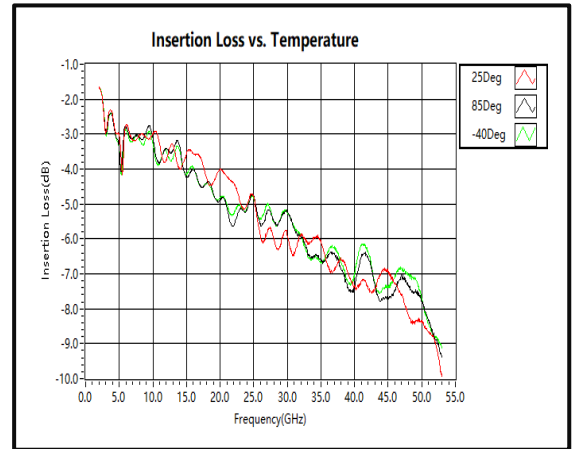


Typical Performance Plots

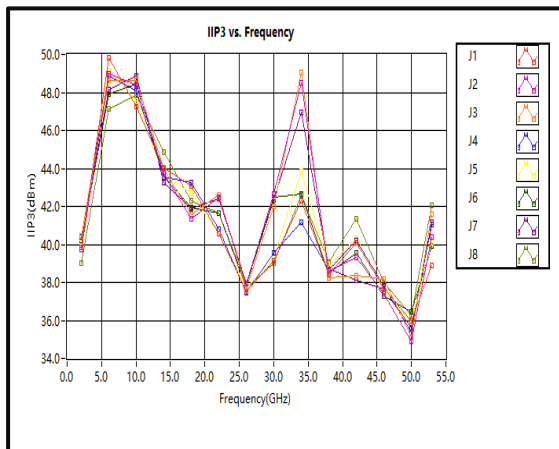
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



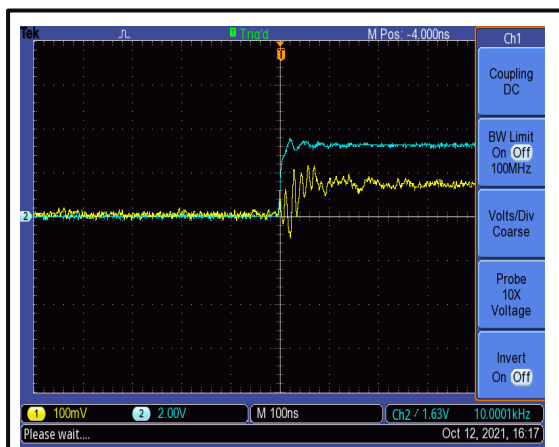
IIP3



Switching Speed

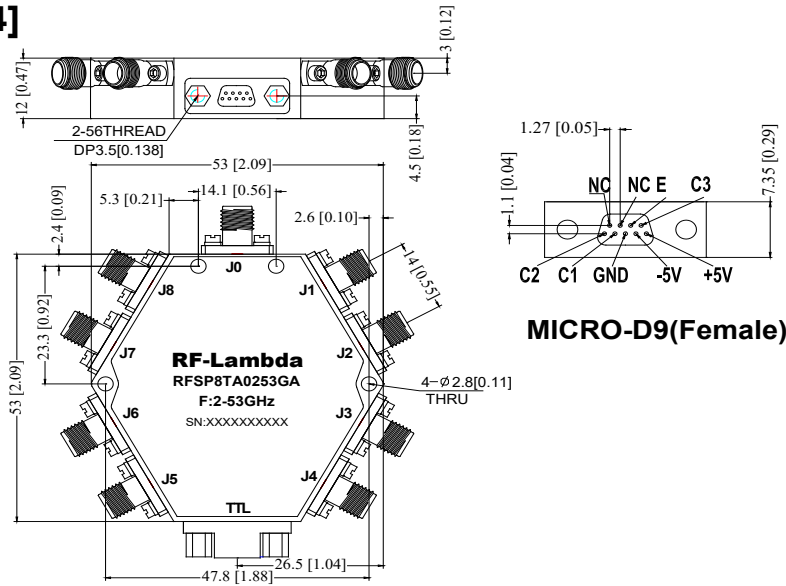


Switching Speed



Outline Drawing

[X804]



MICRO-D9(Female)

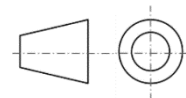
Truth Table

TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	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				

Notes:

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



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
RFSP8TA0253GA	Connectors 1.85mm-Female	2-53GHz SP8T PIN Diode Switch

Important Notice

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