

Absorptive Coaxial SP4T Switch 0.5GHz-43.5GHz



Note: Photo is for illustration purposes only.
Please refer to outline drawing.

Features

- TTL compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 6.0dB Typical
- Isolation 80dB Typical
- 50 Ohm Matched

Product Description

RFSP4TA5M43GA is an absorptive coaxial single pole four throw switch with a frequency range of 0.5 to 43.5GHz.

The power input of this switch is 23dBm Max. The Insertion Loss is 6.0dB with a typical isolation of 80dB

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, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.5-18			18-30			30-43.5		GHz
Insertion Loss		4.0	5.0		4.5	5.5		5.5	6.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	65	85		65	80		65	75		dB
Input VSWR		2.0	2.5		2.0	3.0		2.0	2.5	: 1
Output VSWR		2.0	2.5		2.0	3.0		2.0	2.5	: 1
RF Input Power			23			23			23	dBm
DC Power Dissipation		0.8			0.8			0.8		W
Hot switch			15			15			15	dBm
0.1dB Compression Point (P0.1dB)	@0.5-2.5GHz				17 Typ.					dBm
	@2.5-43.5GHz				23 Typ.					
IIP3	@0.5-2.5GHz				30 Typ.					dBm
	@2.5-43.5GHz				40 Typ.					
Switching Speed					80 Max.					ns
Bias Current (+5V)					200 Max.					mA
Weight					0.044 Max.					lbs
Impedance					50					Ω
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%

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

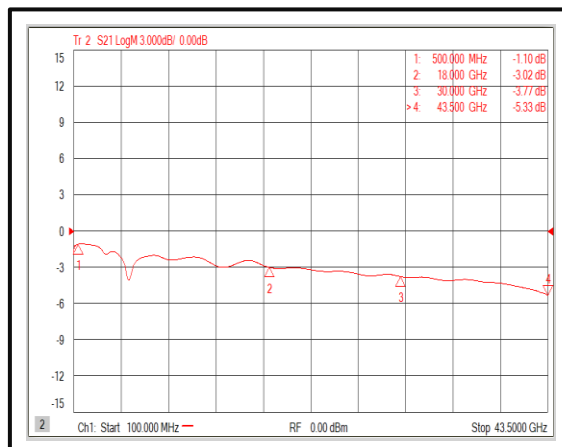
Environmental Specifications and Test Standards

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)

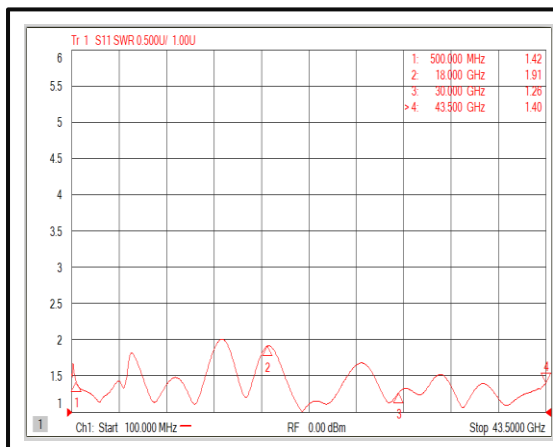
*For vibration testing details please see additional information section.

Typical Performance Plots

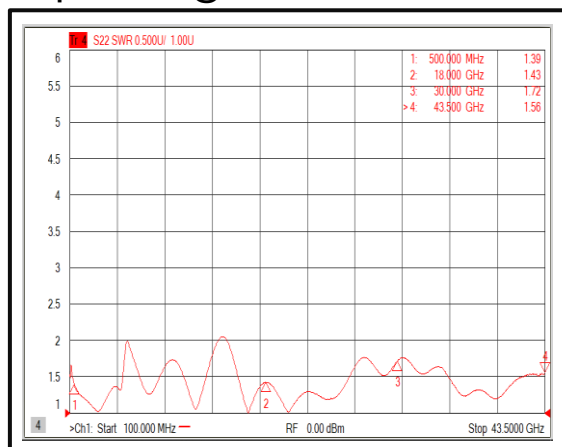
Insertion Loss @+25°C



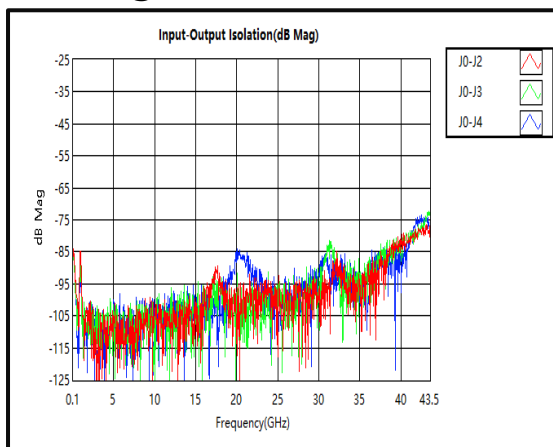
Input VSWR @+25°C



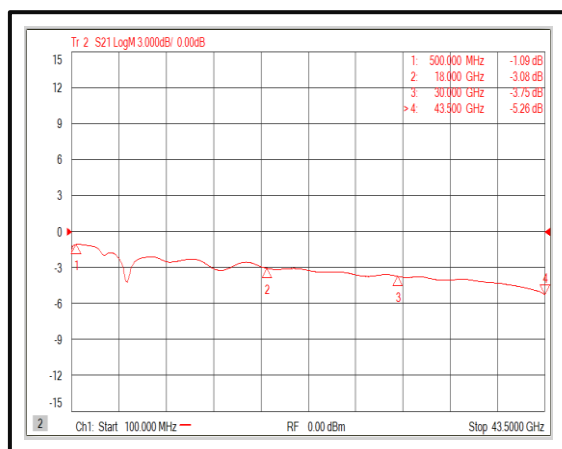
Output VSWR @+25°C



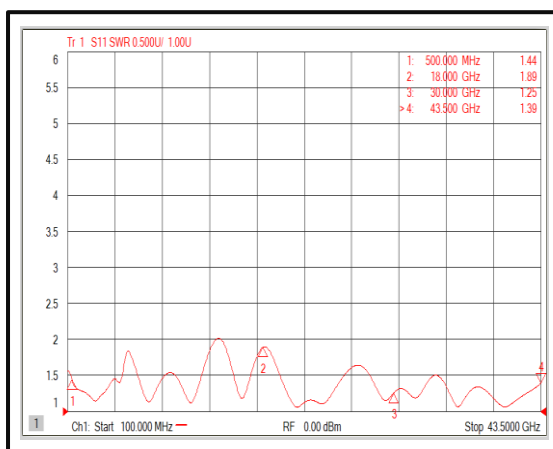
Isolation @+25°C



Insertion Loss @-40°C

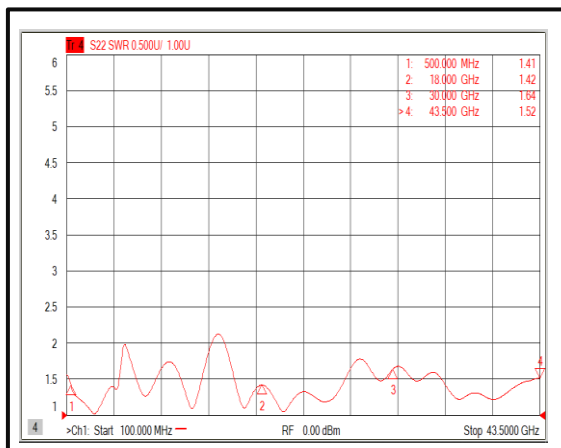


Input VSWR @-40°C

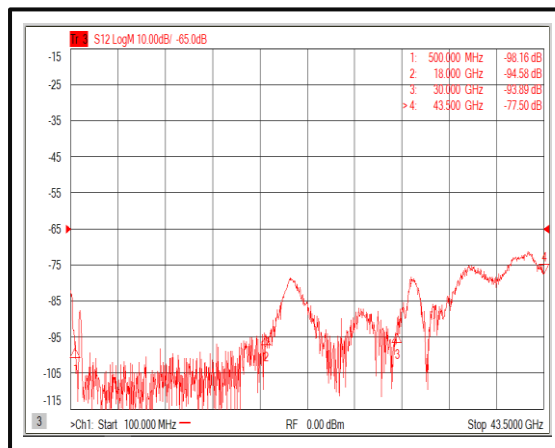


Typical Performance Plots

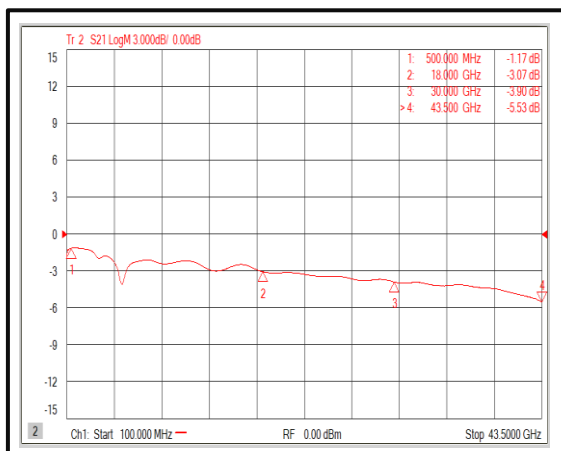
Output VSWR @-40°C



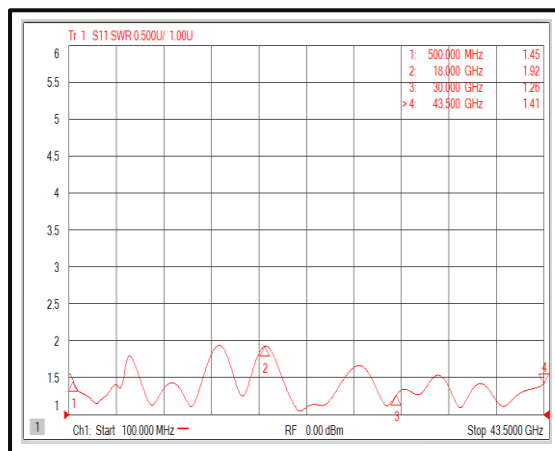
Isolation @-40°C



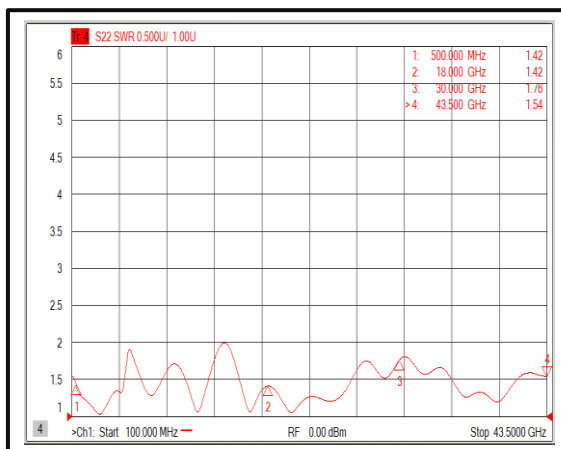
Insertion Loss @+85°C



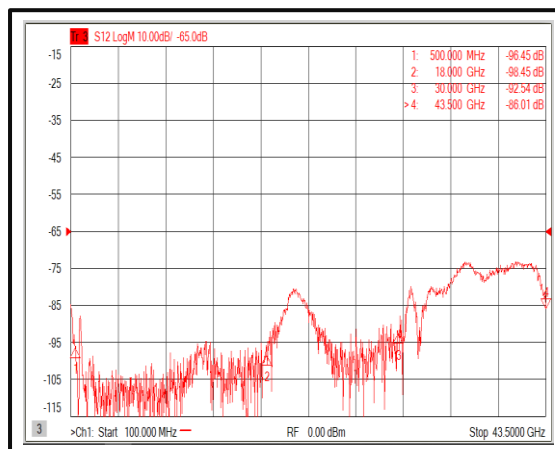
Input VSWR @+85°C



Output VSWR @+85°C

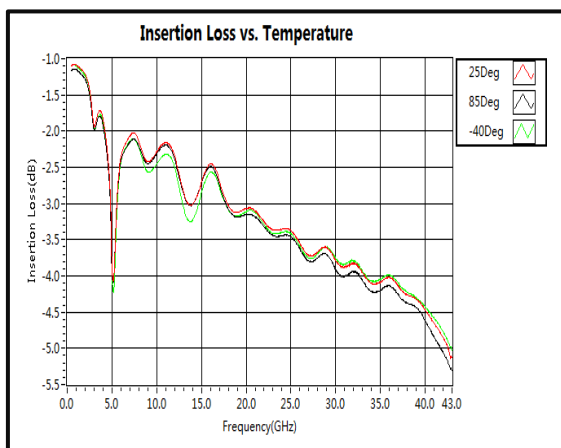


Isolation @+85°C

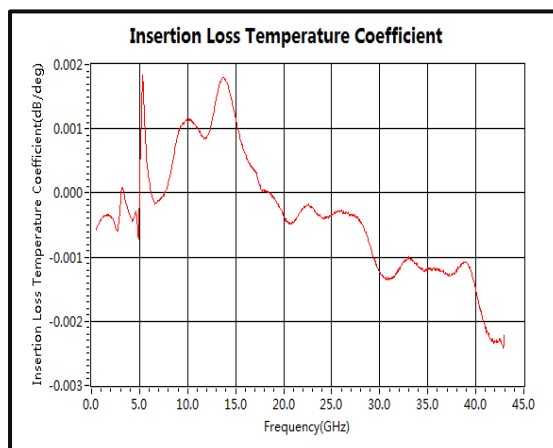


Typical Performance Plots

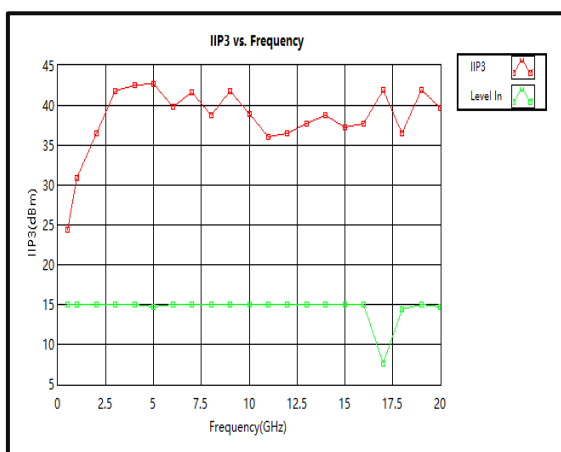
Insertion Loss Temperature Coefficient



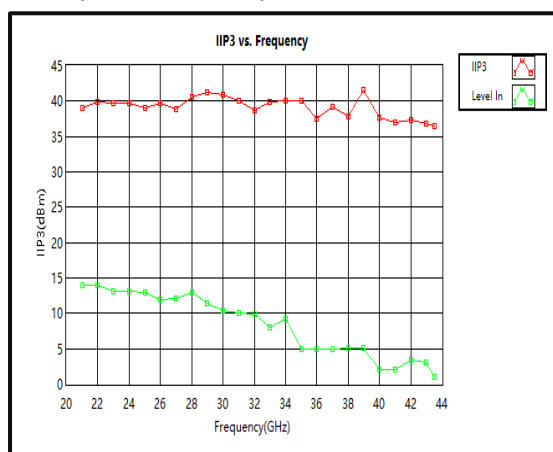
Insertion Loss vs. Temperature



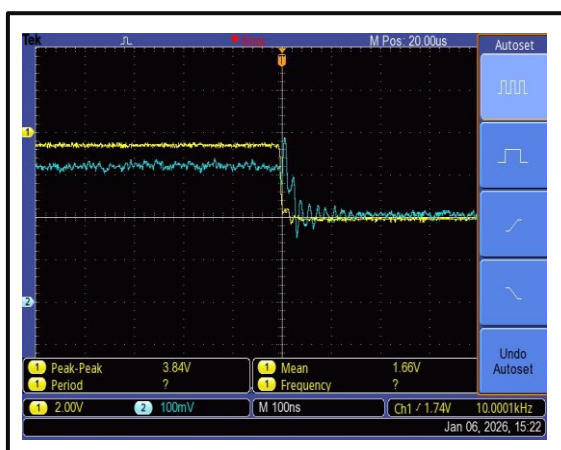
IIP3 (0.5GHz-20GHz)



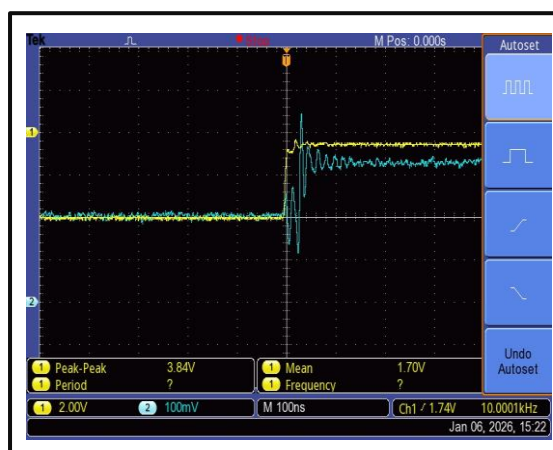
IIP3 (20GHz-43GHz)



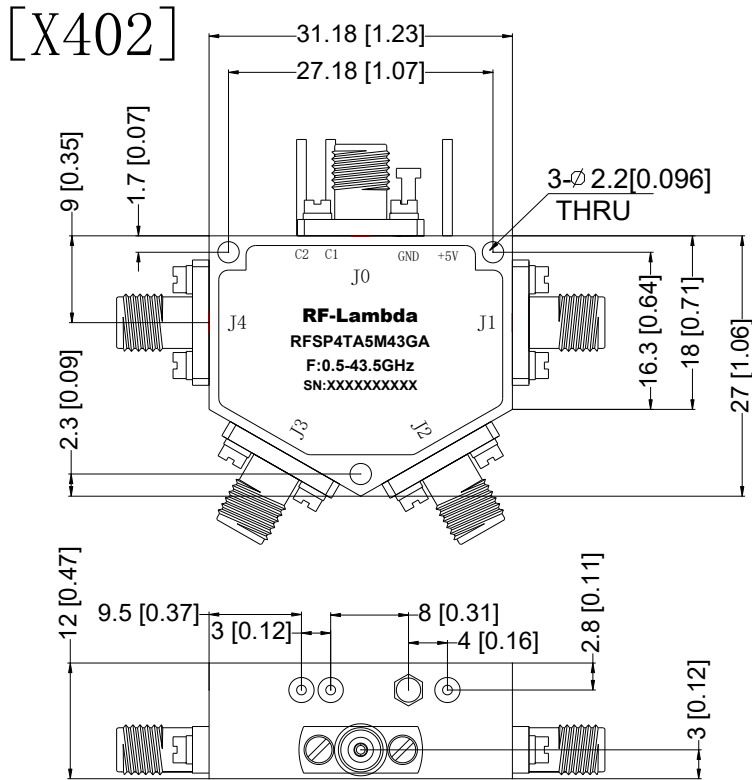
Switching Speed



Switching Speed



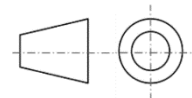
Outline Drawing



Truth Table		
TTL Control Voltage THRESHOLD		Low(0)=0~0.8V High(1)=2.8~5V
Control Input TTL		Signal Path State
C1	C2	
0	0	J0-J1
1	0	J0-J2
0	1	J0-J3
1	1	J0-J4
Control Pin Customization available upon request		

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.
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
RFSP4TA5M43GA	Input Connector 2.92mm-Female and Output Connector 2.92mm-Female	0.5GHz-43.5GHz SP4T PIN Diode Switch

Important Notice

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