

Absorptive Coaxial SP2T Switch 0.5GHz-43.5GHz



Product Description

RFSP2TA5M43GA is an absorptive coaxial single pole double 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 5.0dB with a typical isolation of 80dB.

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 5.0dB Typical
- 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, 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		2.8	3.5		3.5	4.0		5.0	6.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	65	80		65	70		55	65		dB
Input VSWR		1.6	2.2		1.8	2.2		1.8	2.2	: 1
Output VSWR		1.6	2.		1.8	2.2		1.8	2.2	: 1
RF Input Power			23			23			23	dBm
RF Input Power (When hot switching)			15			15			15	dBm
DC Power Dissipation		0.6			0.6			0.6		W
0.1dB Compression Point (P0.1dB)		23			23			23		dBm
IIP3		43			40			38		dBm
Switching Speed					100 Max.					ns
Bias Current (+5V)					160 Max.					mA
Weight					/ 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.

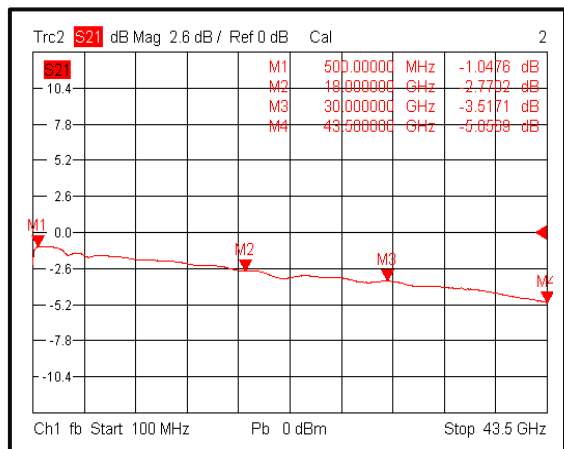
Environmental Specifications and Test Standards

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)

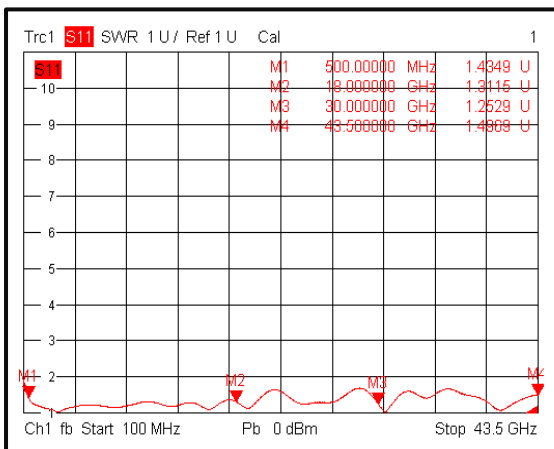
** For vibration testing details please see additional information section.

Typical Performance Plots

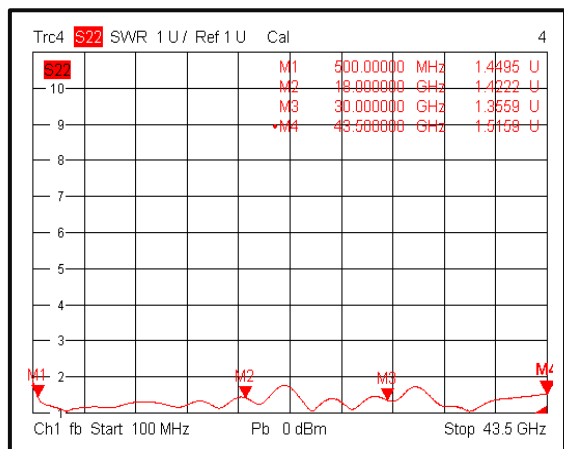
Insertion Loss @+25°C



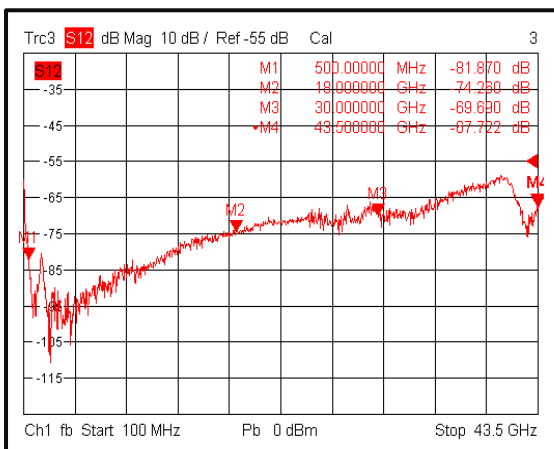
Input VSWR @+25°C



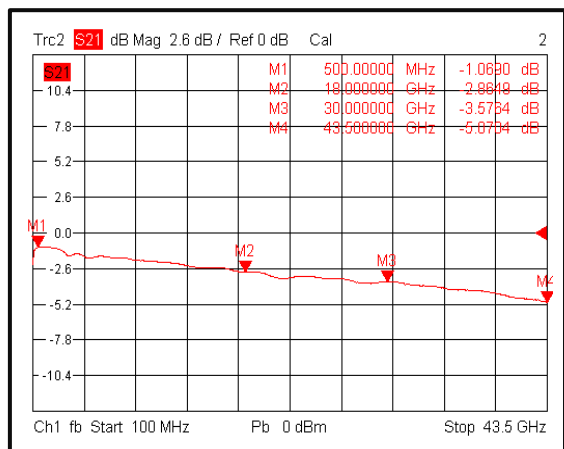
Output VSWR @+25°C



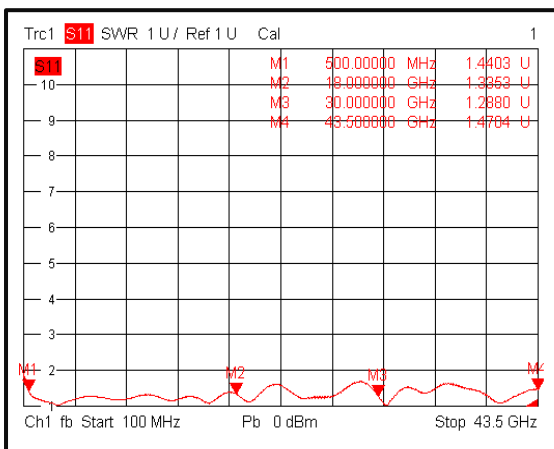
Isolation @+25°C



Insertion Loss @-40°C

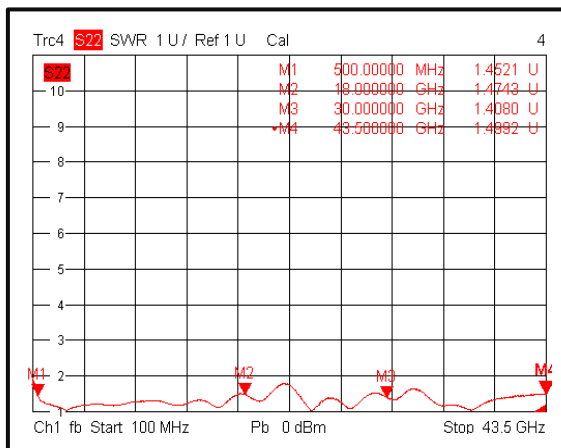


Input VSWR @-40°C

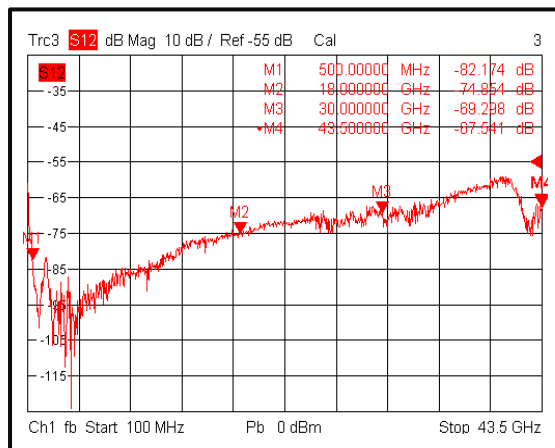


Typical Performance Plots

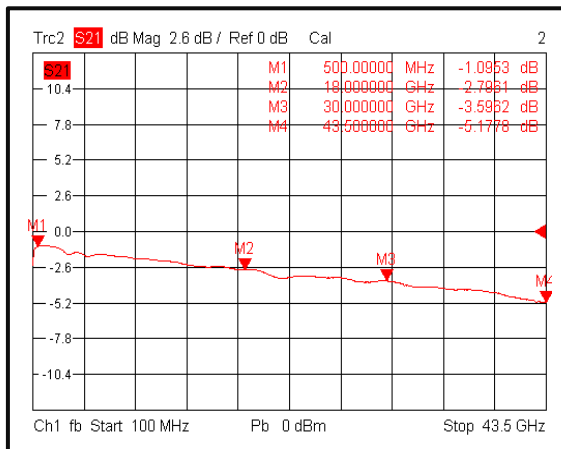
Output VSWR @-40°C



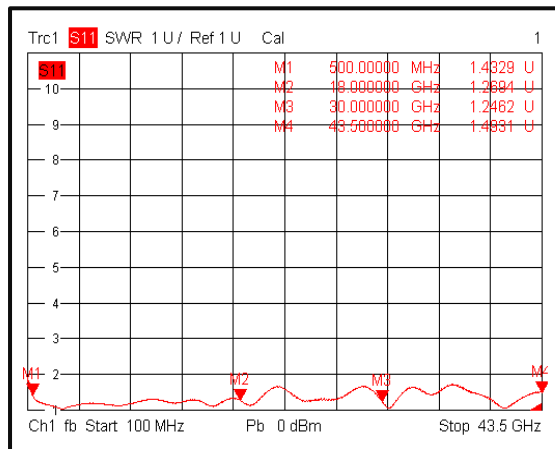
Isolation @-40°C



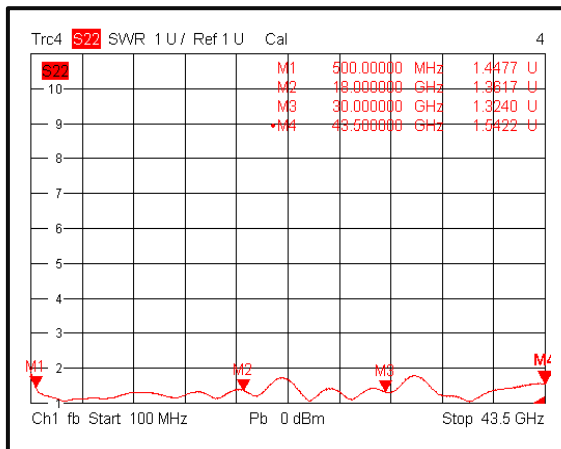
Insertion Loss @+85°C



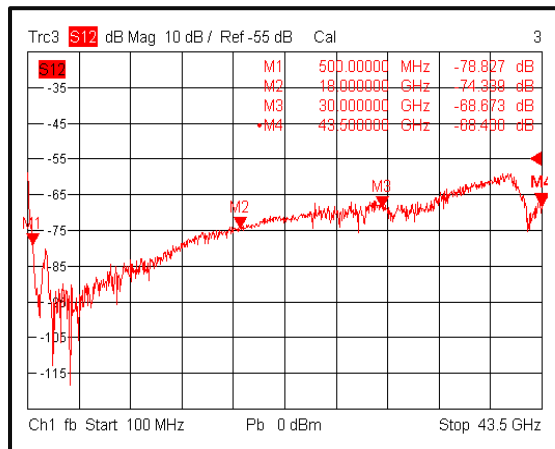
Input VSWR @+85°C



Output VSWR @+85°C

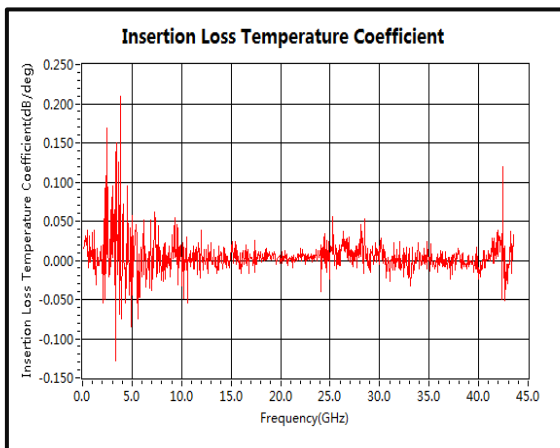


Isolation @+85°C

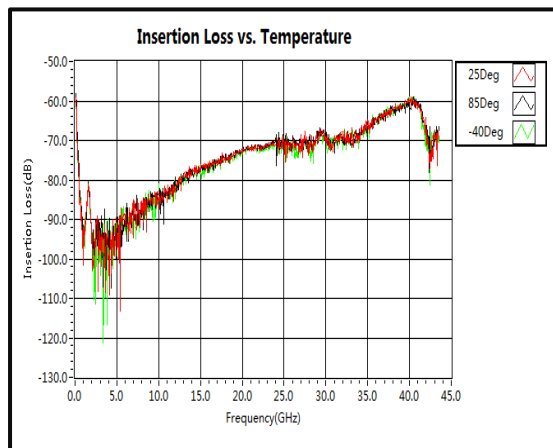


Typical Performance Plots

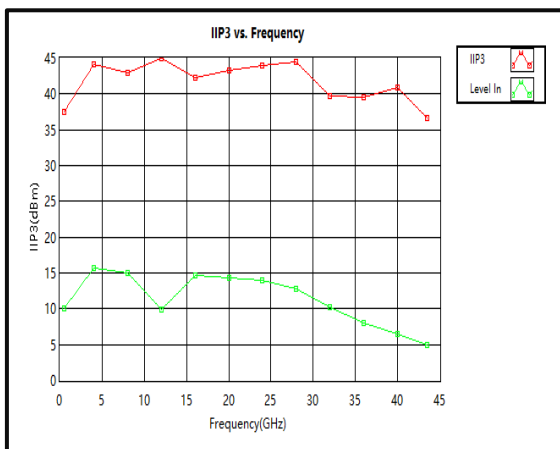
Insertion Loss Temperature Coefficient



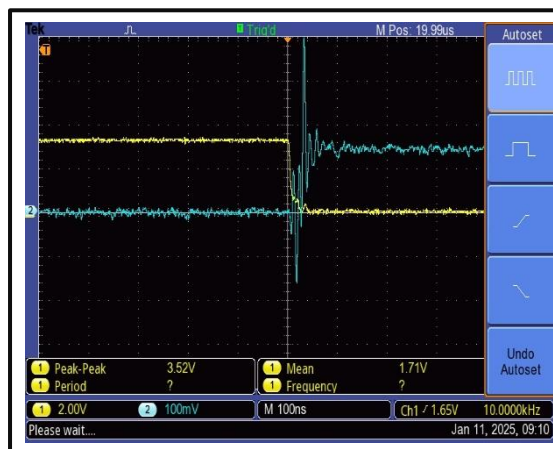
Insertion Loss vs. Temperature



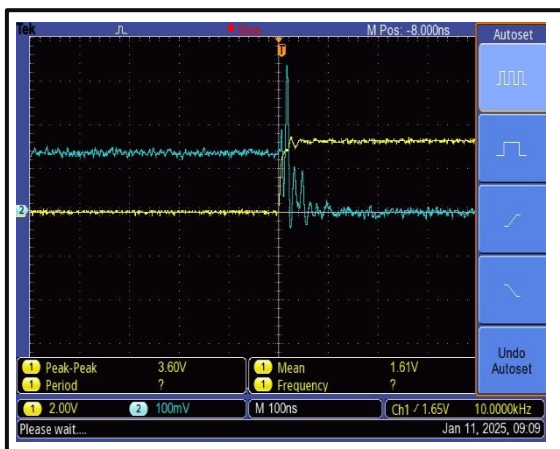
IIP3



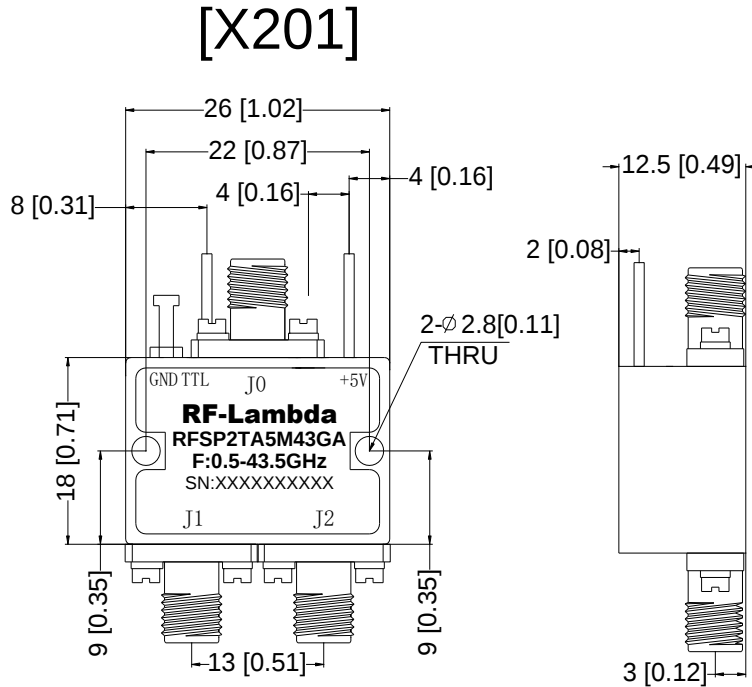
Switching Speed



Switching Speed



Outline Drawing

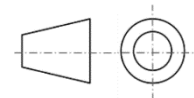


Truth Table

TTL Control Voltage THRESHOLD	Low(0)=0~0.8V High(1)=2.8~5V
Control Input TTL	Signal Path State
0	J0-J1
1	J0-J2
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
RFSP2TA5M43GA	Connectors 2.92mm-Female	0.5GHz-43.5GHz SP2T PIN Diode Switch

Important Notice

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