

Absorptive Coaxial SP4T Switch 0.02GHz-18GHz



Product Description

RFSP4TA0018GB is an absorptive coaxial single pole four throw switch with a frequency range of 0.02 to 18GHz.

The power input of this switch is 30dBm Max. The Insertion Loss is 4dB with a typical isolation of 80dB.

The switch has a Micro-D interface control. 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 4dB
- Isolation 80dB
- 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		0.02-6			6-12			12-18		GHz
Insertion Loss		1.8	2.5		2.8	3.5		3.8	4.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	70	85		70	80		65	80		dB
Input VSWR		1.5	2.0		1.5	2.0		1.8	2.0	: 1
Output VSWR		1.5	2.0		1.5	2.0		1.8	2.0	: 1
RF Input Power			30			30			30	dBm
DC Power Dissipation		1.1			1.1			1.1		W
0.1dB Compression Point (P0.1dB)		30			30			30		dBm
IIP3		41			40			39		dBm
Switching Speed					250 Max.					ns
Bias Current (+5V / -5V)					160 / 50 Max.					mA
Weight					0.07 Max.					lbs
Impedance					50					Ω
Input / Output Connectors					SMA-Female(Input) – SMA-Female(Output)					
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.

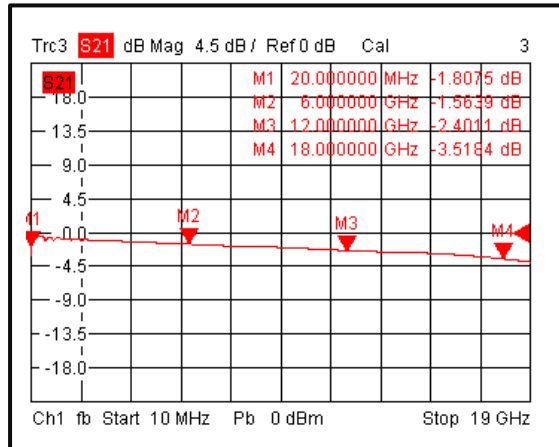
Environmental Specifications and Test Standards

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)

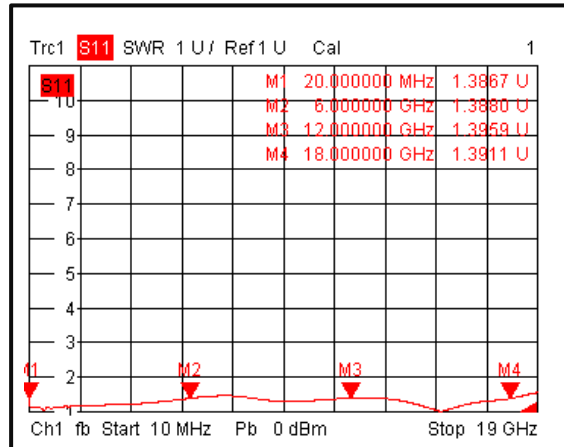
*For vibration testing details please see additional information section.

Typical Performance Plots

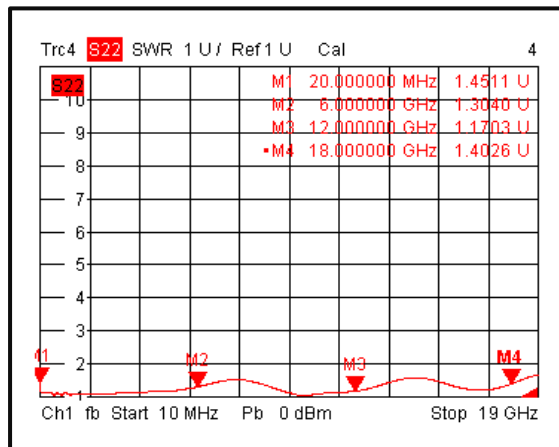
Insertion Loss @+25°C



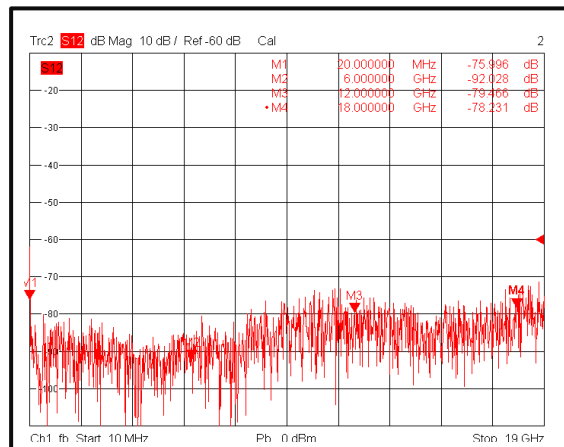
Input VSWR @+25°C



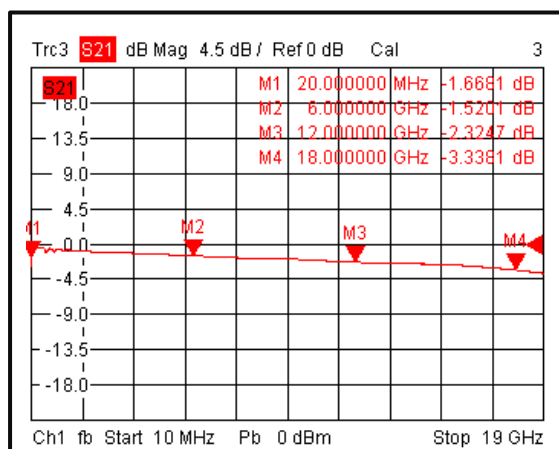
Output VSWR @+25°C



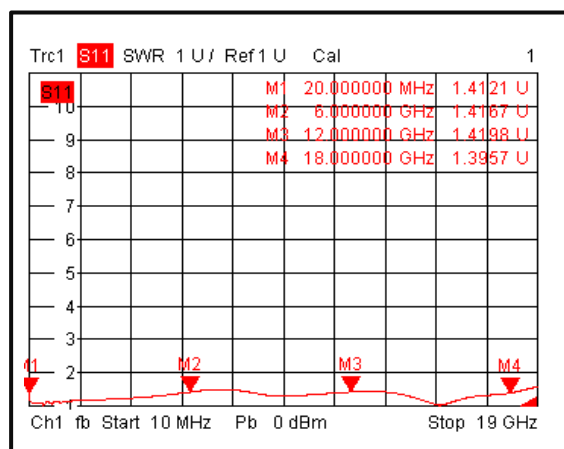
Isolation @+25°C



Insertion Loss @-40°C

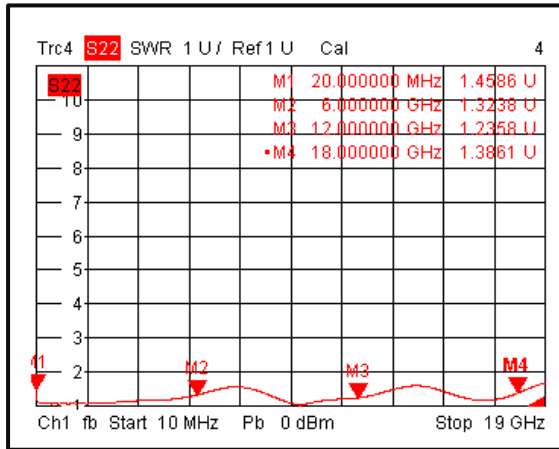


Input VSWR @-40°C

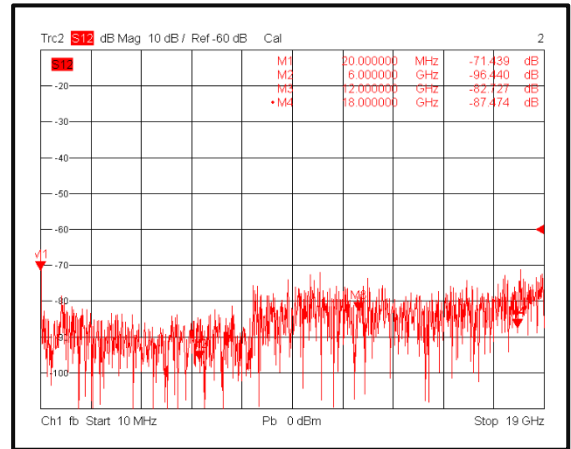


Typical Performance Plots

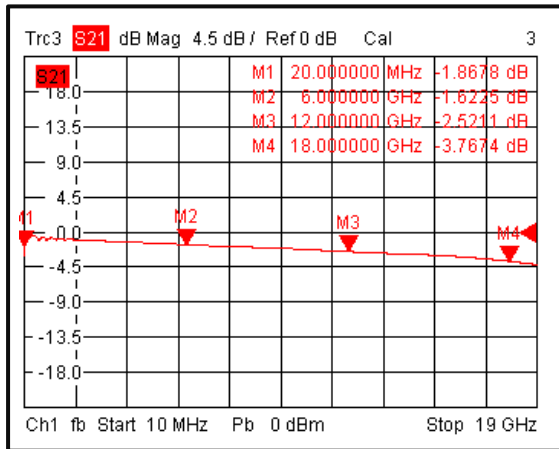
Output VSWR @-40°C



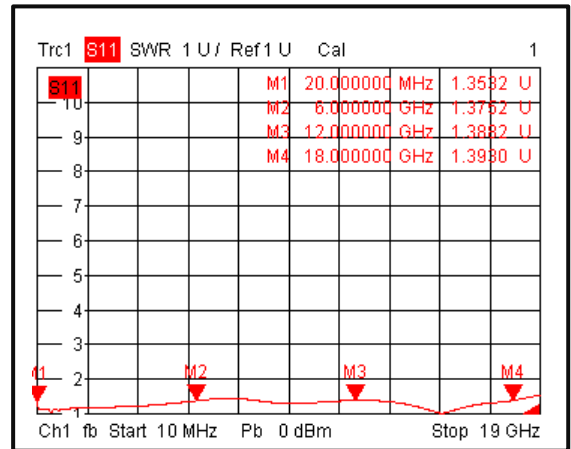
Isolation @-40°C



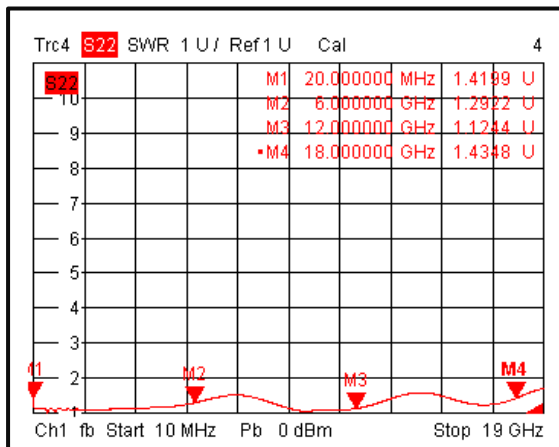
Insertion Loss @+85°C



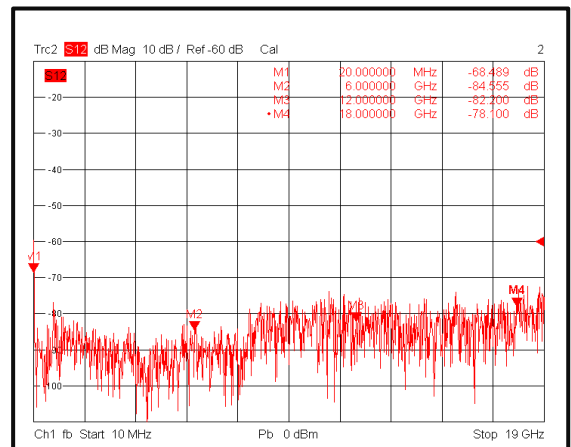
Input VSWR @+85°C



Output VSWR @+85°C

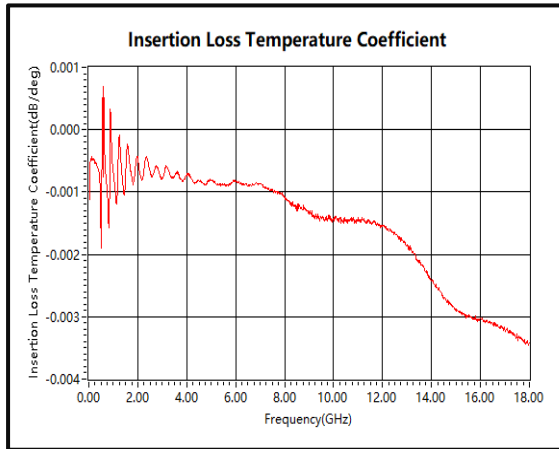


Isolation @+85°C

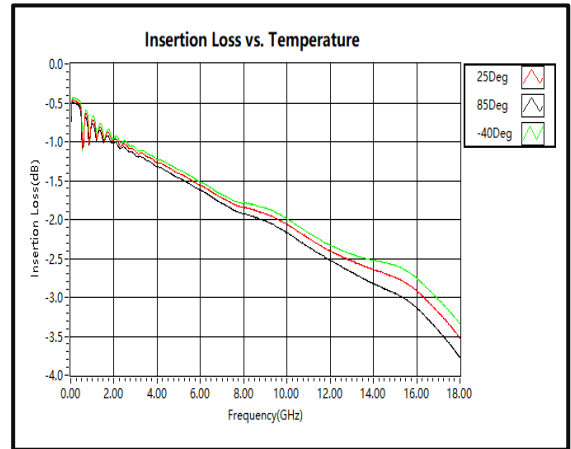


Typical Performance Plots

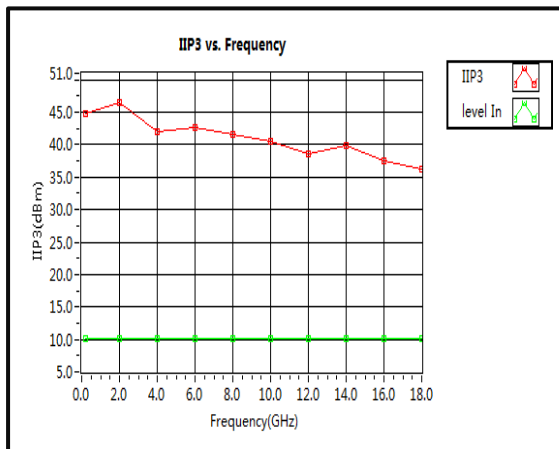
Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



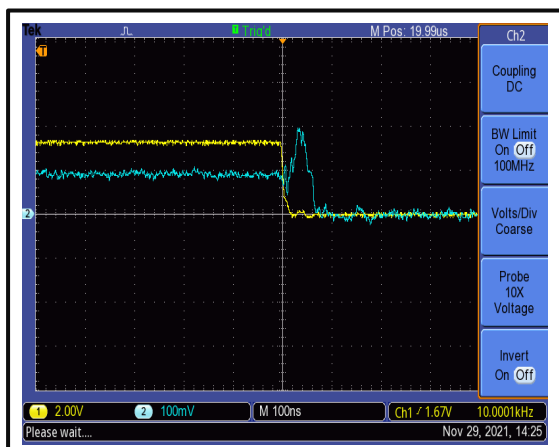
IIP3



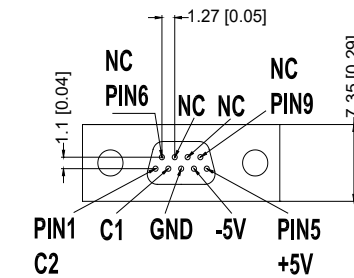
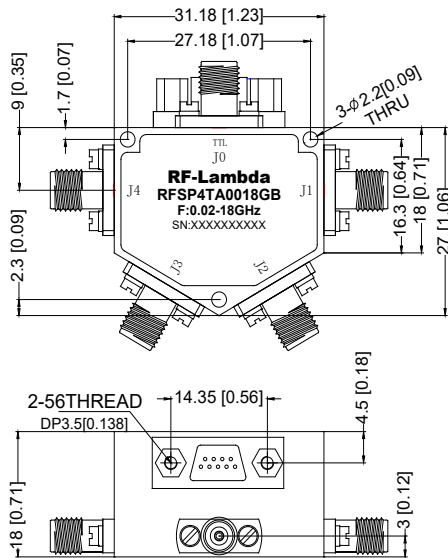
Switching Speed



Switching Speed



Outline Drawing



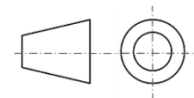
MICRO-D9(Female)

Truth Table

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

Notes:

1. Package Material: Aluminum
2. Plating: 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
RFSP4TA0018GB	Standard	0.02-18GHz SP4T PIN Diode Switch

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