

Absorptive Coaxial SP4T Switch 0.02GHz-18GHz



Product Description

RFSP4TA0018G 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 3.0dB max with a typical isolation of 70dB

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

Features

- TTL compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 3.0dB
- Isolation 70dB
- 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		3.0	3.5		4.1	4.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	75		60	70		60	65		dB
Input VSWR		1.8	2.0		1.6	1.8		1.6	1.8	:1
Output VSWR		1.8	2.0		1.6	1.8		1.6	1.8	:1
RF Input Power			30			30			30	dBm
DC Power Dissipation		0.8			0.8			0.8		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					
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.

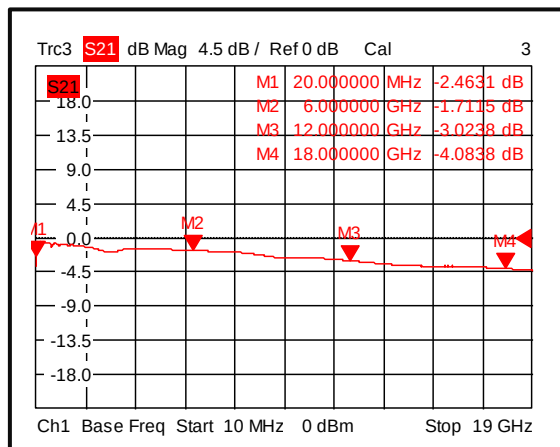
Environmental Specifications and Test Standards

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)

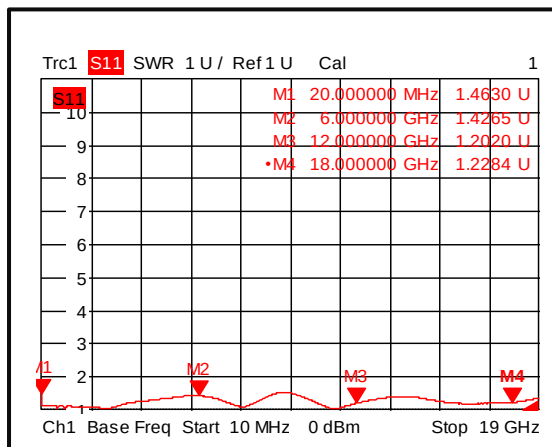
*For vibration testing details please see additional information section.

Typical Performance Plots

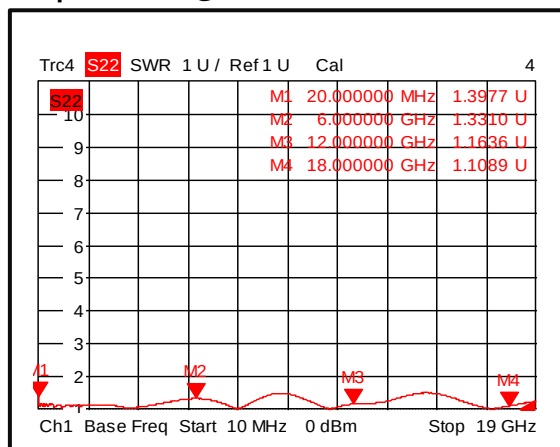
Insertion Loss @+25°C



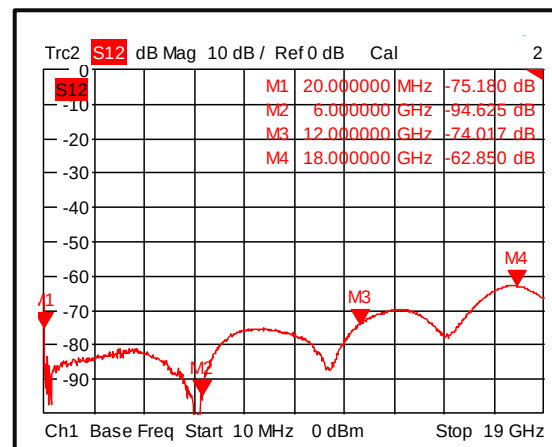
Input VSWR @+25°C



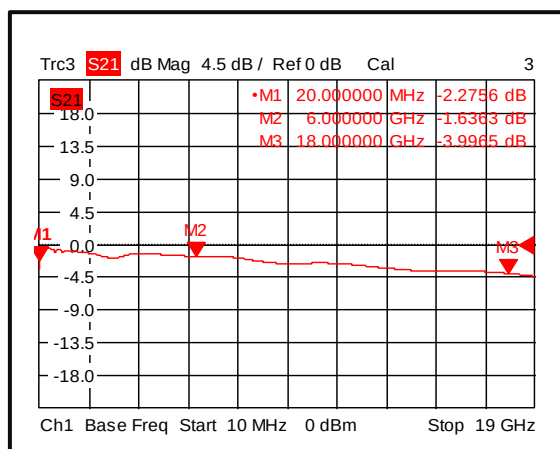
Output VSWR @+25°C



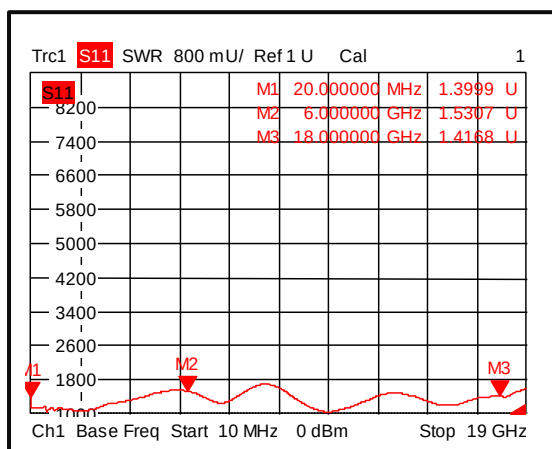
Isolation @+25°C



Insertion Loss @-40°C

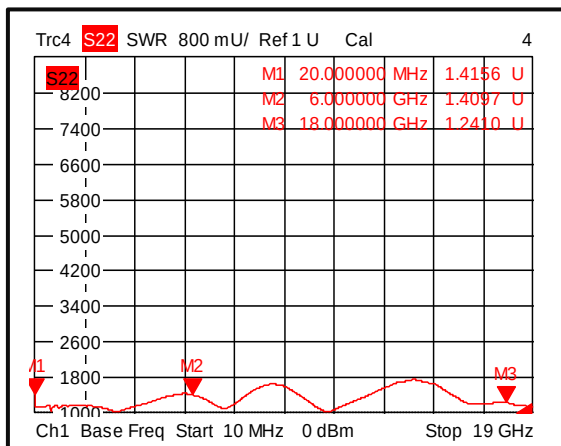


Input VSWR @-40°C

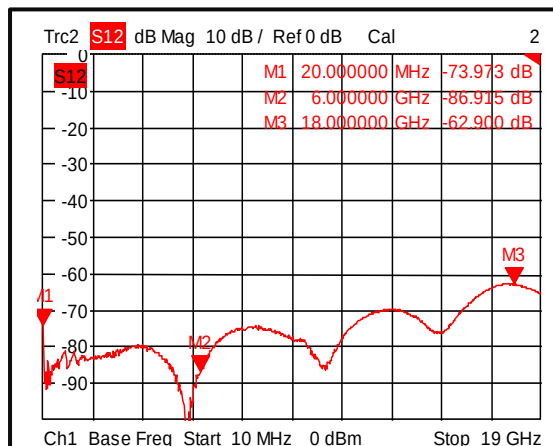


Typical Performance Plots

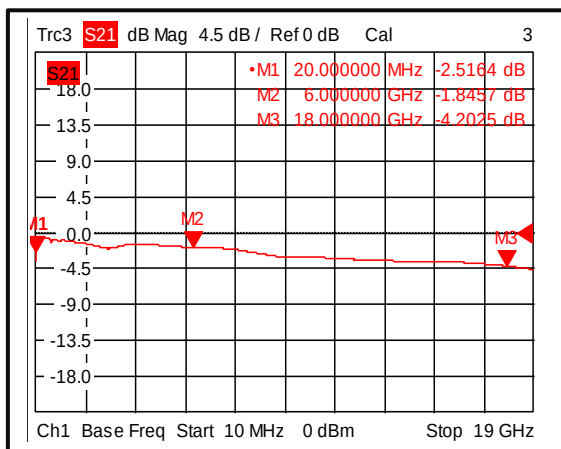
Output VSWR @-40°C



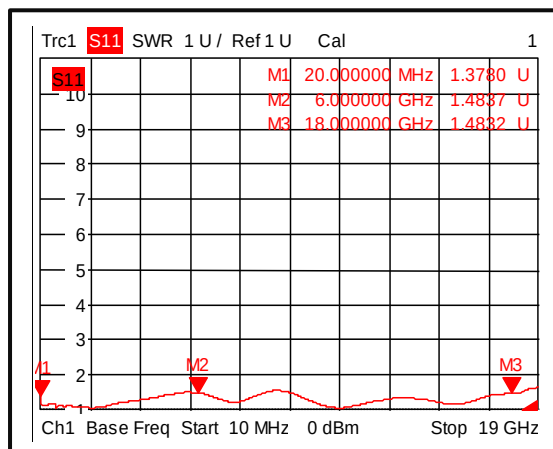
Isolation @-40°C



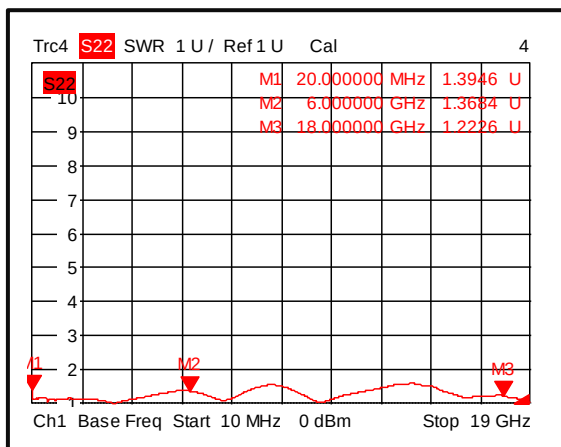
Insertion Loss @+85°C



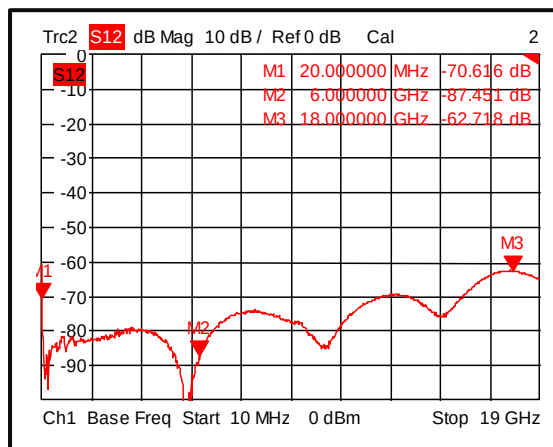
Input VSWR @+85°C



Output VSWR @+85°C

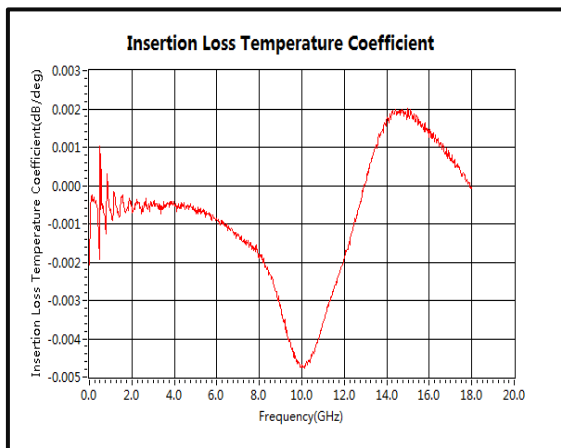


Isolation @+85°C

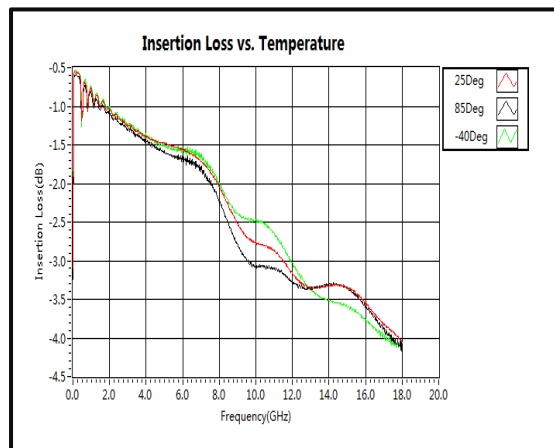


Typical Performance Plots

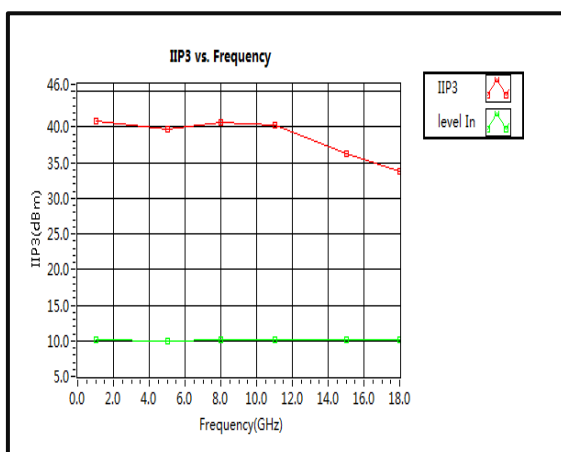
Insertion Loss Temperature Coefficient



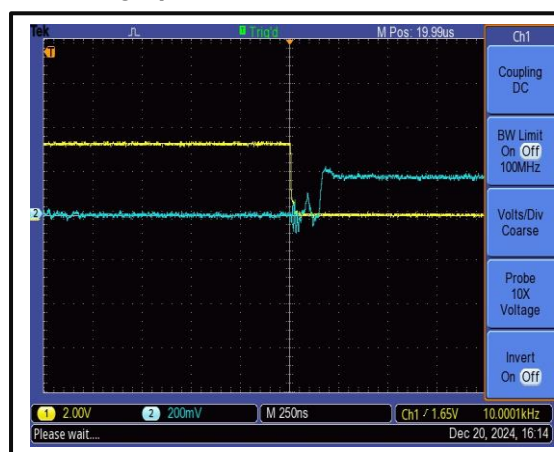
Insertion Loss vs. Temperature



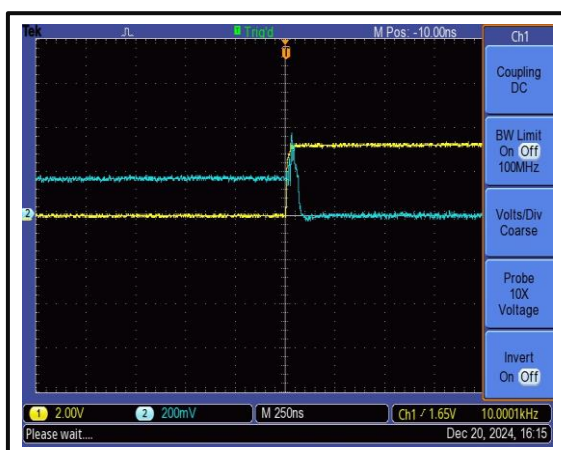
IIP3



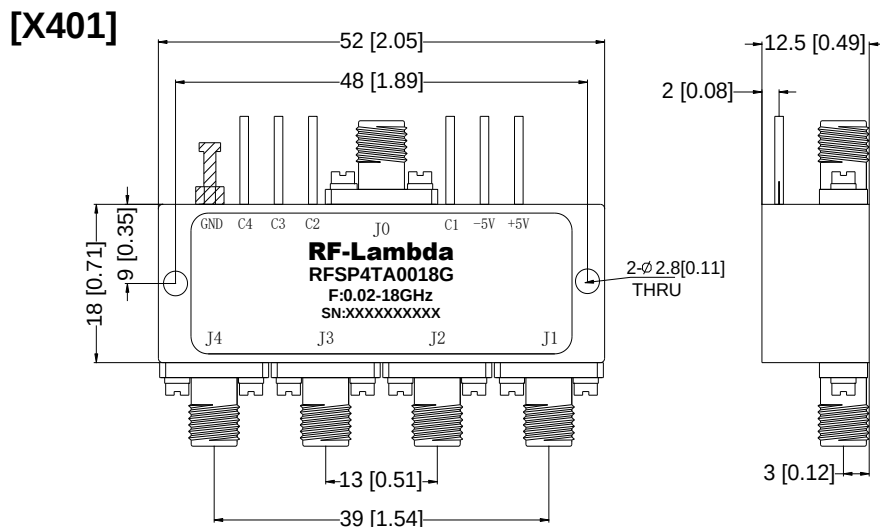
Switching Speed



Switching Speed



Outline Drawing



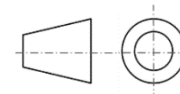
Truth Table

TTL Control Voltage THRESHOLD				Low(0)=0~0.8V High(1)=2.8~5V
Control Input TTL				Signal Path State
C4	C3	C2	C1	
1	1	1	1	OFF
1	1	1	0	J0-J1
1	1	0	1	J0-J2
1	0	1	1	J0-J3
0	1	1	1	J0-J4
0	0	0	0	Not Used

Control Pin Customization Available Upon Request

Notes:

- Package Material: Aluminum
- Finish: Gold Plated
- All dimensions are in millimeters [inches].
- Housing Tolerances ± 0.1 [0.004] unless otherwise specified.
- 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
RFSP4TA0018G	Standard	0.02-18GHz SP4T PIN Diode Switch

Important Notice

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.