

Absorptive Coaxial SP4T Switch 0.02GHz-18GHz



Product Description

RFSP4TA0018GA is an absorptive coaxial single pole four throw switch with a frequency range of 0.02 to 18GHz.

The maximum input power handling of this switch is 30dBm. The insertion loss is 4.5dB max with a typical isolation of 75dB.

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 4.5dB
- Isolation 75dB
- 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		0.02-6			6-12			12-18		GHz
Insertion Loss		2.4	2.8		3.5	3.8		4.1	4.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	80		60	75		60	65		dB
Output to Output Port Isolation	60	80		60	75		60	65		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 (CW)			30			30			30	dBm
DC Power Dissipation		1			1			1		W
0.1dB Compression Point (P0.1dB)		30			30			30		dBm
IIP3		45			42			40		dbm
Switching Speed					100 Typ. 250 Max.					ns
Bias Current (+5V)					210 Max.					mA
Weight					0.075 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%

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

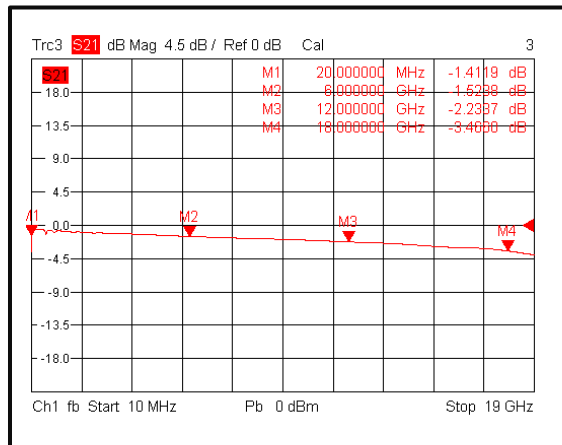
Environmental Specifications and Test Standards

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)

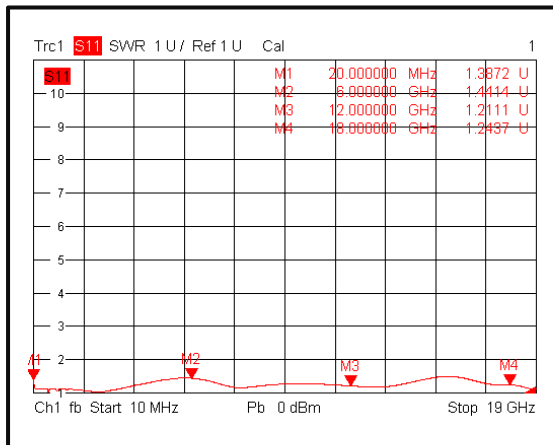
*For vibration testing details please see additional information section.

Typical Performance Plots

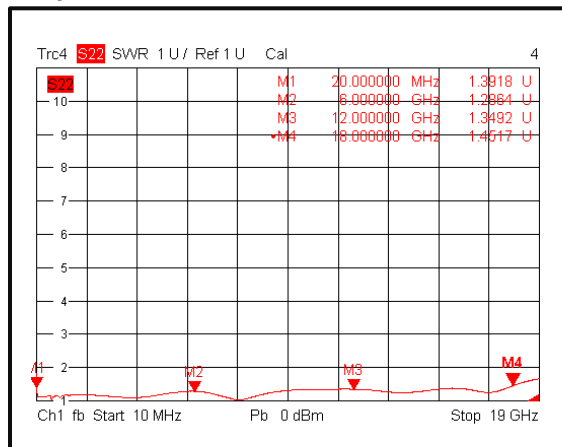
Insertion Loss @+25°C



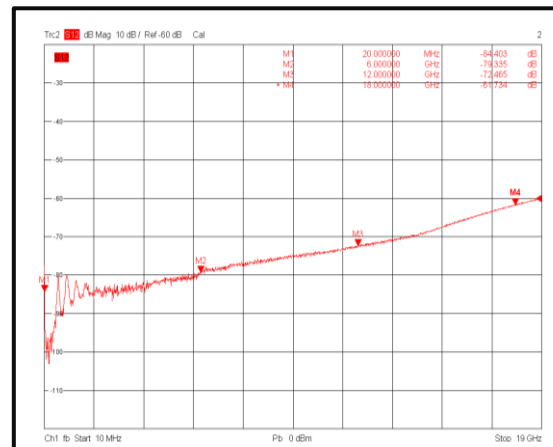
Input VSWR @+25°C



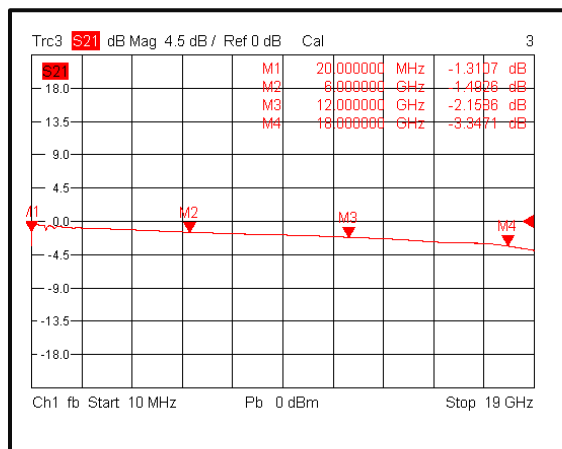
Output VSWR @+25°C



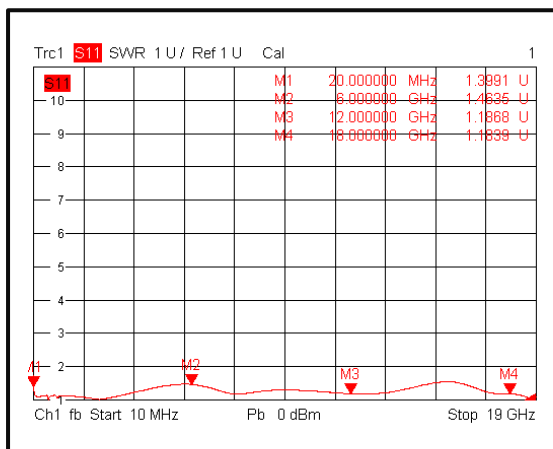
Isolation @+25°C



Insertion Loss @-40°C

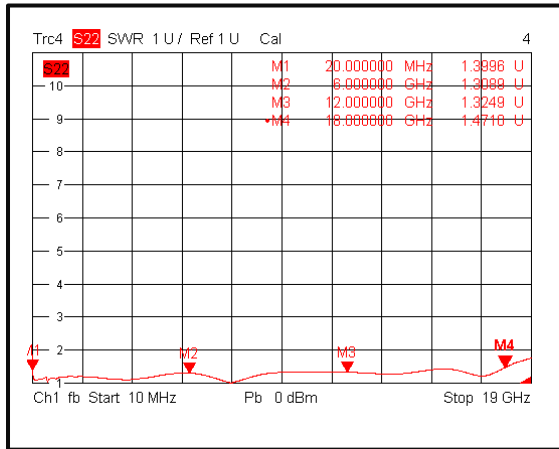


Input VSWR @-40°C

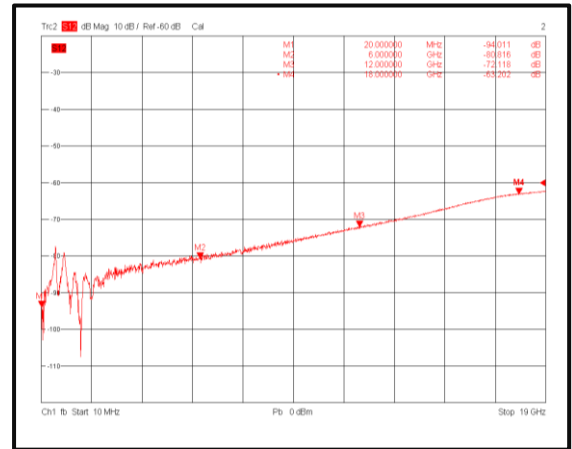


Typical Performance Plots

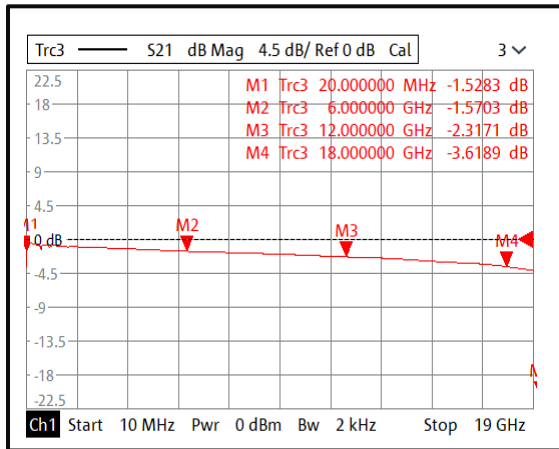
Output VSWR @-40°C



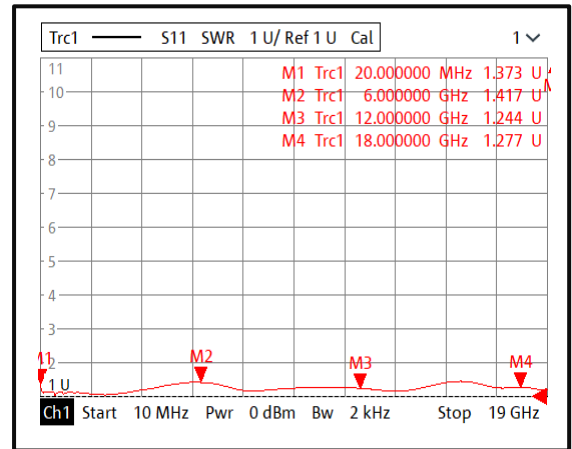
Isolation @-40°C



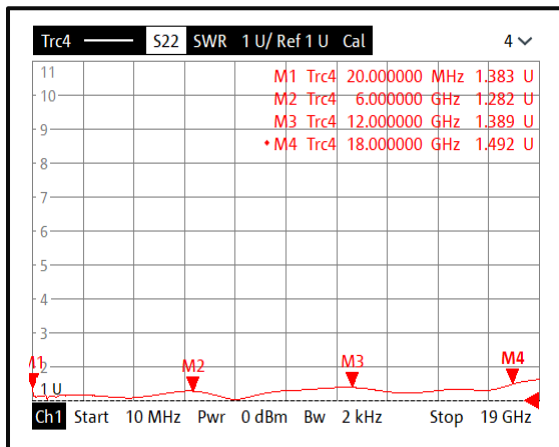
Insertion Loss @+85°C



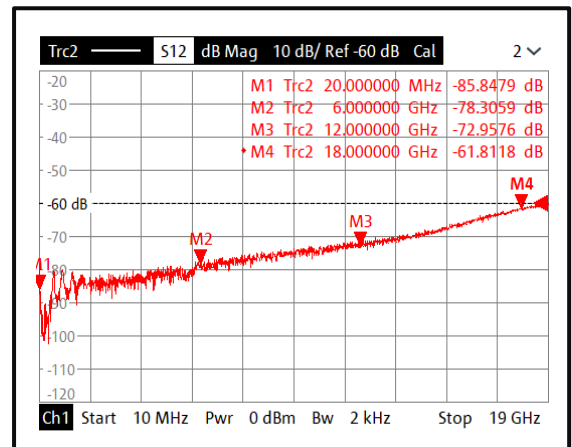
Input VSWR @+85°C



Output VSWR @+85°C

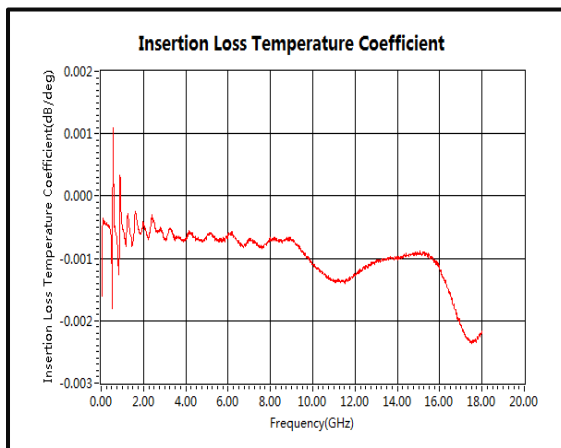


Isolation @+85°C

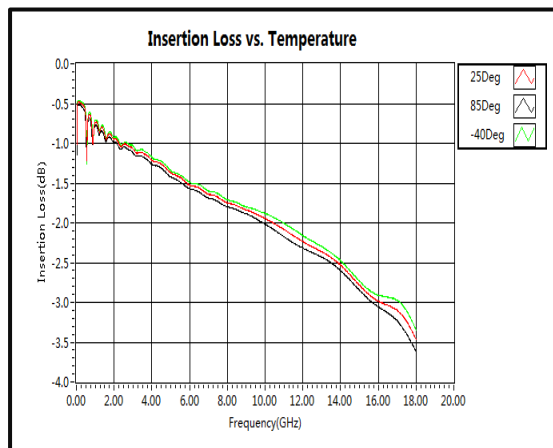


Typical Performance Plots

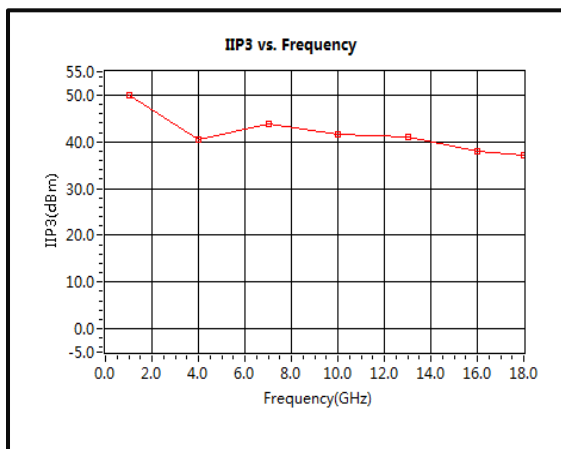
Insertion Loss Temperature Coefficient



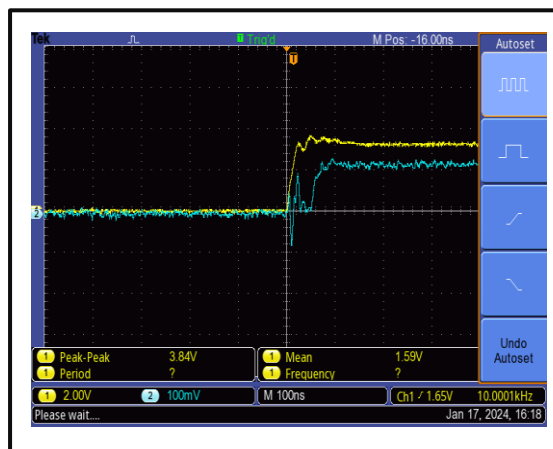
Insertion Loss vs. Temperature



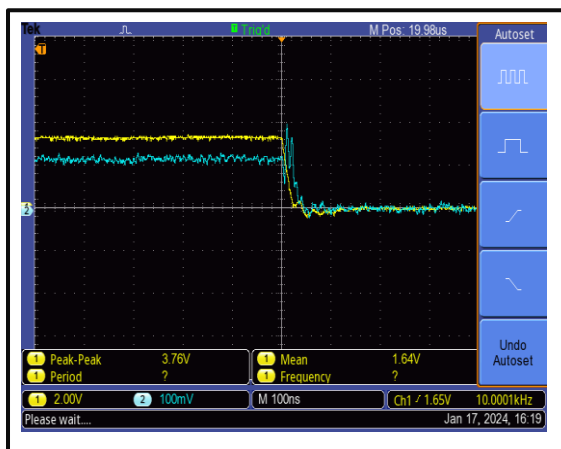
IIP3



Switching Speed

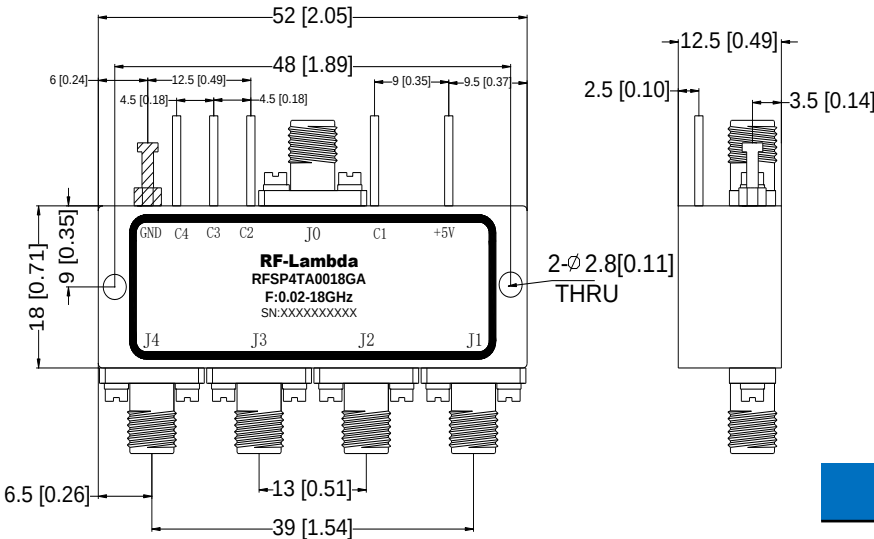


Switching Speed



Outline Drawing

[X401]

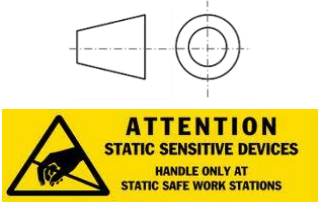


Truth Table

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

Control Pin Customization Available Upon Request

- Notes:
- Package Material: Aluminum
 - Finish: Gold Plated
 - All dimensions are in millimeters [inches].
 - Housing Tolerances ± 0.3 [0.012] 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
RFSP4TA0018GA	Standard	0.02GHz-18GHz SP4T PIN Diode Switch

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