Hermetically Sealed Absorptive Coaxial SP4T Switch 0.02GHz-18GHz

Product Description

RFSP4TA0018G-HN is a hermetically sealed 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 3.1dB 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℃ and + 85℃

Features

- TTL compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 3.1dB
- Isolation 70dB 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/-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		3.1	3.5		4.3	4.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	80		60	70		60	65		dB
Output to Output Port Isolation	60	80		60	70		60	65		dB
Input VSWR		1.6	2		1.5	2		1.5	2	: 1
Output VSWR		1.6	2		1.5	2		1.5	2	: 1
RF Input Power (CW)			30			30			30	dBm
DC Power Dissipation		1			1			1		W
0.1dB Compression Point (P0.1dB)		23			23			23		dBm
IIP3		35			36			35		dbm
Switching Speed		100	250		100	250		100	250	ns
Bias Current (+5V/-5V)					160/50 Max.					mA
Weight					0.073 Typ.					lbs
Impedance					50					Ω
Input / Output Connectors					SMA-Female(Input) – SMA-Female(Output)					
Package					Hermetically Sealed (Laser Welded)					

RF-LAMBDA USA LLC: www.rflambda.com
Sales: sales@rflambda.com Technical: support@rflambda.com

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.

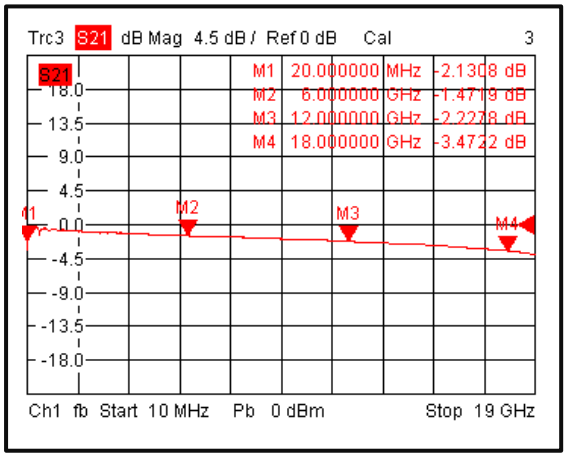
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40ºC to +85ºC (Case Temperature)
Storage Temperature	-50ºC to +105ºC
Thermal Shock	-40ºC → +85ºC (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 +85ºC 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)

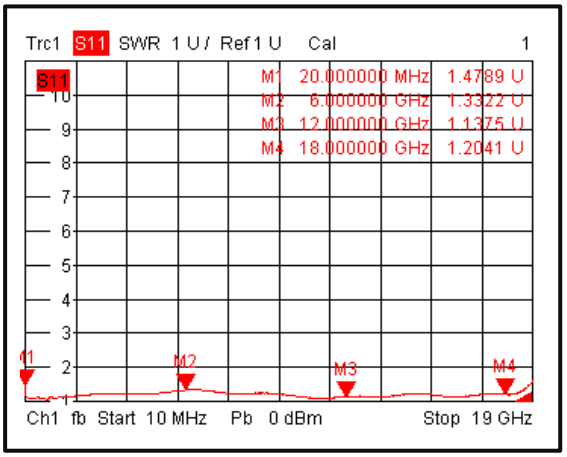
*For vibration testing details please see additional information section.

Typical Performance Plots

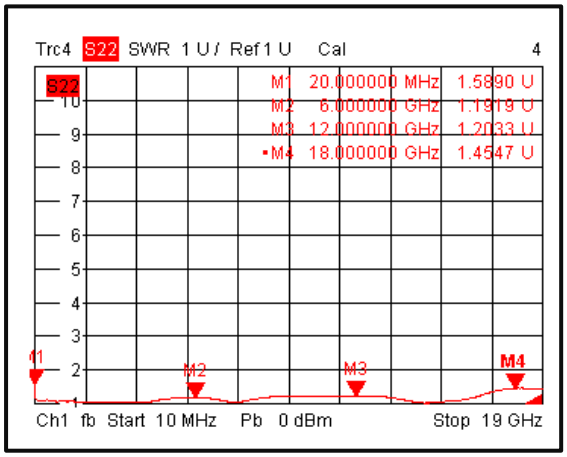
Insertion Loss @+25℃



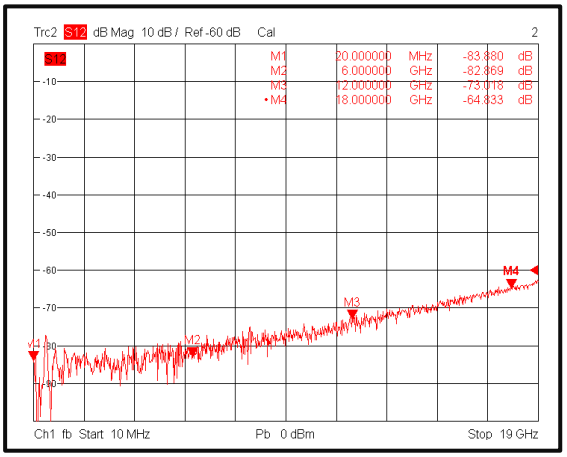
Input VSWR @+25℃



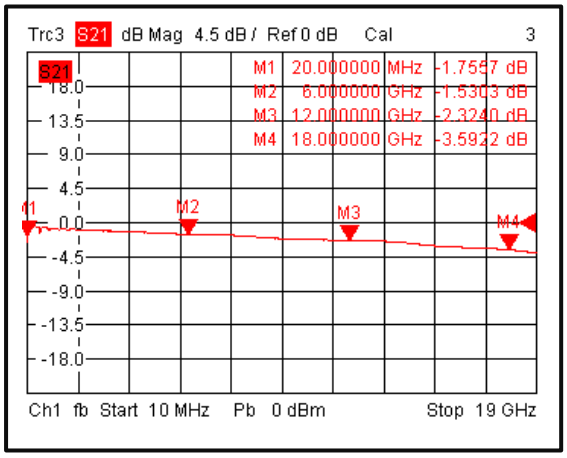
Output VSWR @+25℃



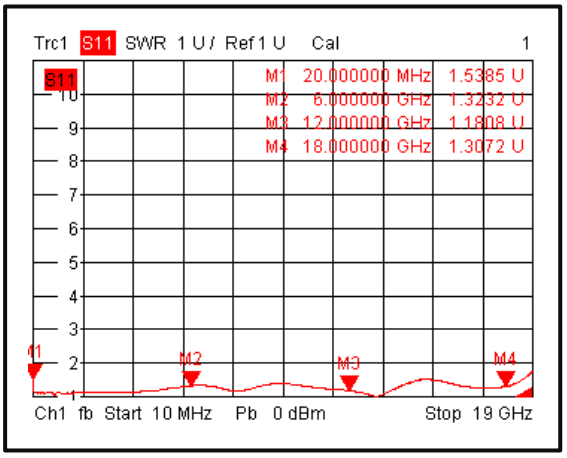
Isolation @+25℃



Insertion Loss @-40℃

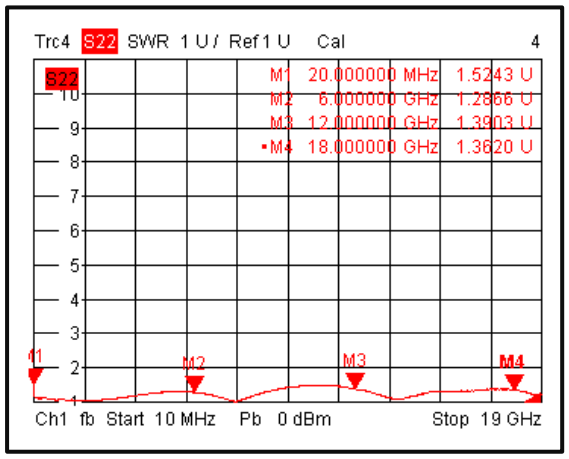


Input VSWR @-40℃

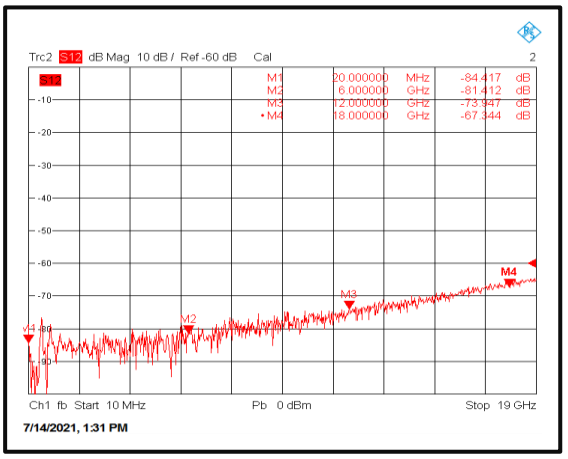


Typical Performance Plots

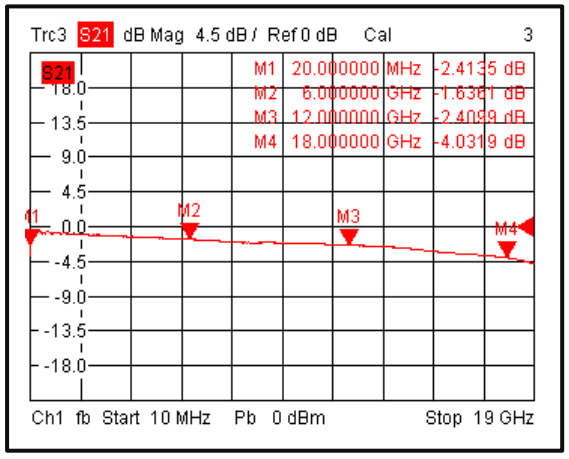
Output VSWR @-40℃



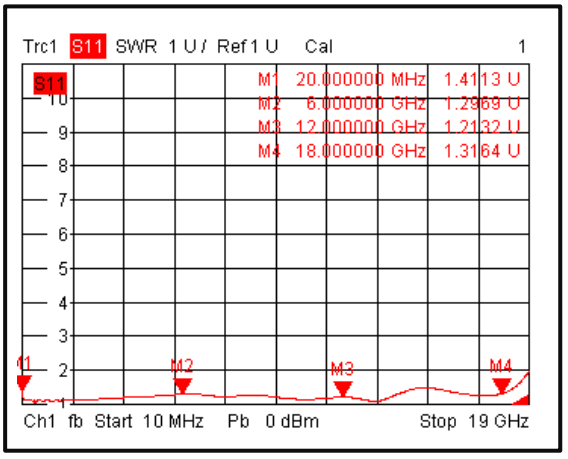
Isolation @-40℃



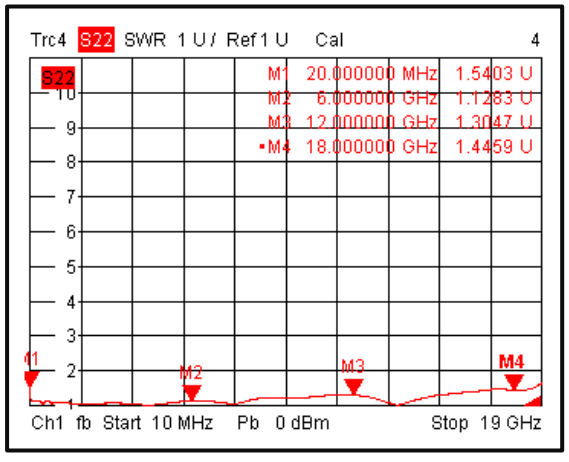
Insertion Loss @+85℃



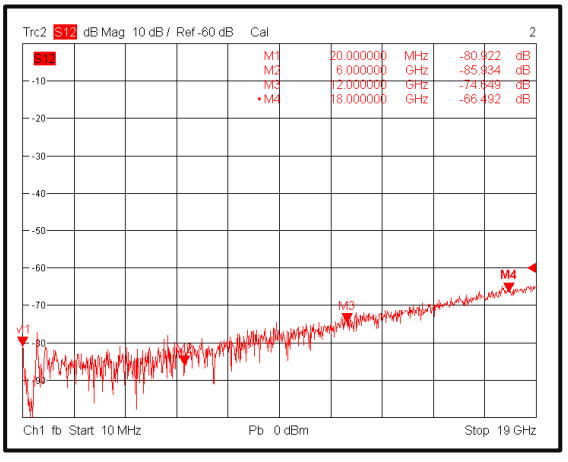
Input VSWR @+85℃



Output VSWR @+85℃

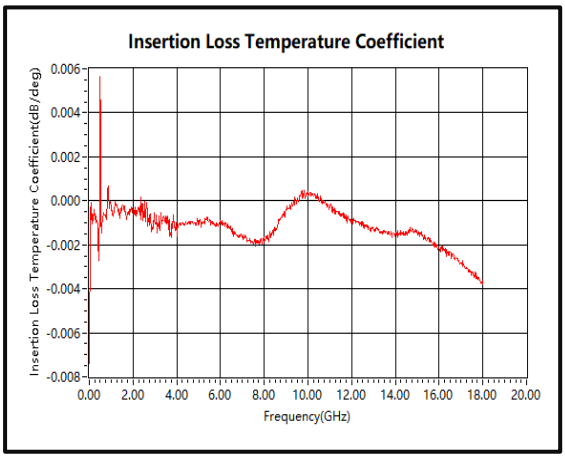


Isolation @+85℃

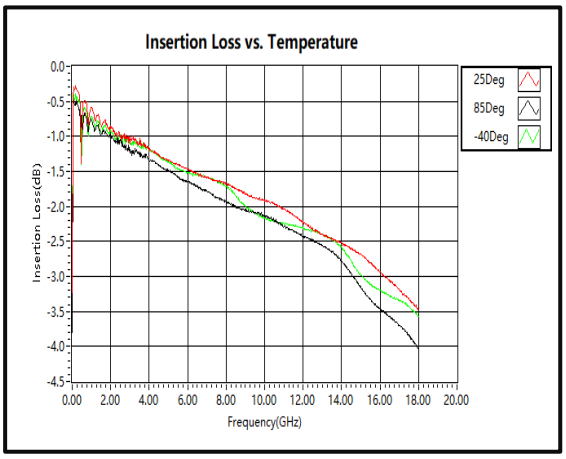


Typical Performance Plots

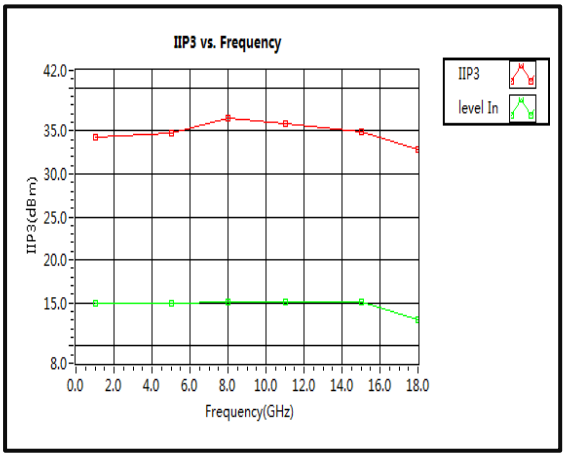
Insertion Loss Temperature Coefficient



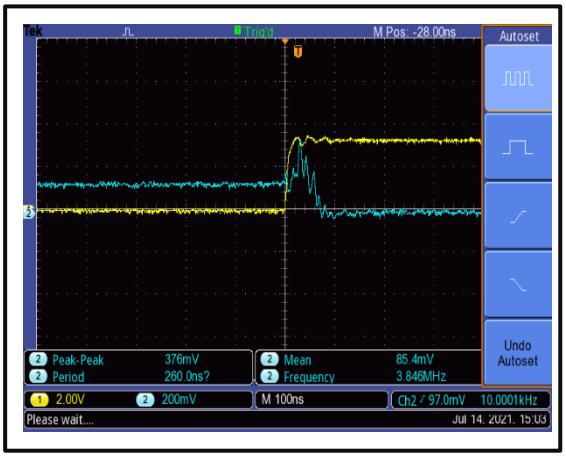
Insertion Loss vs. Temperature



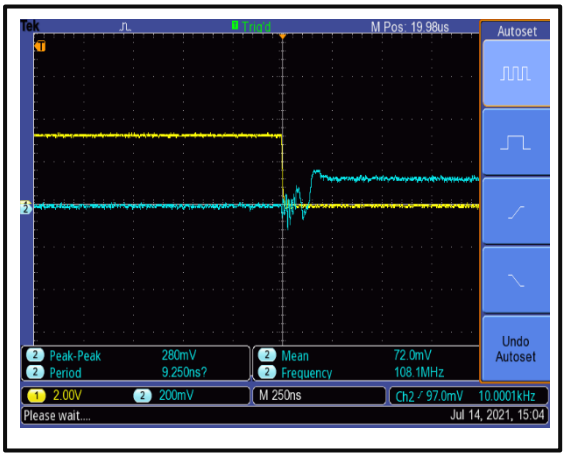
IIP3



Switching Speed

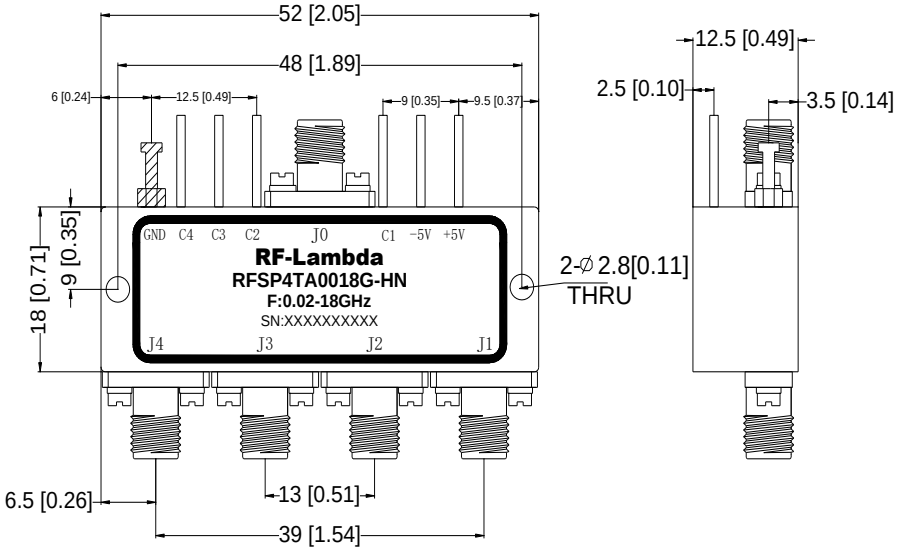


Switching Speed

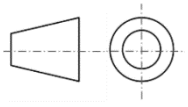


Outline Drawing

[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	NC
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:
1. Package Material: Aluminum
2. Finish: Nickel Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances±0.3 [0.012]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
RFSP4TA0018G-HN	Standard	0.02GHz-18GHz Hermetically Sealed SP4T PIN Diode Switch

Important Notice

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