

Absorptive Coaxial SP6T Switch 0.001GHz-1GHz



Product Description

RFSP6TA0001GA is an absorptive coaxial single pole six throw switch with a frequency range of 0.001 to 1GHz.

The power input of this switch is 30dBm Max. The insertion loss is 1.5dB with a typical isolation of 80dB.

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 1.5dB 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	Units
Frequency Range		0.001~0.002			0.002~1		GHz
Insertion Loss		2.0			1.5	1.8	dB
Flatness of Insertion Loss (Between each port)		±0.25			±0.25		dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	60	75		70	80		dB
Input VSWR		1.5			1.3	1.5	: 1
Output VSWR		1.5			1.3	1.6	: 1
RF Input power			30				dBm
DC Power Dissipation			1.1				W
0.1dB Compression Point (P0.1dB)			28				dBm
IIP3			33				dBm
Switching Speed			10 Typ.				us
*Bias Current (+5V)			290 Max.				mA
Weight			0.085 Max.				lbs
Impedance			50				Ω
Input / Output Connectors			SMA-Female(Input) – SMA-Female(Output)				
Package			Epoxy Sealed (Standard)				
			Hermetically Sealed (Optional)				

*-5V does not need to be connected.

Absolute Maximum Ratings

Parameter	Rating
Biasing	+5V±10%

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

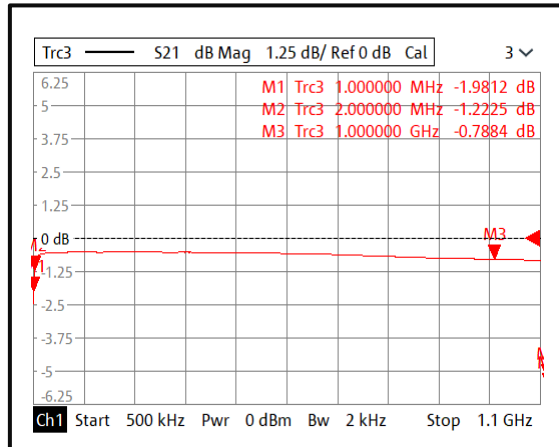
Environmental Specifications and Test Standards

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)

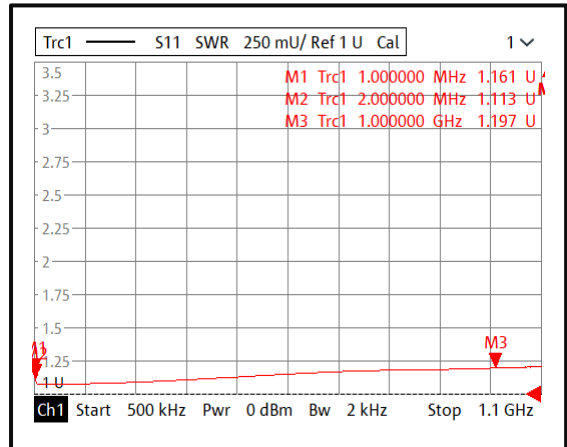
*For vibration testing details please see additional information section.

Typical Performance Plots

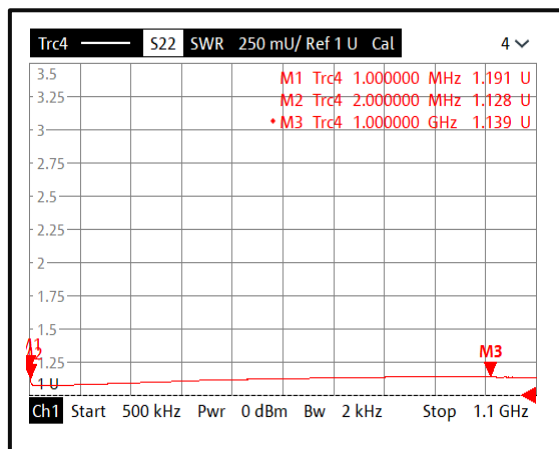
Insertion Loss @+25°C



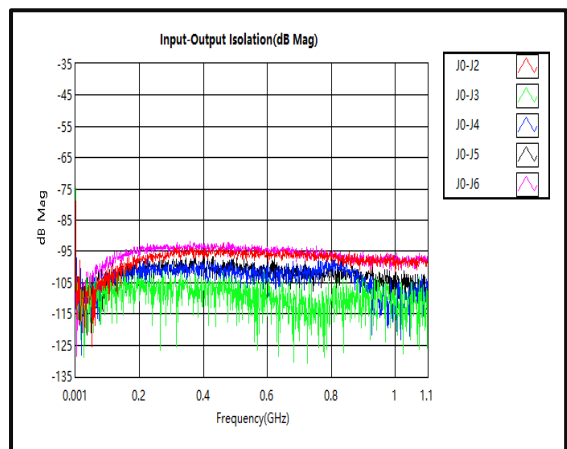
Input VSWR @+25°C



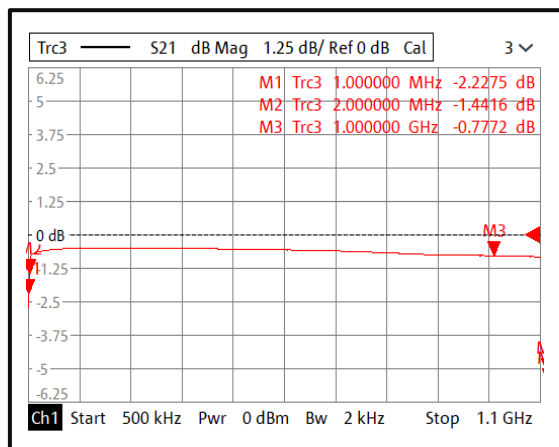
Output VSWR @+25°C



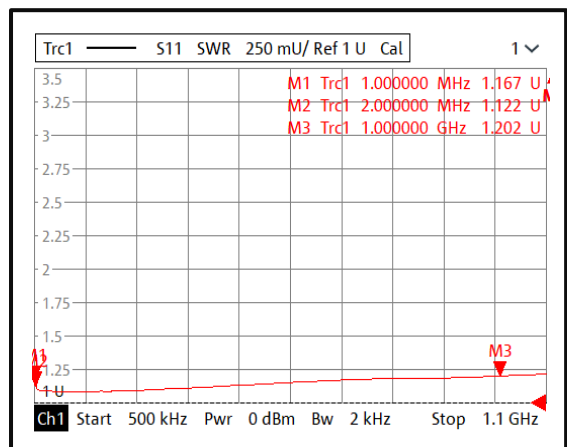
Isolation @+25°C



Insertion Loss @-40°C

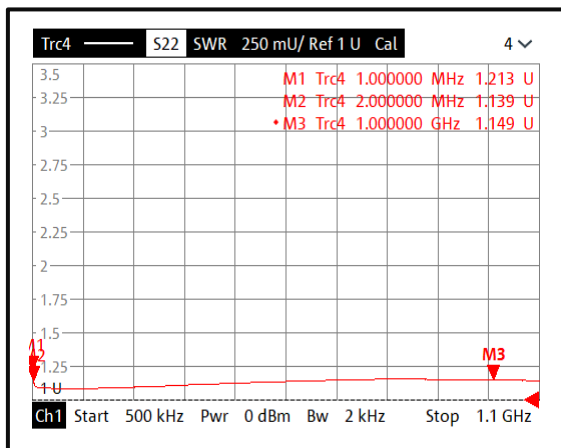


Input VSWR @-40°C

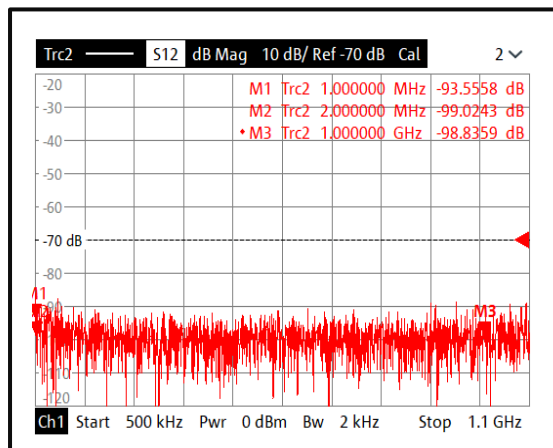


Typical Performance Plots

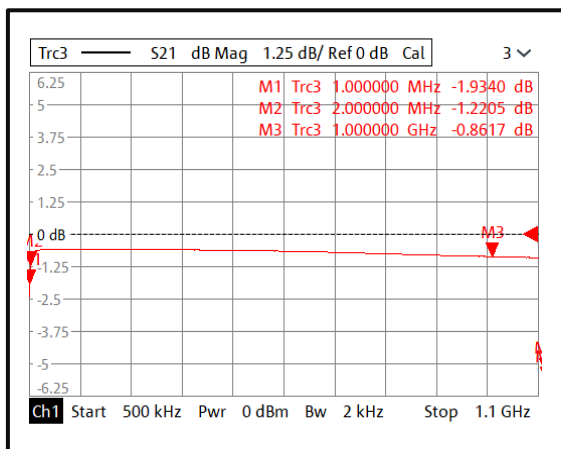
Output VSWR @-40°C



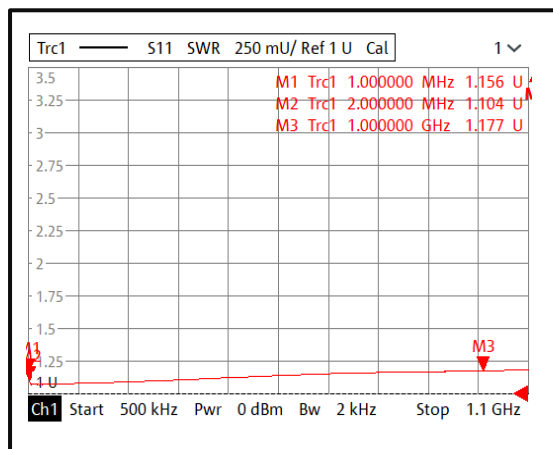
Isolation @-40°C



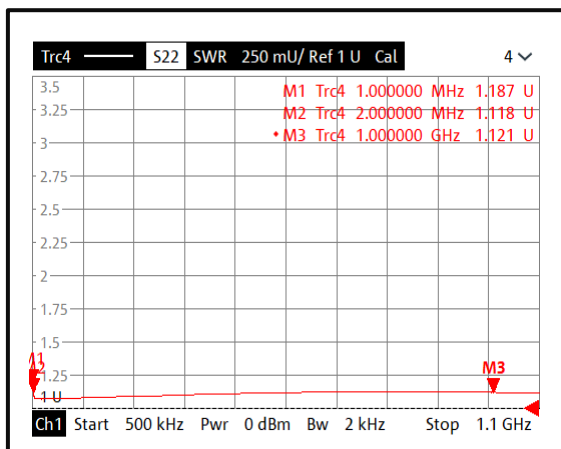
Insertion Loss @+85°C



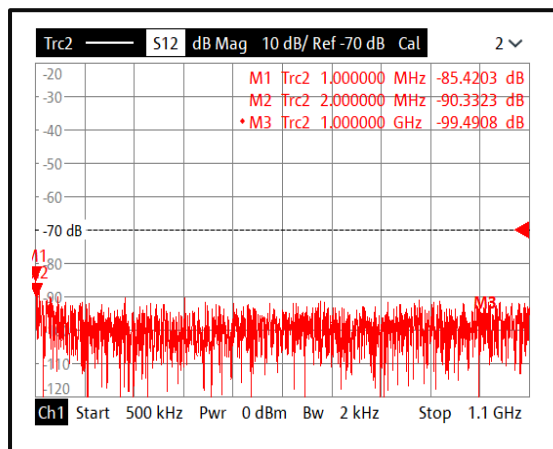
Input VSWR @+85°C



Output VSWR @+85°C

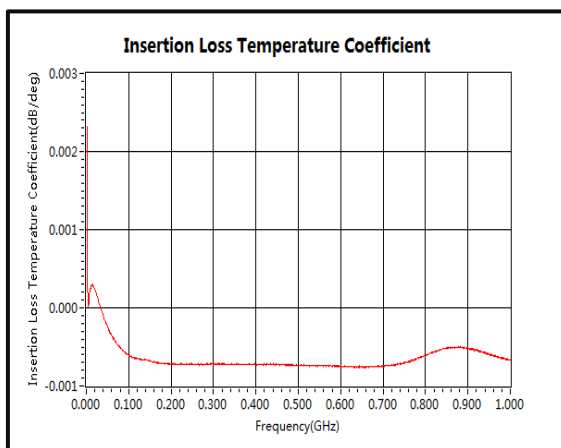


Isolation @+85°C

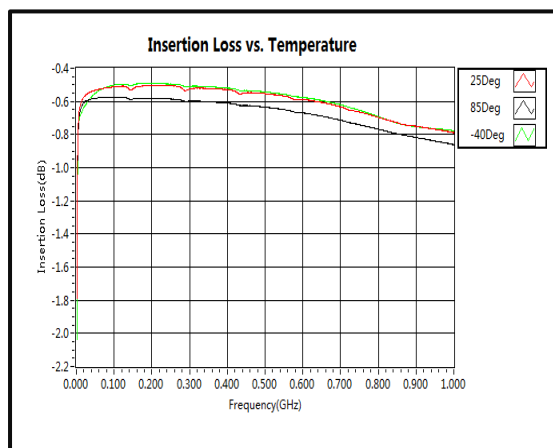


Typical Performance Plots

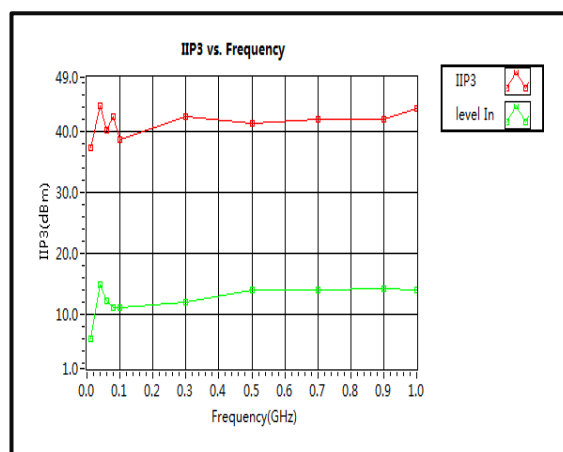
Insertion Loss Temperature Coefficient



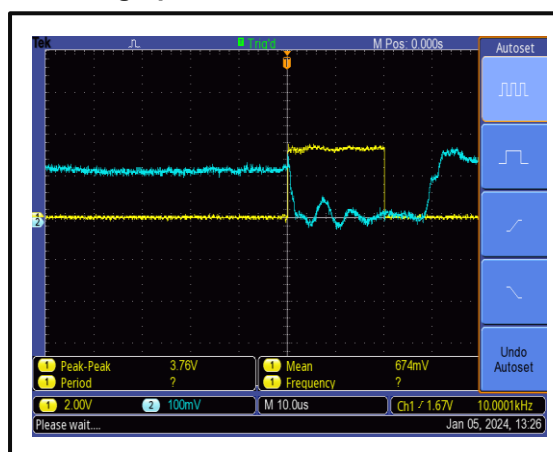
Insertion Loss vs. Temperature



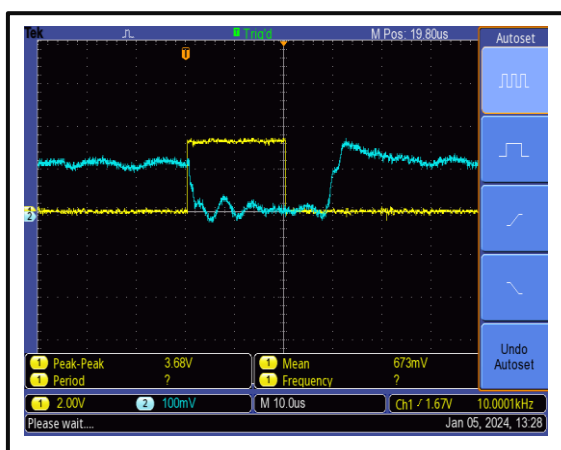
IIP3



Switching Speed

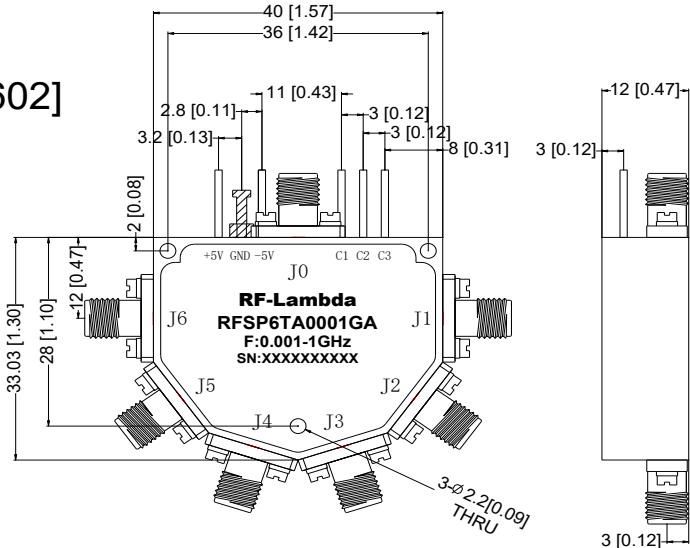


Switching Speed



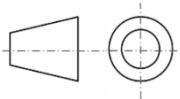
Outline Drawing

[X602]



Truth Table			
TTL Control Voltage THRESHOLD		Low(0)=0~0.8V High(1)=2.8~5V	
Control Input TTL			Signal Path State
C3	C2	C1	
0	0	0	J0-J6
0	0	1	J0-J5
0	1	0	J0-J4
0	1	1	J0-J3
1	0	0	J0-J2
1	0	1	J0-J1
1	1	0	OFF
1	1	1	OFF
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
RFSP6TA0001GA	Standard	0.001GHz-1GHz SP6T PIN Diode Switch

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