

Absorptive Coaxial SP2T Switch 0GHz-20GHz



Product Description

RFSP2TADC20G is an absorptive coaxial single pole double throw switch with a frequency range of 0 to 20GHz.

The maximum power handling is 30dBm. The insertion loss is 2.2dB with a typical isolation of 45dB.

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
- High Power Cold Switching
- Insertion Loss 1.8dB
- Isolation 45dB 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	Min	Typ	Max	Units
Frequency Range		0-1			1-6			6-20		GHz
Insertion Loss		1.0	1.5		1.5	2.0		2.2	2.6	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	50	65		45	55		35	45		dB
Input VSWR		1.3	1.5		1.3	1.5		1.3	1.5	: 1
Output VSWR		1.3	1.5		1.3	1.5		1.3	1.5	: 1
RF Input Power			30			30			30	dBm
0.1dB Compression Point(P0.1dB)		5			16.5			18		dBm
DC Power Dissipation		0.5			0.5			0.5		W
IIP3		25			40			40		dBm
Switching Speed					150 Typ.					ns
Bias Current (+5V)					80 Max.					mA
Weight					0.037 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%

Note:

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

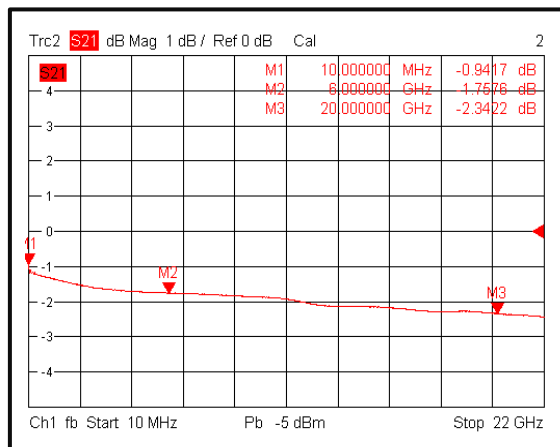
Environmental Specifications and Test Standards

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)

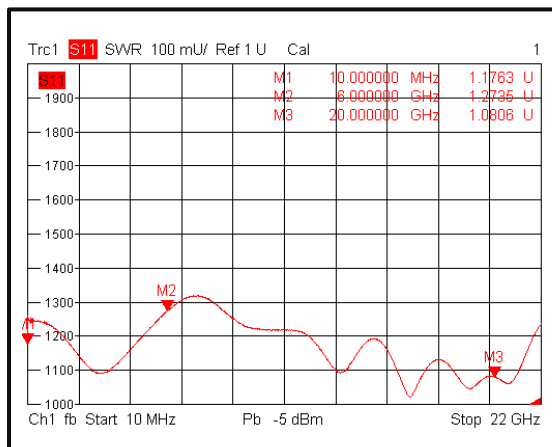
* * For vibration testing details please see additional information section.

Typical Performance Plots

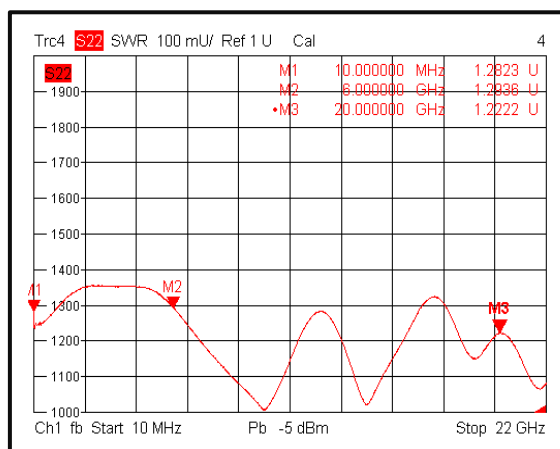
Insertion Loss @+25°C



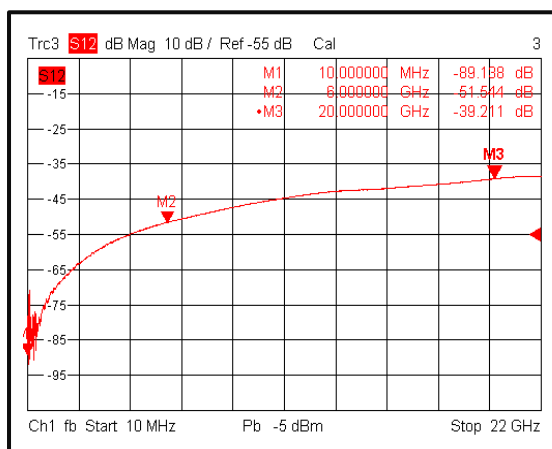
Input VSWR @+25°C



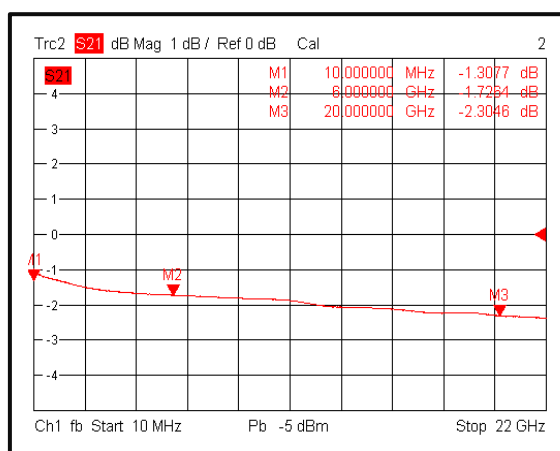
Output VSWR @+25°C



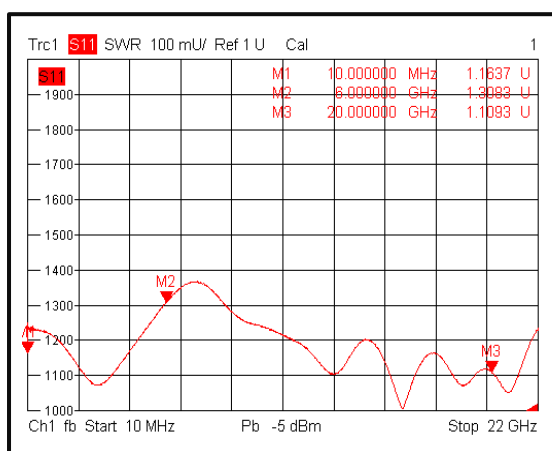
Isolation @+25°C



Insertion Loss @-40°C

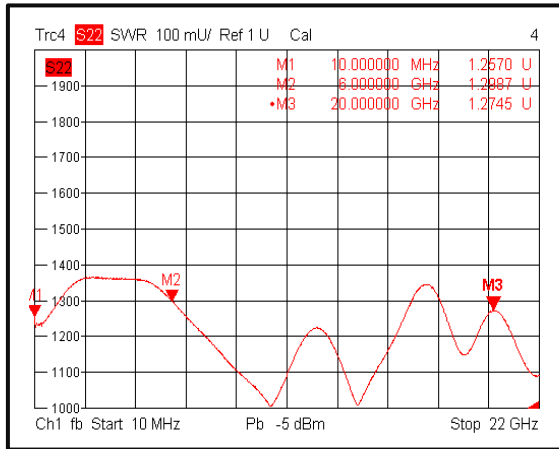


Input VSWR @-40°C

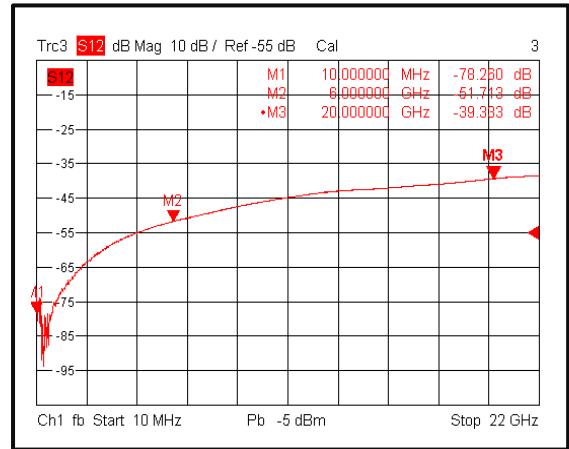


Typical Performance Plots

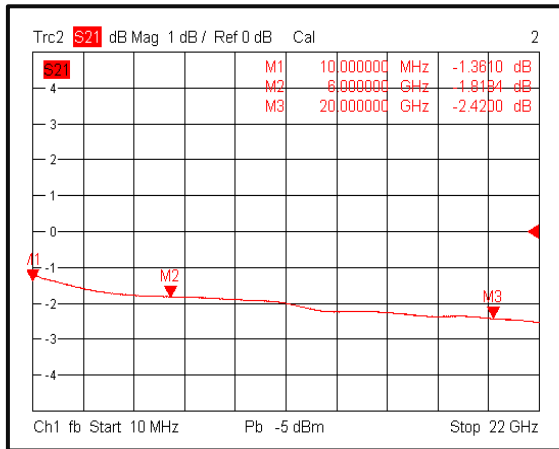
Output VSWR @-40°C



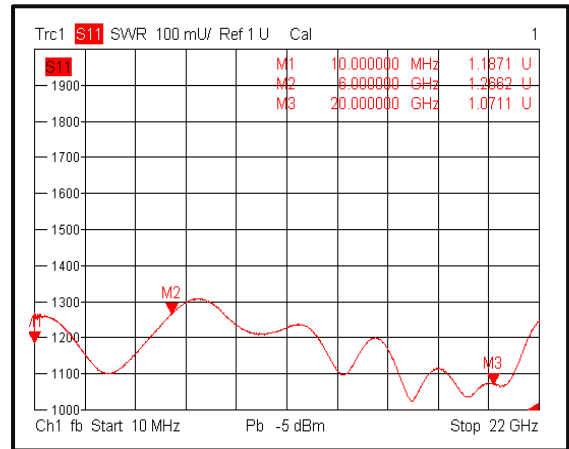
Isolation @-40°C



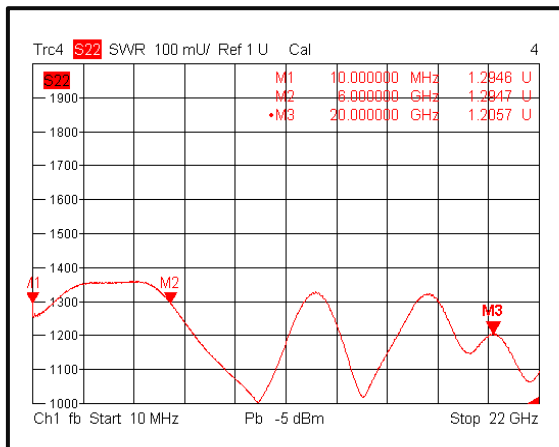
Insertion Loss @+85°C



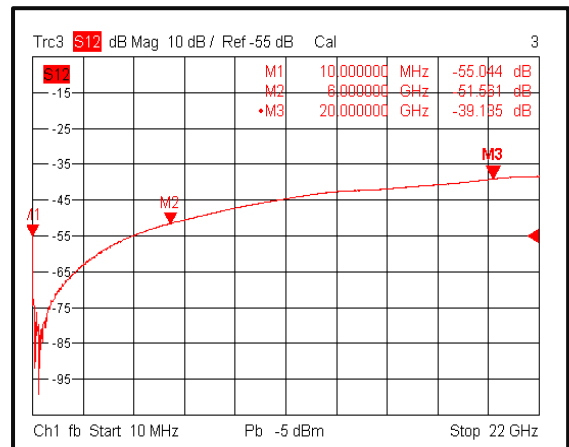
Input VSWR @+85°C



Output VSWR @+85°C

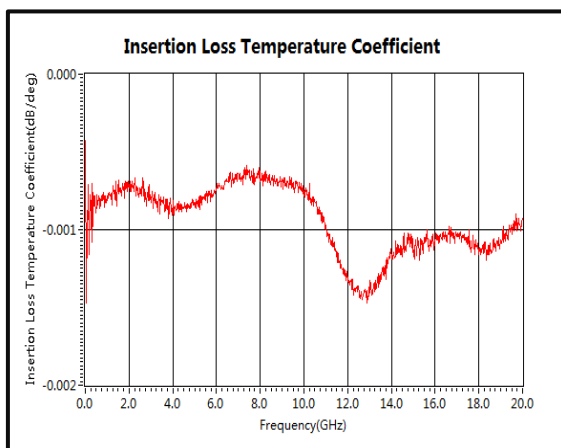


Isolation @+85°C

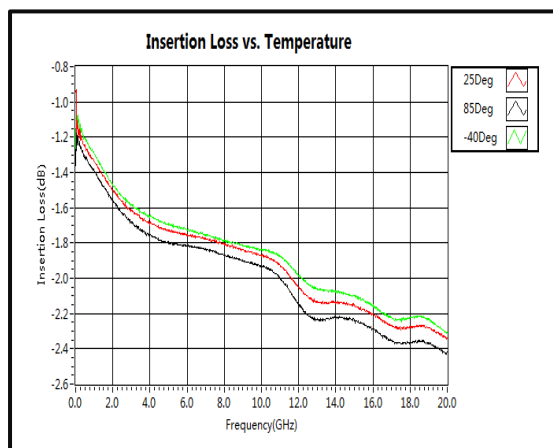


Typical Performance Plots

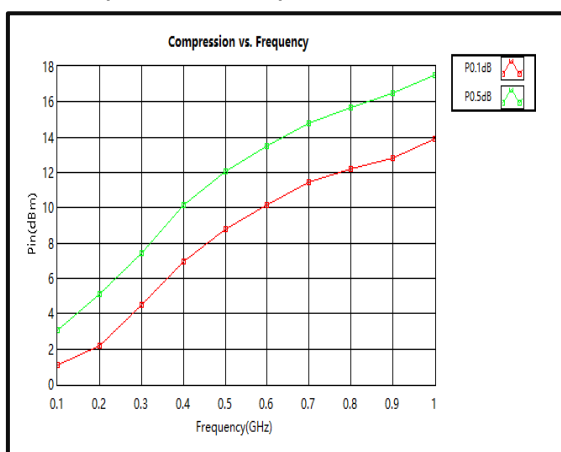
Insertion Loss Temperature Coefficient



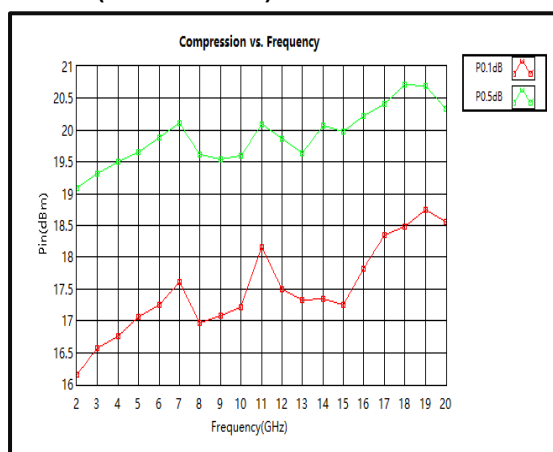
Insertion Loss vs. Temperature



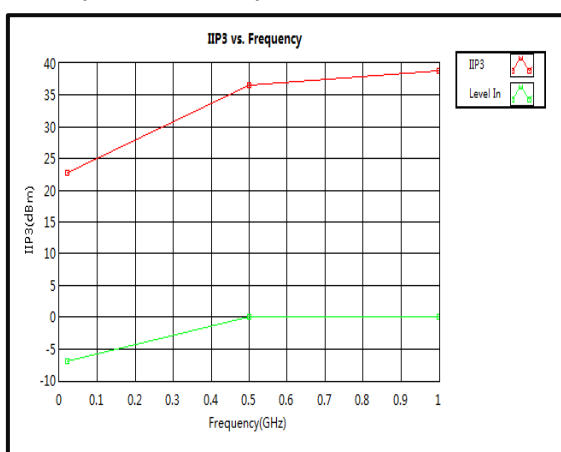
PxdB (0.1GHz-1GHz)



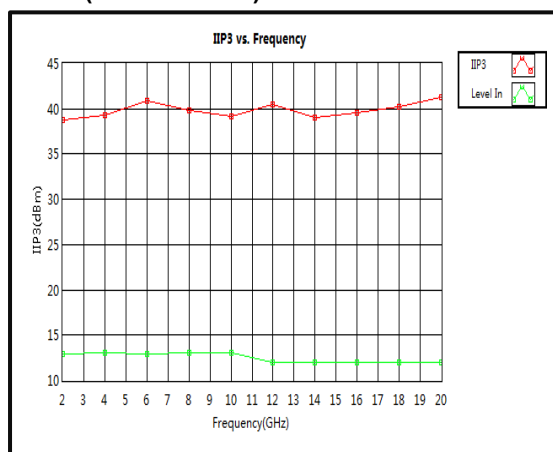
PxdB (2GHz-20GHz)



IIP3 (0.1GHz-1GHz)

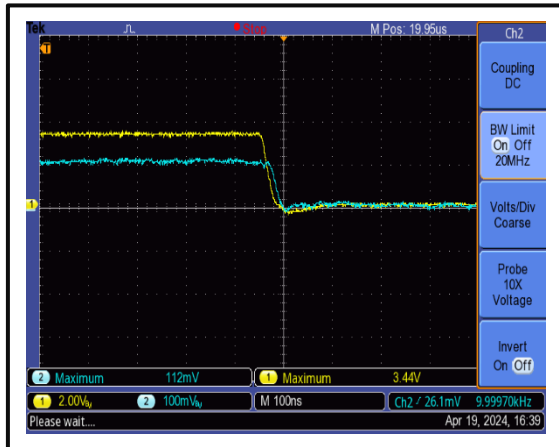


IIP3 (2GHz-20GHz)

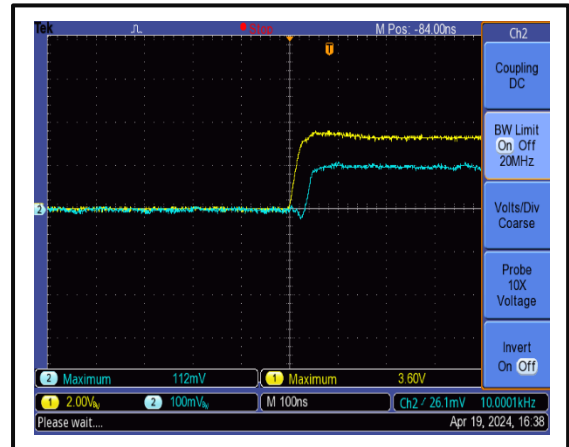


Typical Performance Plots

Switching Speed

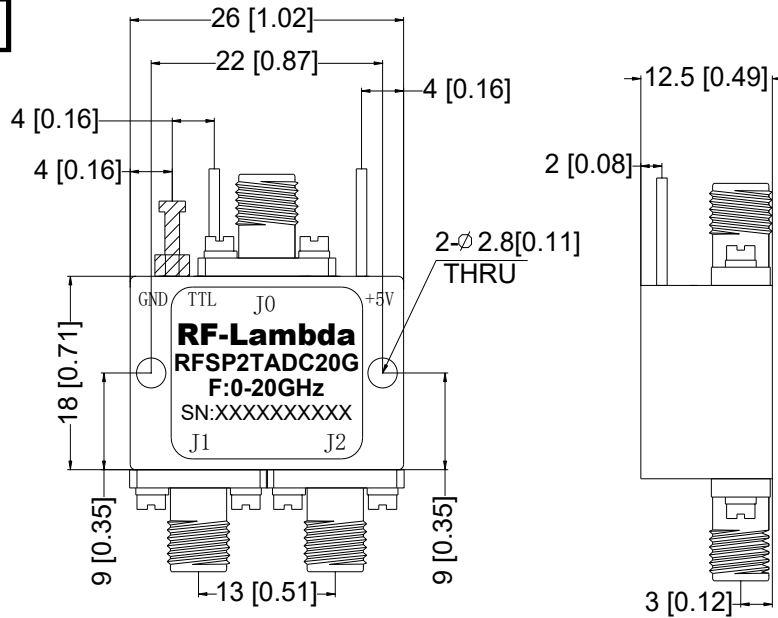


Switching Speed



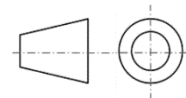
Outline Drawing

[X201]



Truth Table

TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	High(1)=2.8~5V
Control Input TTL	State
1	J0-J1
0	J0-J2
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

Heatsink Lookup Specifications

https://rflambda.com/search_heatsink.jsp

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
RFSP2TADC20G	Standard	0GHz-20GHz SP2T PIN Diode Switch

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