

Reflective Coaxial SP2T Switch 50MHz-700MHz



Product Description

RFSP2TR0103M is a reflective coaxial single pole double throw switch with a frequency range of 50 to 700MHz.

The maximum power input of this switch is 100W. The insertion loss is 0.8dB with a typical isolation of 65dB.

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
- High Power Cold Switching
- Insertion Loss 0.8dB Typical
- Isolation 65dB 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/-28V, TTL = 0 / +5V

Parameter		Min	Typ	Max	Min	Typ	Max	Units
Frequency Range			50 - 300			300 - 700		MHz
Insertion Loss			0.4	0.6		0.8	1.1	dB
Insertion Loss Temperature Coefficient			0.003			0.003		dB/ °C
Isolation		60	68		60	65		dB
Input VSWR			1.2	1.3		1.4	1.7	: 1
Output VSWR			1.2	1.3		1.4	1.7	: 1
RF Input Power (CW)				100			100	W
DC Power Dissipation			1.3			1.3		W
0.1dB Compression Point (P0.1dB)			50			50		dBm
IIP3			55			55		dBm
Switching Speed				1.2			1.2	us
Bias Current (+5V/-28V)				250/50				mA
Weight	Net			0.22 Max.				lbs
	Including Heat sink			0.4 Max.				
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%/-28V±10%

Notes:

1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
2. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

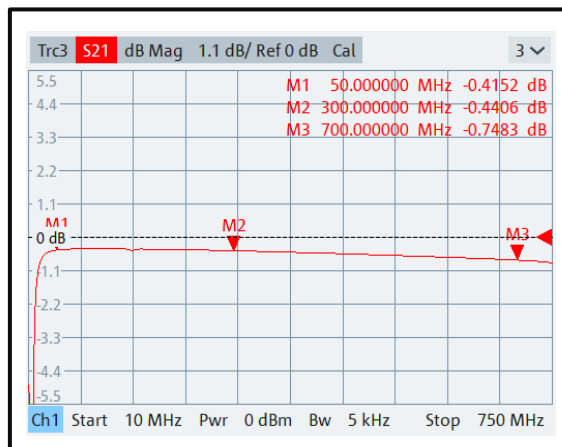
Environmental Specifications and Test Standards

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)

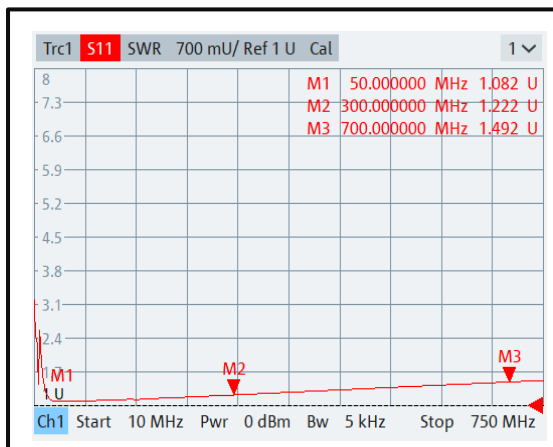
** For vibration testing details please see additional information section.

Typical Performance Plots

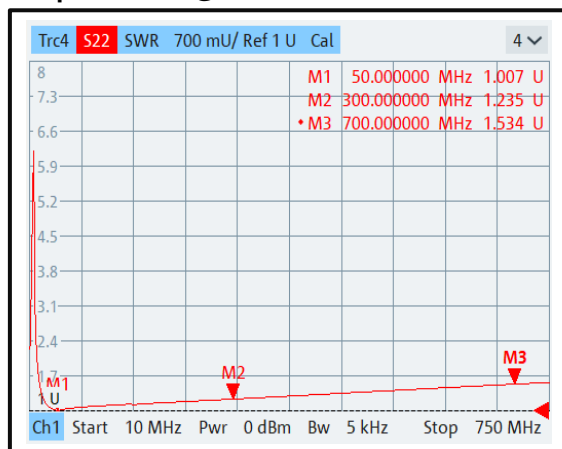
Insertion Loss @+25°C



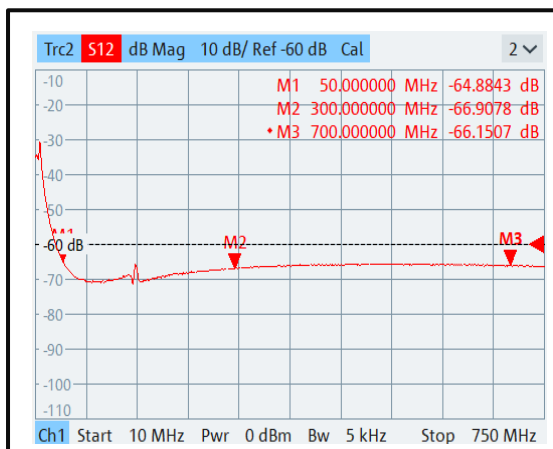
Input VSWR @+25°C



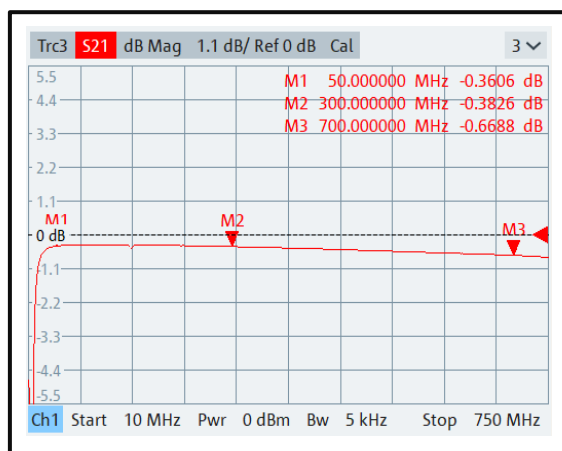
Output VSWR @+25°C



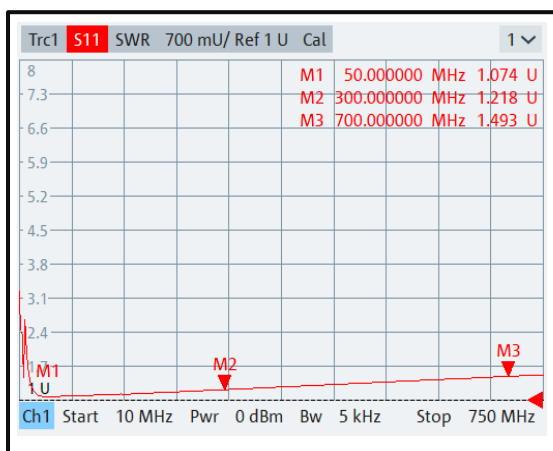
Isolation @+25°C



Insertion Loss @-40°C

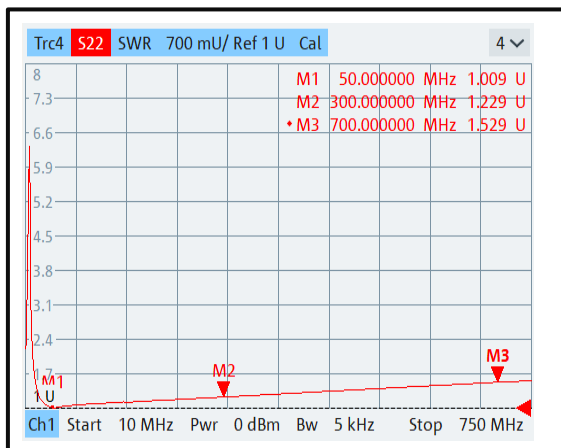


Input VSWR @-40°C

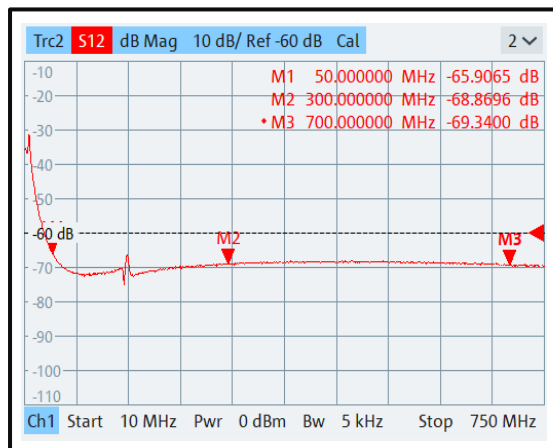


Typical Performance Plots

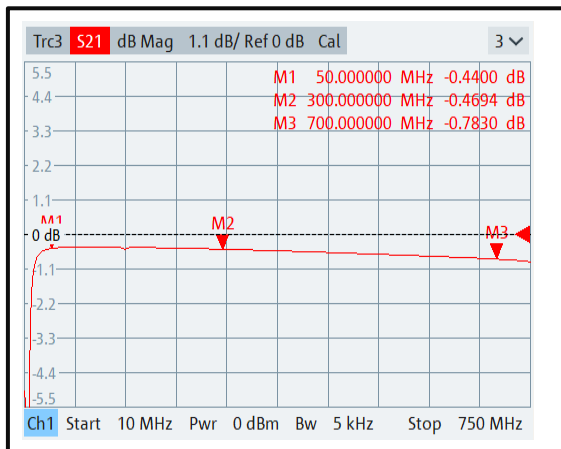
Output VSWR @-40°C



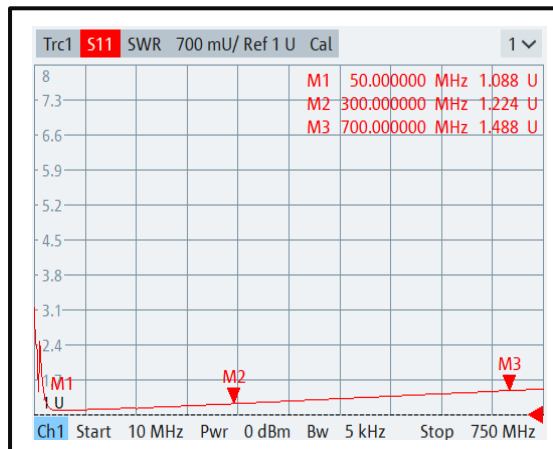
Isolation @-40°C



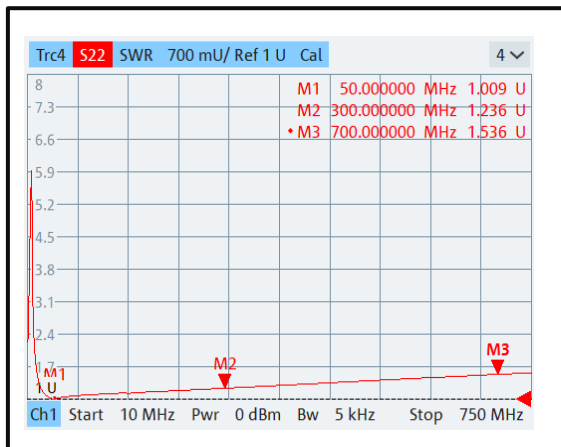
Insertion Loss @+85°C



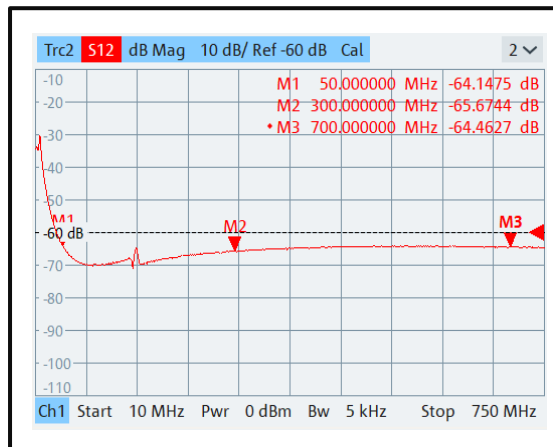
Input VSWR @+85°C



Output VSWR @+85°C

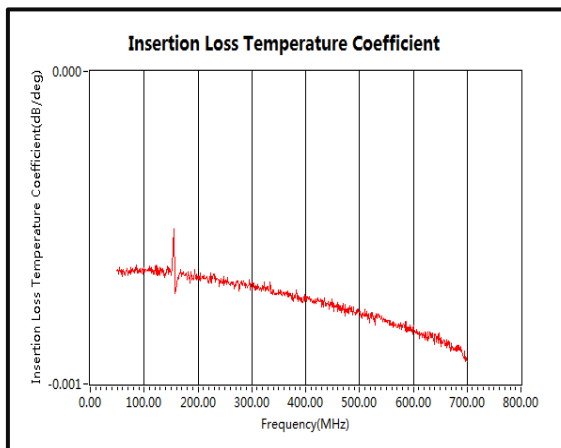


Isolation @+85°C

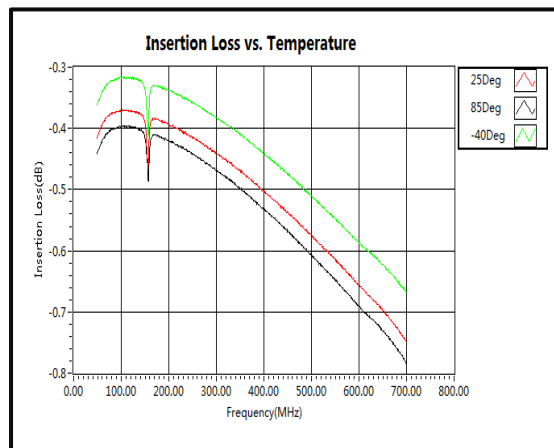


Typical Performance Plots

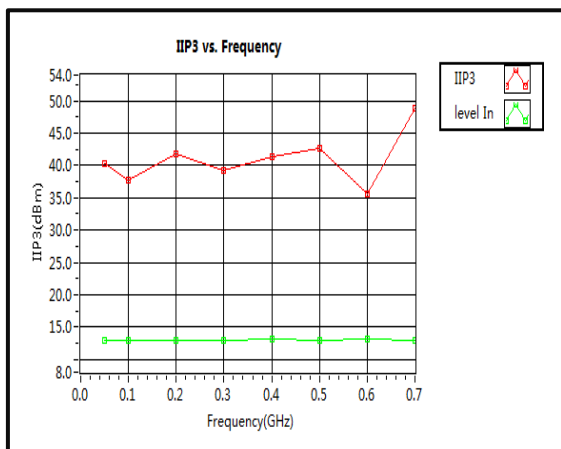
Insertion Loss Temperature Coefficient



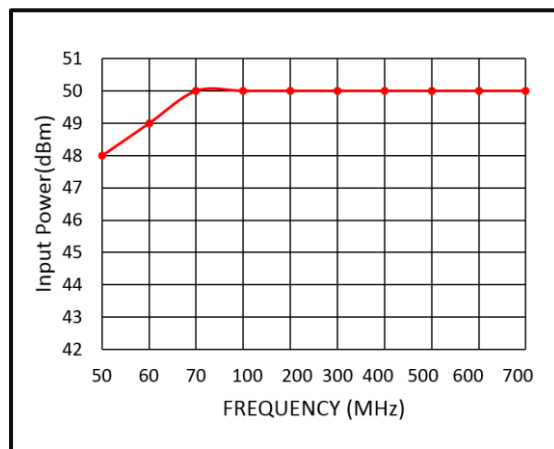
Insertion Loss vs. Temperature



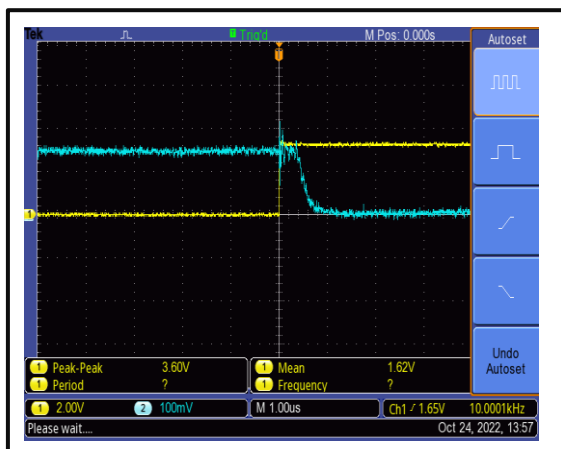
IIP3



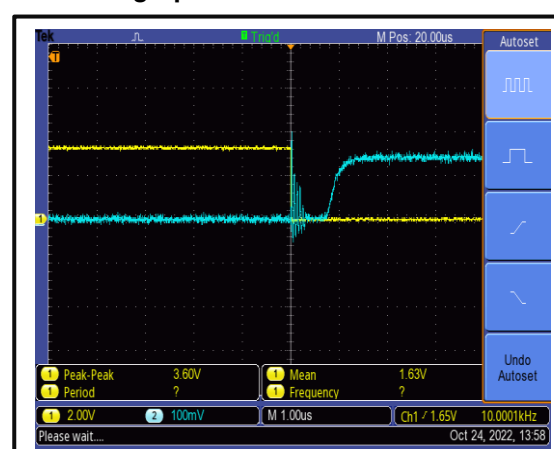
Input Power vs. Frequency



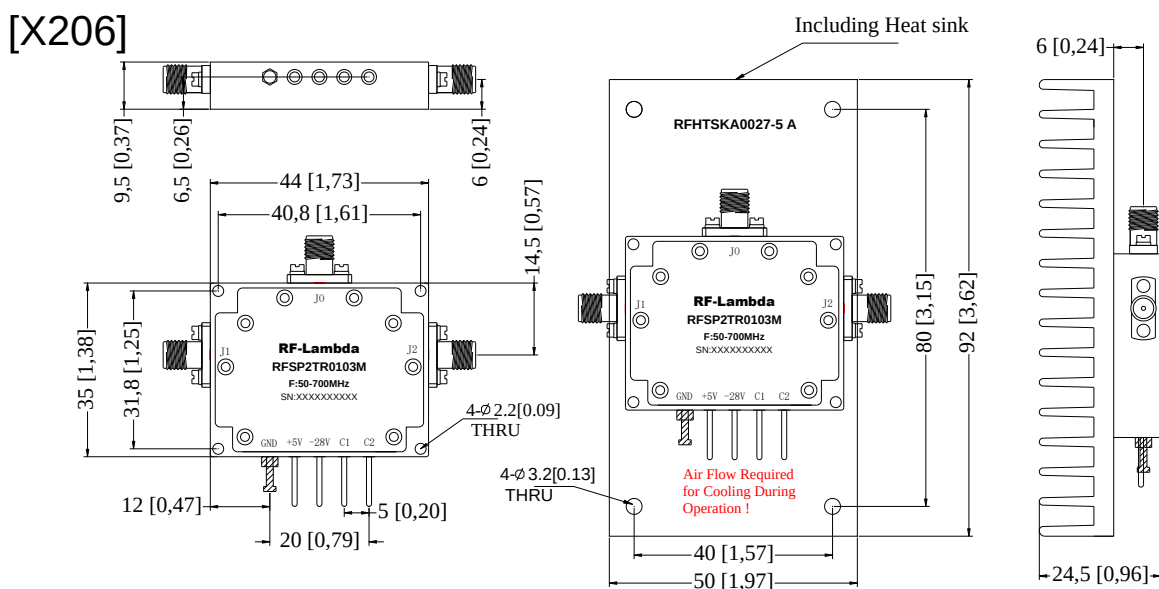
Switching Speed



Switching Speed



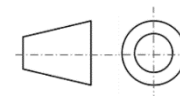
Outline Drawing



Truth Table		
TTL Control Voltage	Low(0)=0~0.8V	
THRESHOLD	High(1)=2.8~5V	
Control Input TTL	Signal Path State	
C2	C1	
0	0	OFF
0	1	J0-J1
1	0	J0-J2
1	1	Not Used
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(Excl Heat Sink).
5. Heatsink Required - Mandatory for High Power Operation .Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
6. 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
RFSP2TR0103M	Standard	50MHz-700MHz SP2T PIN Diode Switch

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