Reflective Coaxial SP8T Switch 0.01GHz-18GHz

Product Description

RFSP8TRDC18G is a reflective coaxial single pole eight throw switch with a frequency range of 0.01 to 18GHz.

The power input of this switch is 40dBm Max. The insertion loss is 5.5dB with a typical isolation of 40dB.

The product features of 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
- High Power Cold Switching
- Insertion Loss 5.5dB
- Isolation 40dB
- 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 = +12V, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.01 - 6			6 - 18		GHz
Insertion Loss		4.0	4.5		5.5	6.8	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	30	40		22	24		dB
Input VSWR		1.5	2.0		1.5	2.0	: 1
Output VSWR		1.5	2.0		1.5	2.0	: 1
*RF Input Power (CW) (50Ω,T = 25ºC)			40			40	dBm
DC Power Dissipation		8.4			8.4		W
0.1dB Compression Point (P0.1dB)		40			40		dBm
IIP3		48			50		dBm
Switching Speed			500 Typ.				ns
Bias Current (+12V)			700 Max.				mA
Weight — Switch			1.05Max.				lbs
Weight — Including Heat sink			1.8 Max.				lbs
Impedance			50				Ω
Input / Output Connectors			SMA-Female(Input) – SMA-Female(Output)				
Package			Epoxy Sealed (Standard)				
Package			Hermetically Sealed (Optional)				

* When the working frequency is lower than 100MHz, the power needs to be derated linearly to 1W from 100MHz to 10MHz.

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Absolute Maximum Ratings

Parameter	Rating
Biasing	+12V±10%

Notes:
1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged .
2. If the device operates in high power state, recommend keeping case temperature lower than 60℃.
3. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.
4. DC blocks required . Input and output ports must not be connected to DC ground or any DC voltage or the switch will be damaged.

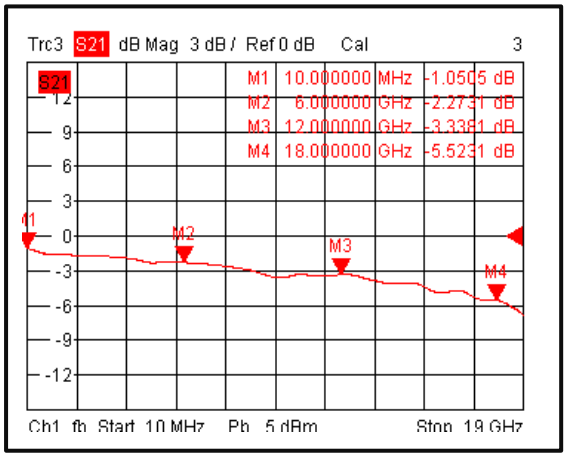
Environmental Specifications and Test Standards

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)

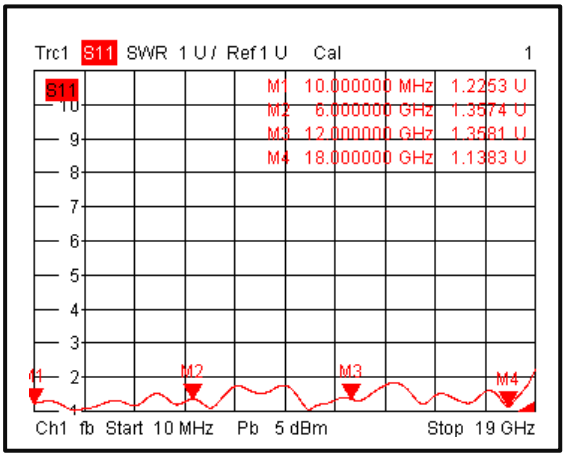
*For vibration testing details please see additional information section.

Typical Performance Plots

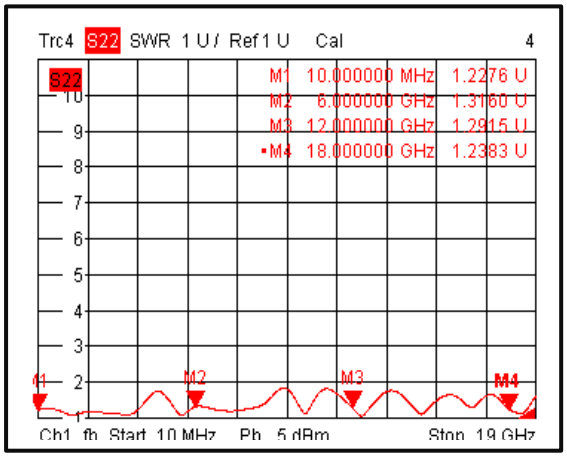
Insertion Loss @+25℃



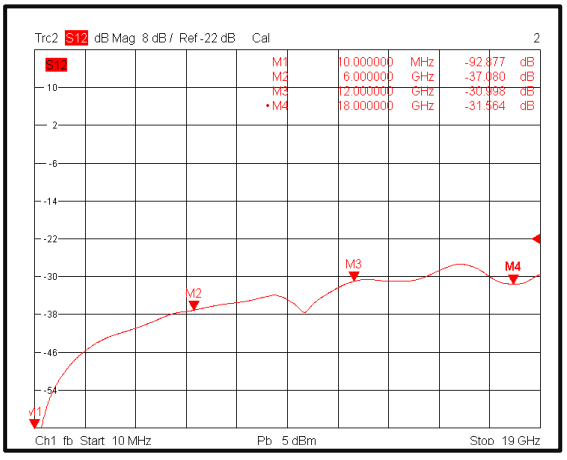
Input VSWR @+25℃



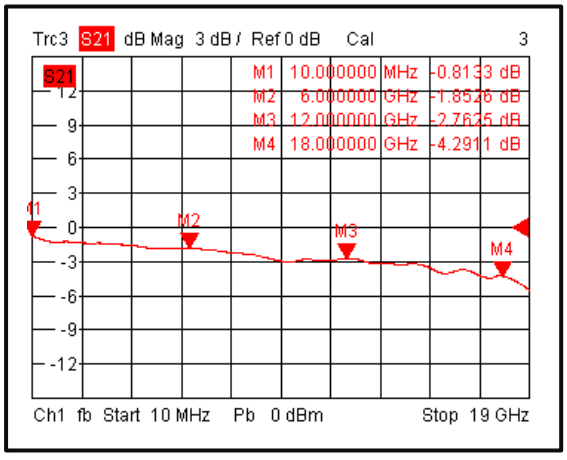
Output VSWR @+25℃



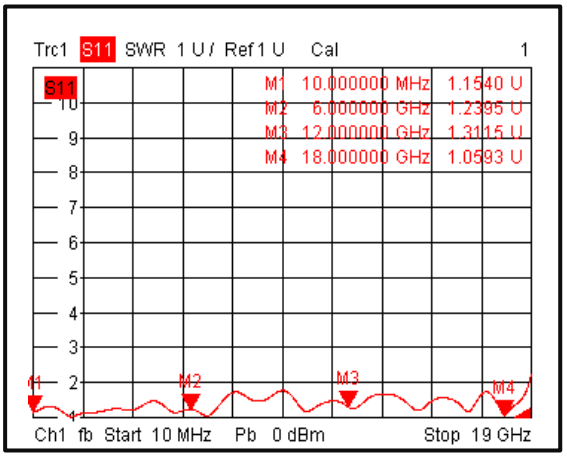
Isolation @+25℃



Insertion Loss @-40℃

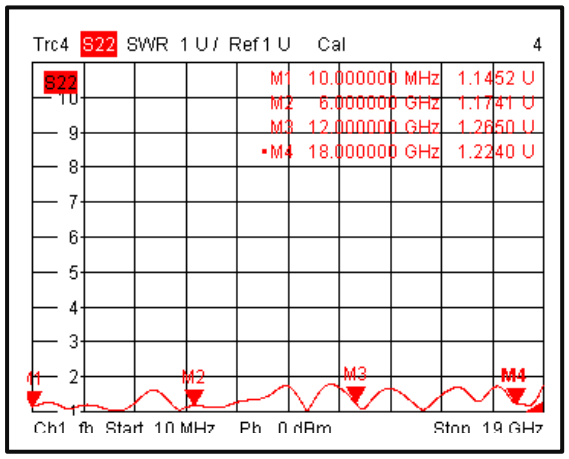


Input VSWR @-40℃

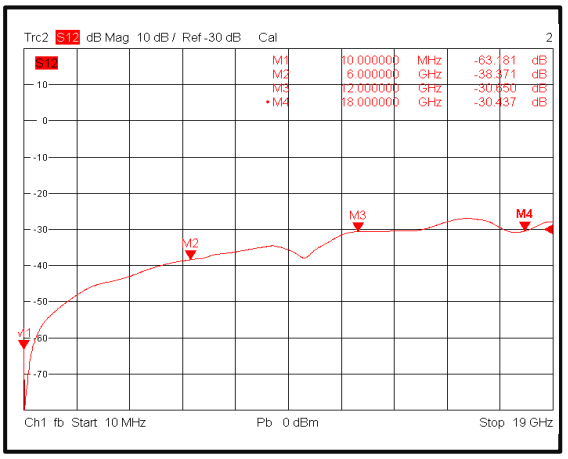


Typical Performance Plots

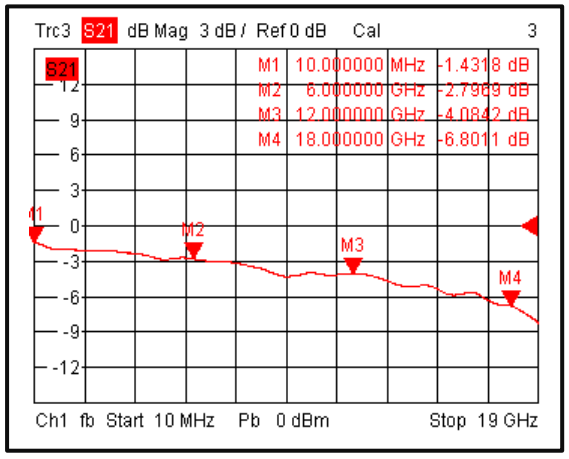
Output VSWR @-40℃



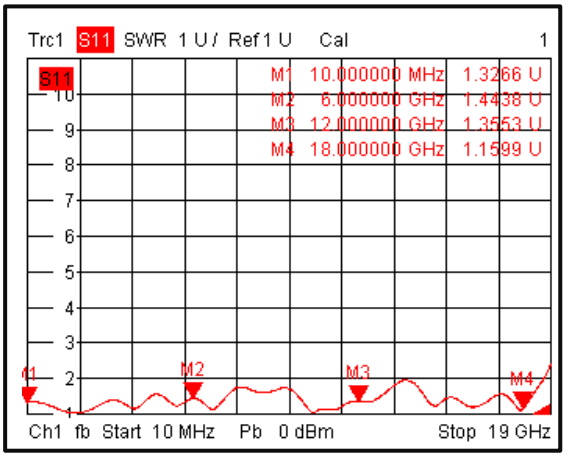
Isolation @-40℃



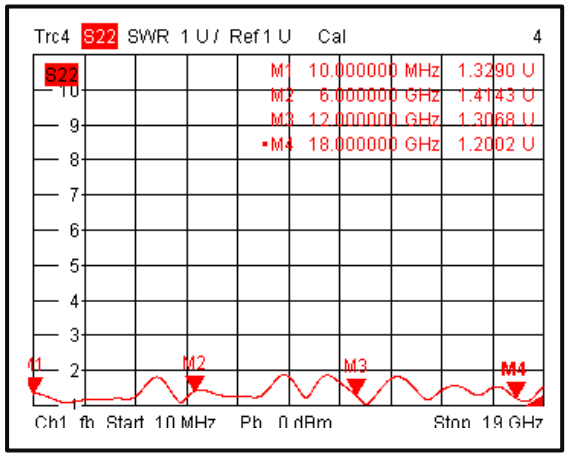
Insertion Loss @+85℃



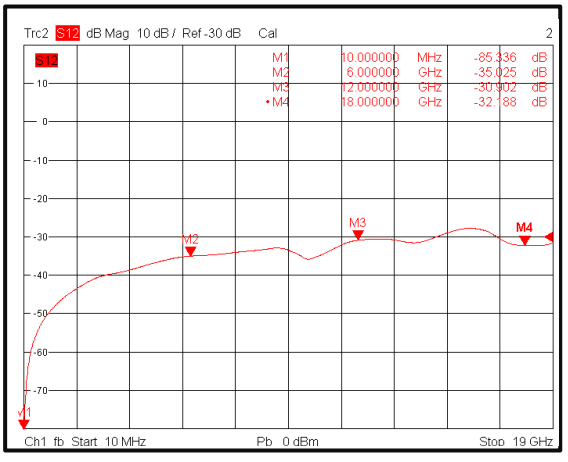
Input VSWR @+85℃



Output VSWR @+85℃

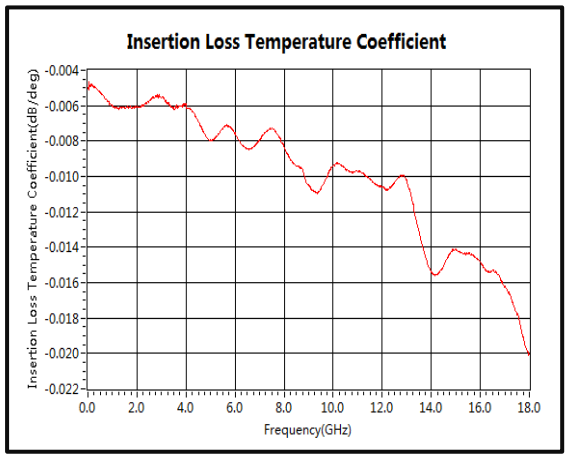


Isolation @+85℃

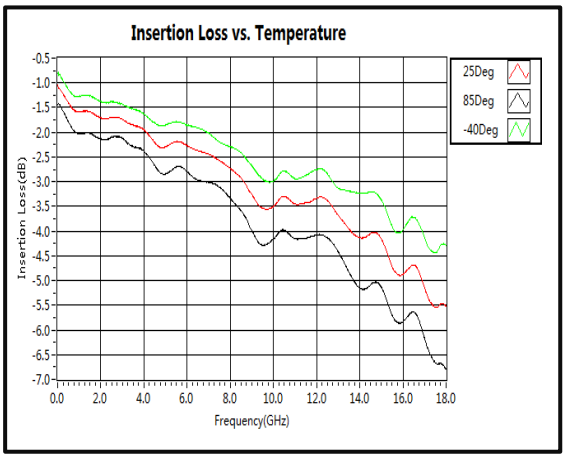


Typical Performance Plots

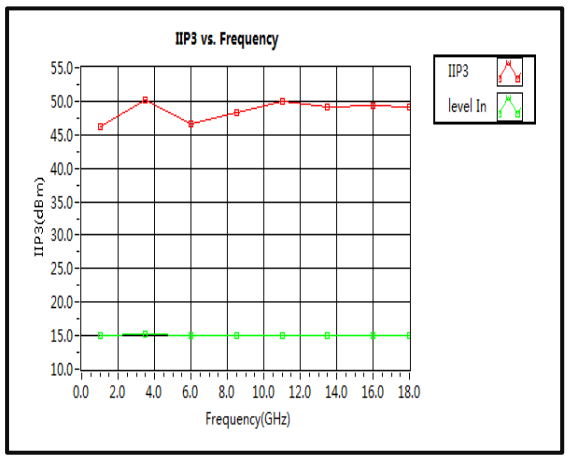
Insertion Loss Temperature Coefficient



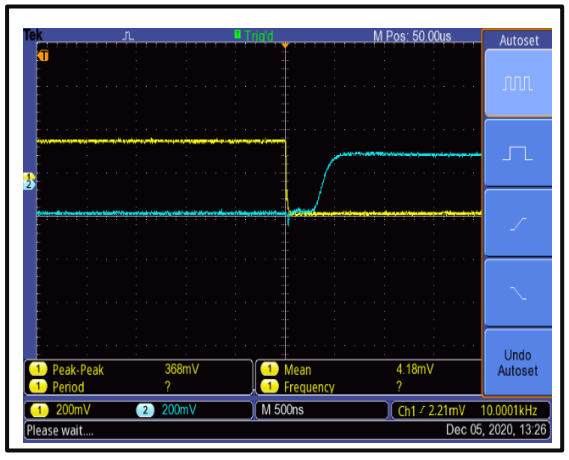
Insertion Loss vs. Temperature



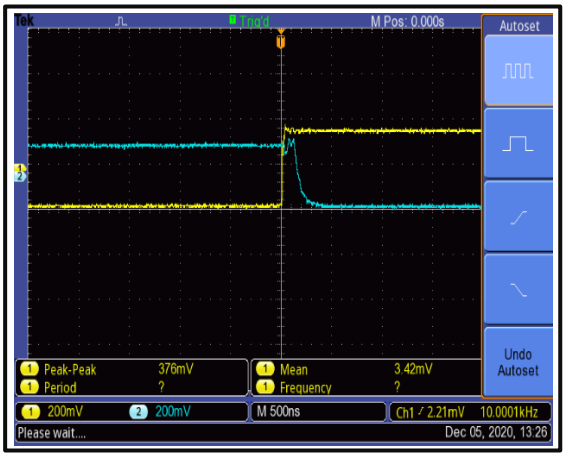
IIP3



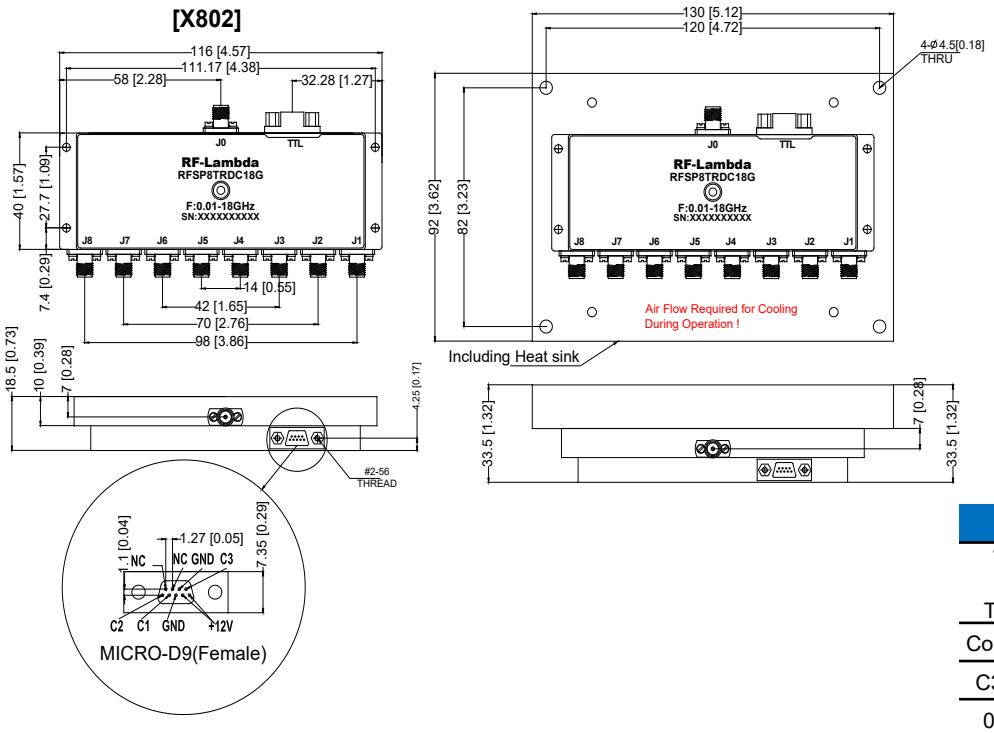
Switching Speed



Switching Speed

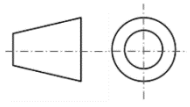


Outline Drawing



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-J1
0	0	1	J0-J2
0	1	0	J0-J3
0	1	1	J0-J4
1	0	0	J0-J5
1	0	1	J0-J6
1	1	0	J0-J7
1	1	1	J0-J8
Control Pin Customization Available Upon Request			

Notes:
1. Package Material: Aluminum
2. Plating: Gold
3. All dimensions are in millimeters [inches].
4. Housing Tolerances±0.2 [0.008]unless otherwise specified.
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
RFSP8TRDC18G	Standard	0.01-18GHz SP8T PIN Diode Switch

Important Notice

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