

Reflective Coaxial SP2T Switch 0.001GHz-1GHz



Features

- TTL compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 1.0dB Typical
- Isolation 85dB Typical
- 50 Ohm Matched

Product Description

RFSP2TR0001G-RS422 is a reflective coaxial single pole double throw switch with a frequency range of 0.001 to 1GHz.

The maximum power input of this switch is 30dBm. The insertion loss is 1.0dB with a typical isolation of 85dB.

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

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

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.001 – 0.002			0.002-1		GHz
Insertion Loss		1.0	2.5		1.0	1.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation	80	85		80	85		dB
Input VSWR		1.2	1.5		1.2	1.5	: 1
Output VSWR		1.2	1.5		1.2	1.5	: 1
RF Input Power			30			30	dBm
DC Power Dissipation		0.25			0.25		W
IIP3		39			42		dBm
Switching Speed			5 Typ.				us
Bias Current (+5V / -5V)			260/50 Typ.				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%/-5V±10%

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

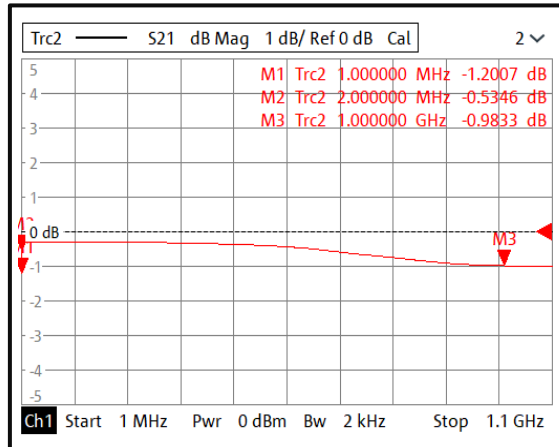
Environmental Specifications and Test Standards

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)

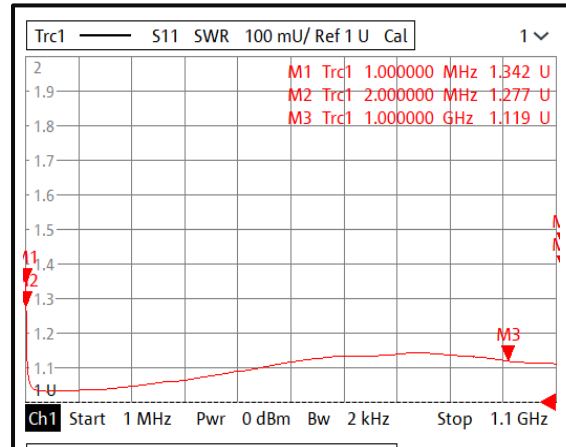
** For vibration testing details please see additional information section.

Typical Performance Plots

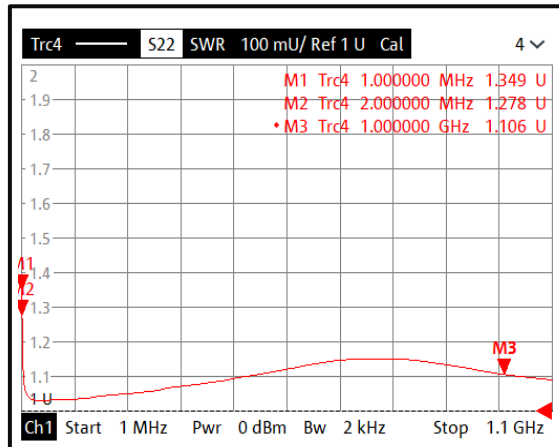
Insertion Loss @+25°C



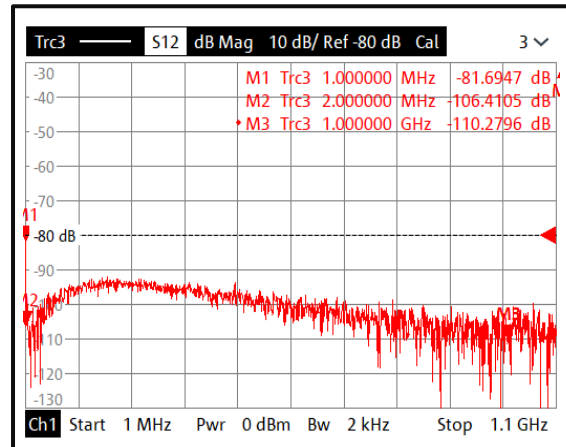
Input VSWR @+25°C



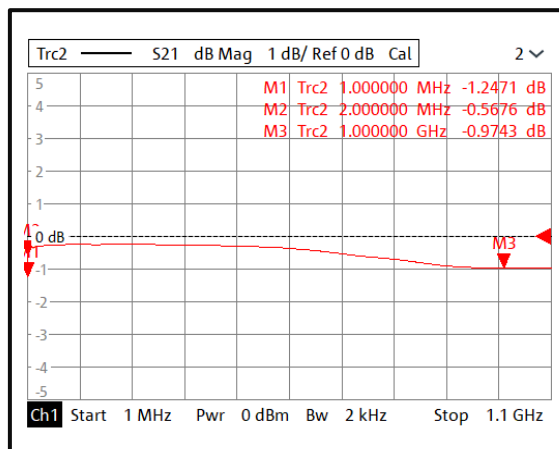
Output VSWR @+25°C



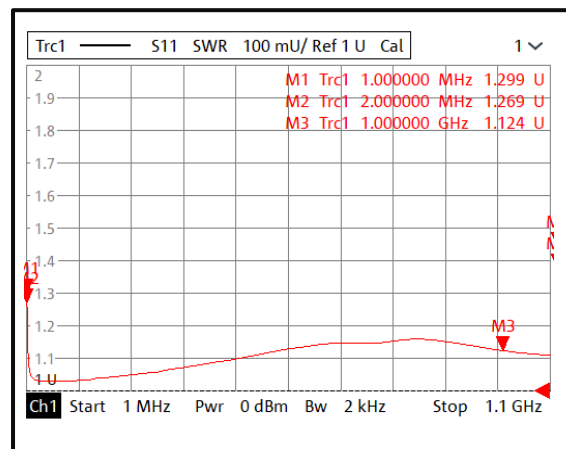
Isolation @+25°C



Insertion Loss @-40°C

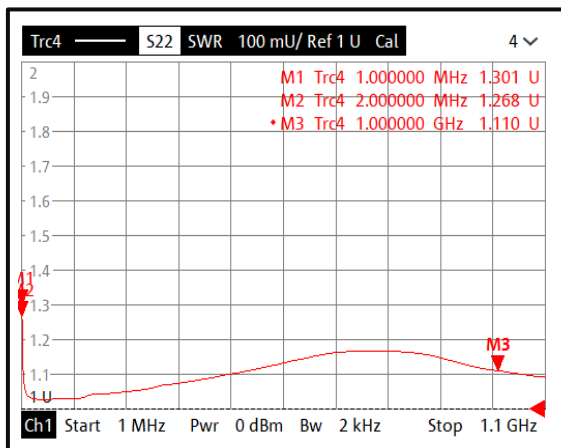


Input VSWR @-40°C

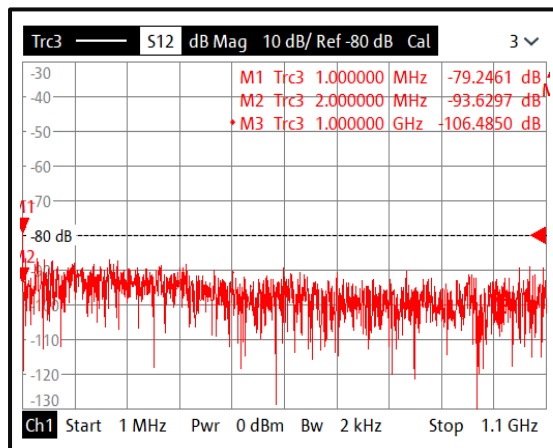


Typical Performance Plots

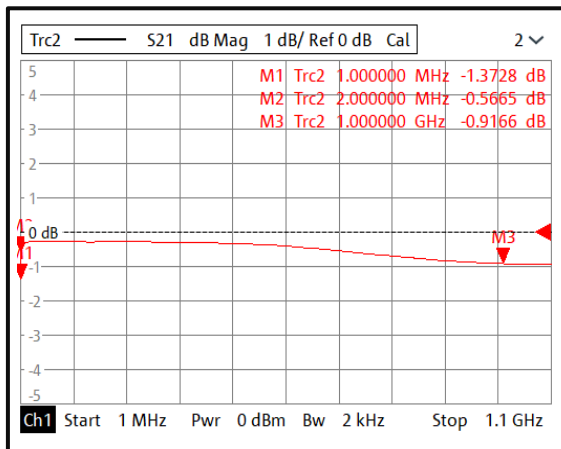
Output VSWR @-40°C



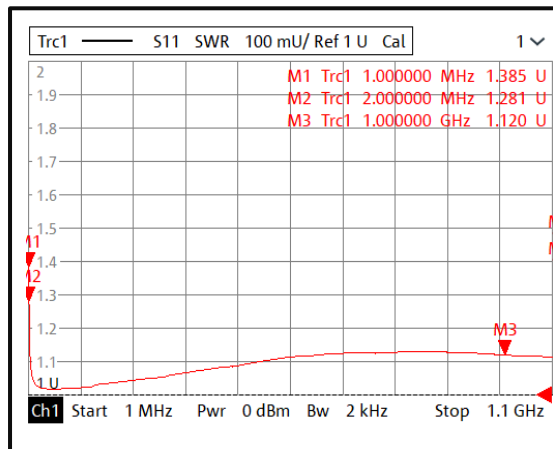
Isolation @-40°C



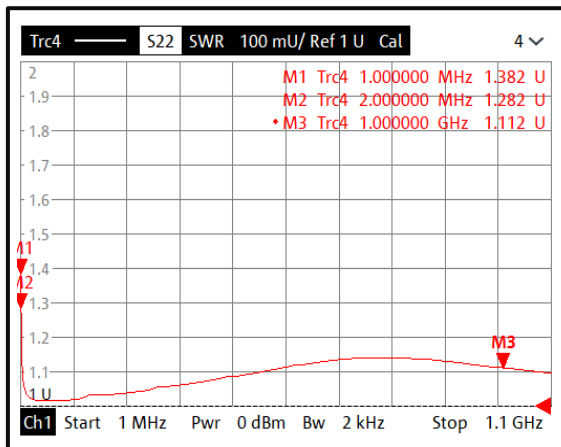
Insertion Loss @+85°C



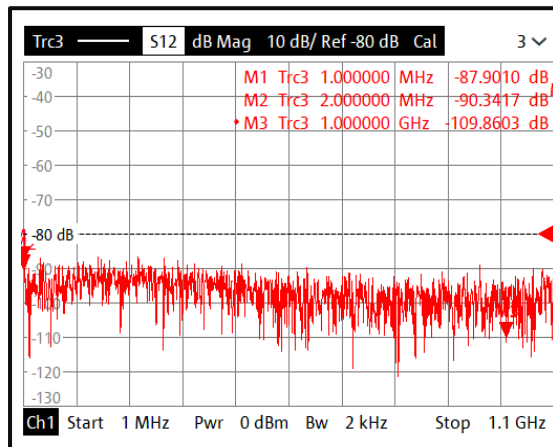
Input VSWR @+85°C



Output VSWR @+85°C

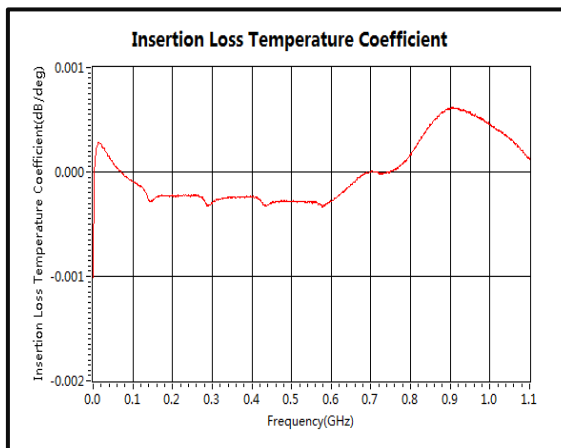


Isolation @+85°C

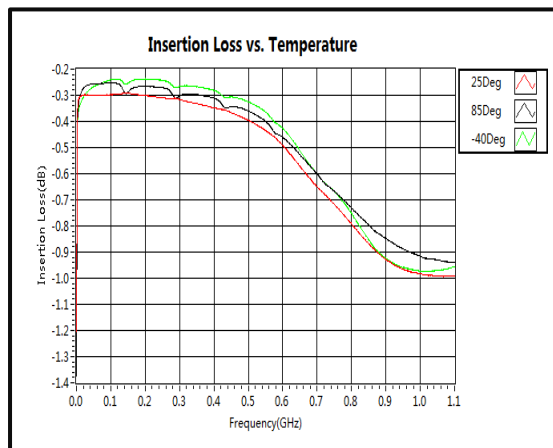


Typical Performance Plots

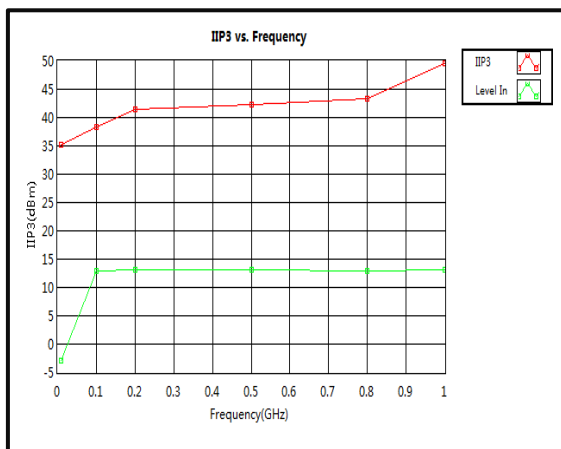
Insertion Loss Temperature Coefficient



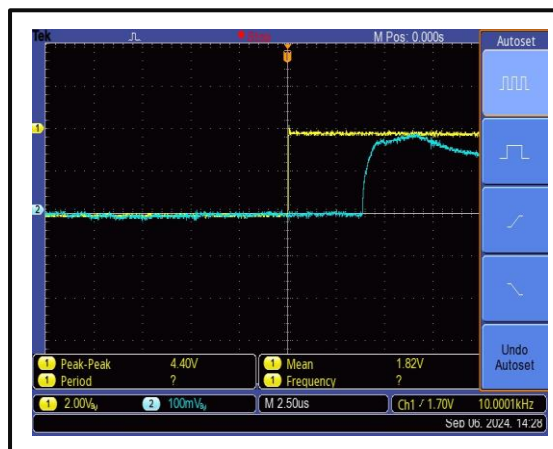
Insertion Loss vs. Temperature



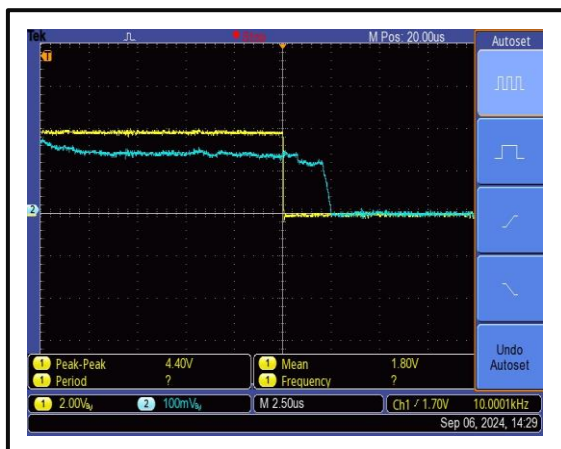
IIP3



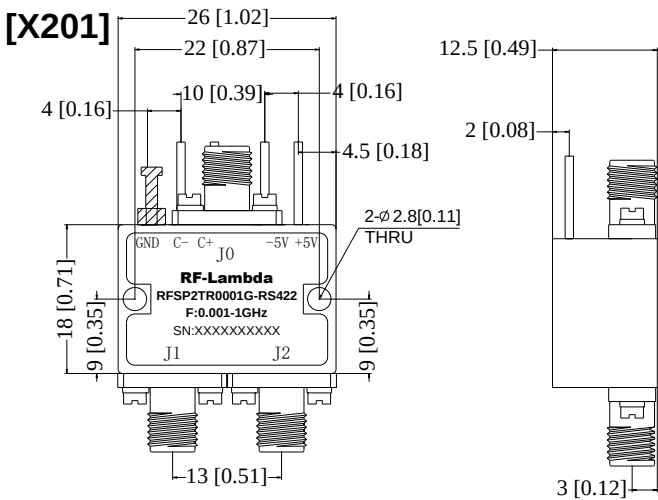
Switching Speed



Switching Speed



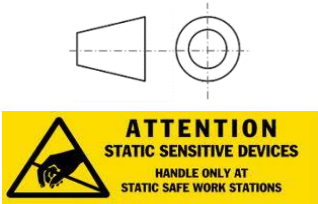
Outline Drawing



Truth Table

Common-Mode Input Voltage	±7V (MAX)
High(1)	2V (MIN)
Low(0)	0.8V (MAX)
Control Voltage THRESHOLD	Low(0)=(C+)-(C-) ≤0.2V High(1)=(C+)-(C-) ≥0.2V
Control Input	RS-422 Signal Path State
C+ C-	
0 1	J0-J1
1 0	J0-J2
Control instruction	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
RFSP2TR0001G-RS422	Standard	0.001GHz-1GHz SP2T PIN Diode Switch

Important Notice

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.