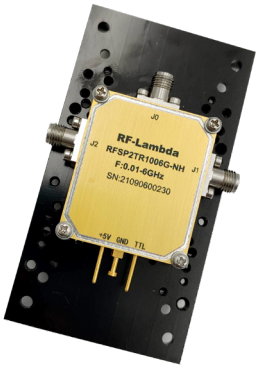
Reflective Coaxial SP2T Switch
0.01GHz-6GHz



Product Description

RFSP2TR1006G-NH is a reflective coaxial single pole double throw switch with a frequency range of 0.01 to 6GHz.

The power input of this switch is 46 dBm Max. The Insertion Loss is 1.4dB with a typical isolation of 45dB.

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 1.4dB Typical
- 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	Units
Frequency Range		0.01		3	3		6	GHz
Insertion Loss			1.0	1.3		1.4	1.6	dB
Insertion Loss Temperature Coefficient			0.003			0.003		dB/ °C
Isolation (Between any ports)		40	45		33	35		dB
Input VSWR			1.3	1.5		1.3	1.5	: 1
Output VSWR			1.3	1.5		1.3	1.5	: 1
RF Input Power				46			46	dBm
DC Power Dissipation			0.7			0.7		W
0.1dB Compression Point (P0.1dB)			46			46		dBm
IIP3 @Two-tone input power = 15 dBm/tone, Δf = 1 MHz			46			48		dBm
Switching Speed				200Max.				ns
Bias Current (+5V)				100 Max.				mA
Weight	Net			0.1 Max.				lbs
	Including Heat sink			0.3 Max.				lbs
Impedance				50				Ω
Input / Output Connectors				SMA-Female(Input) – SMA-Female(Output)				
Package				Epoxy Sealed (Standard)				
				Hermetically Sealed (Optional)				

RF-LAMBDA USA LLC: www.rflambda.com
Sales: sales@rflambda.com Technical: support@rflambda.com

Absolute Maximum Ratings

Parameter	Rating
Biasing	+5.5V

*If the device operates in high power state, case temperature must be lower than 60℃.
*Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

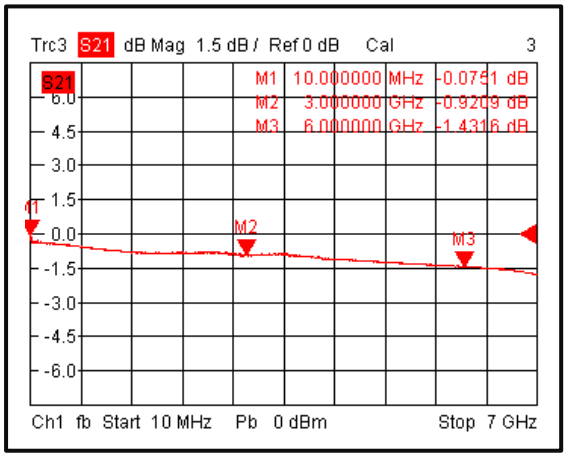
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-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)

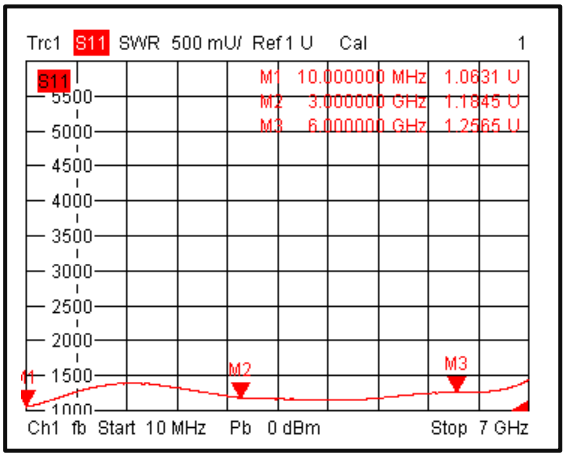
*For vibration testing details please see additional information section.

Typical Performance Plots

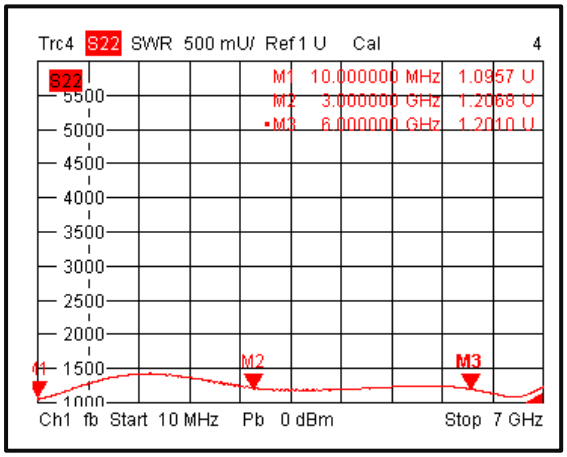
Insertion Loss @+25℃



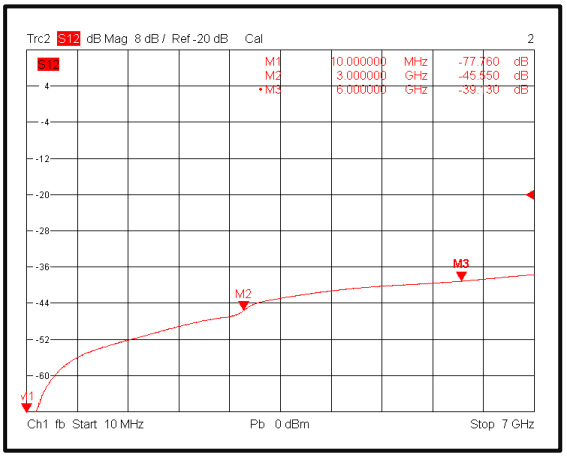
Input VSWR @+25℃



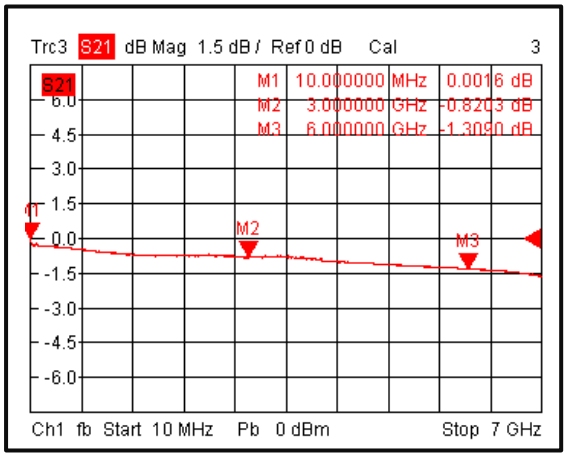
Output VSWR @+25℃



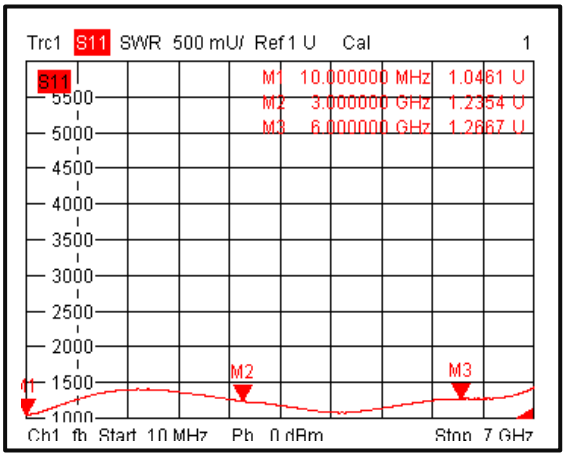
Isolation @+25℃



Insertion Loss @-40℃

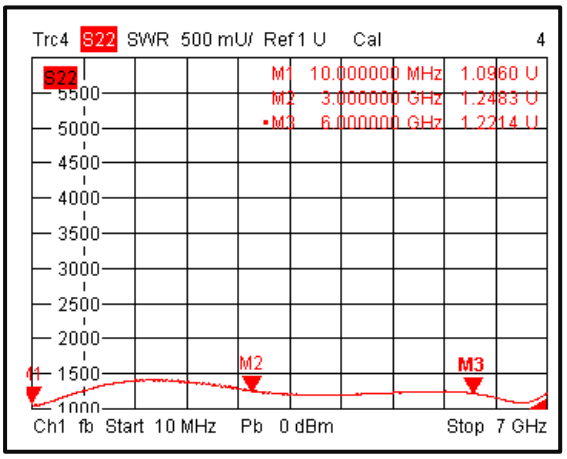


Input VSWR @-40℃

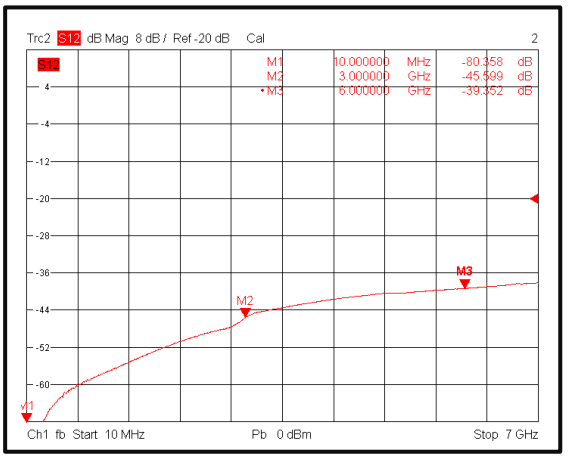


Typical Performance Plots

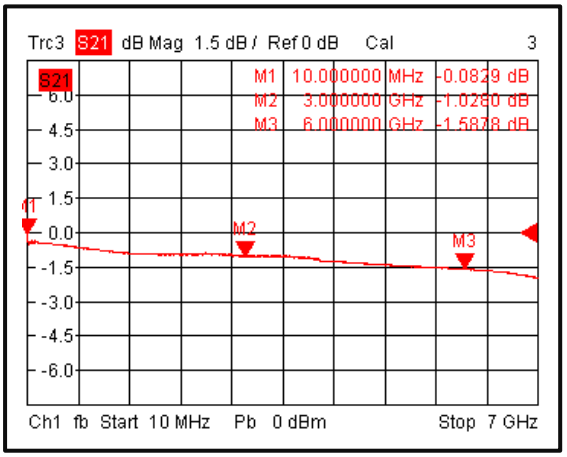
Output VSWR @-40℃



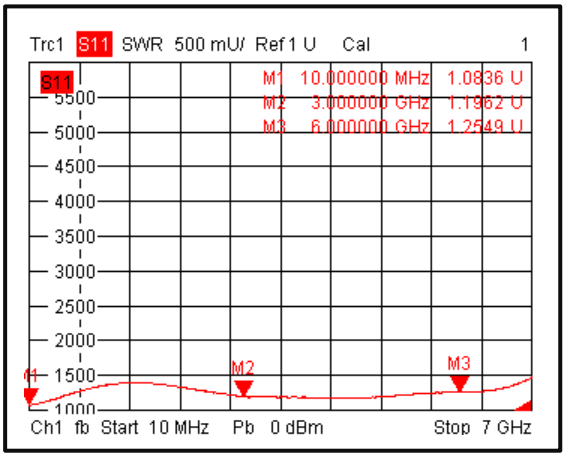
Isolation @-40℃



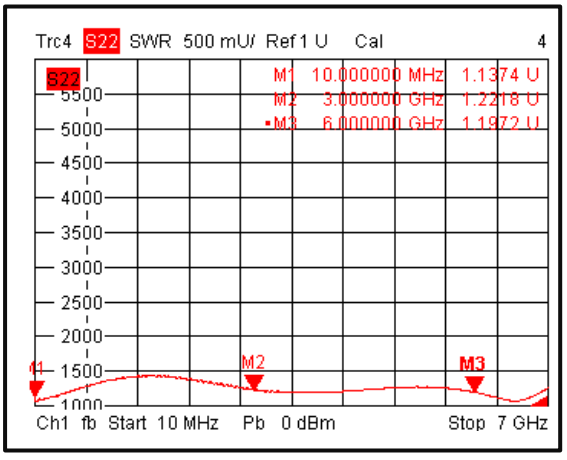
Insertion Loss @+85℃



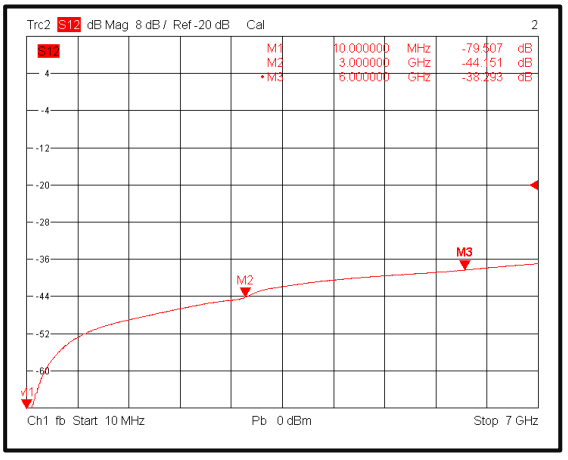
Input VSWR @+85℃



Output VSWR @+85℃

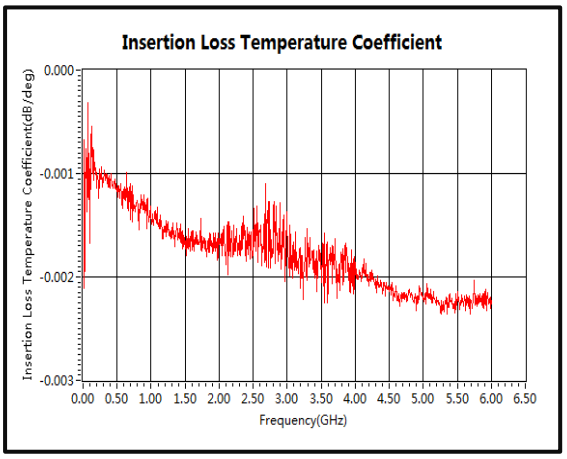


Isolation @+85℃

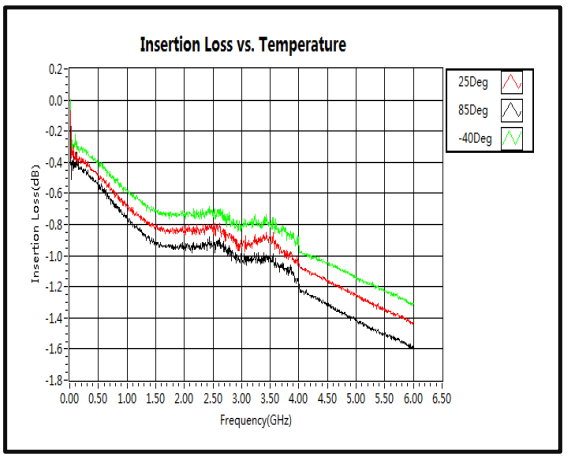


Typical Performance Plots

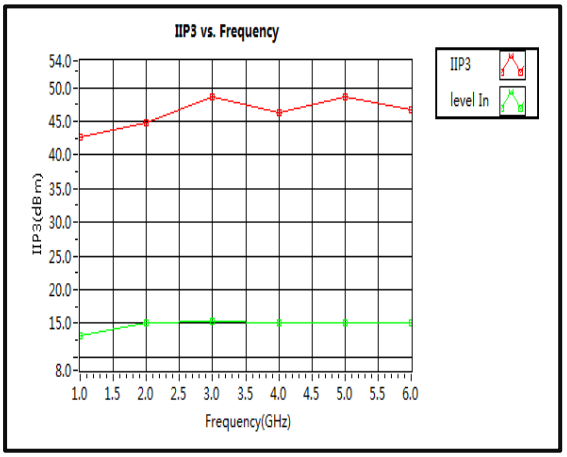
Insertion Loss Temperature Coefficient



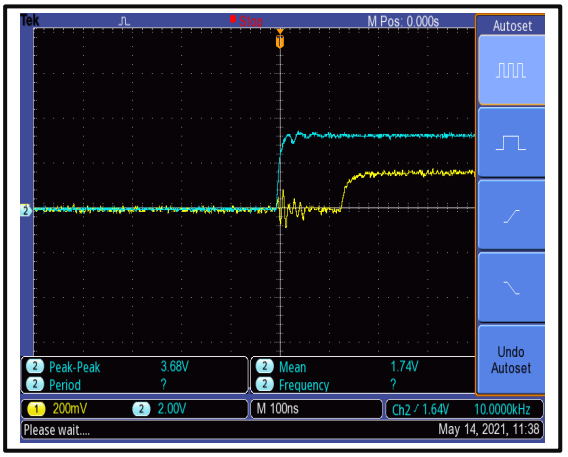
Insertion Loss vs. Temperature



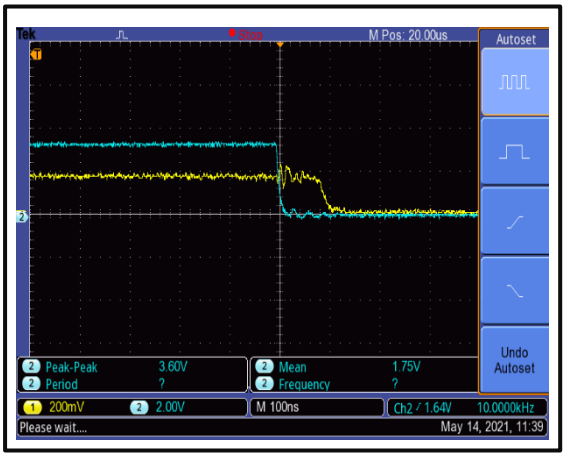
IIP3



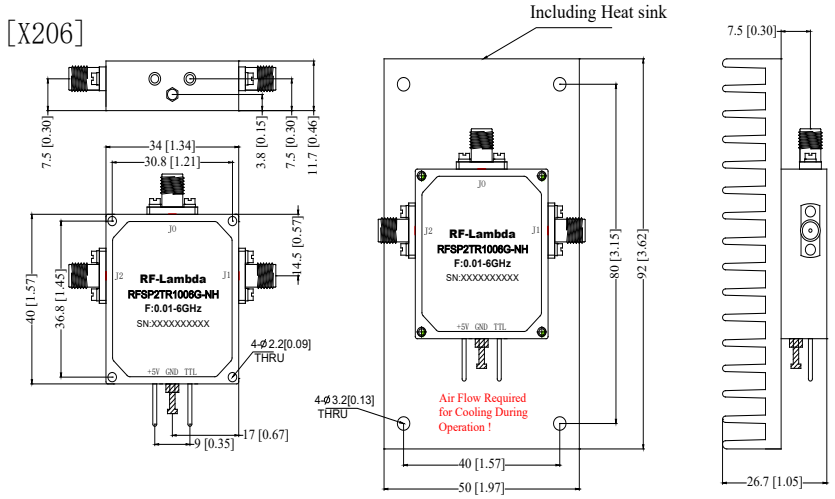
Switching Speed



Switching Speed

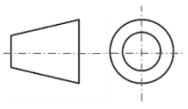


Outline Drawing



Truth Table	
TTL Control Voltage THRESHOLD	Low(0)=0~0.8V
	High(1)=2.8~5V
Control Input TTL	Signal Path State
1	J0-J1
0	J0-J2
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 (Excl Heat Sink).
5. Heat sink required during operation (sold separately). 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. Heatsink Included - Mandatory for Operation.
7. 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
RFSP2TR1006G-NH	Standard	0.01-6GHz SP2T GaN Switch

Important Notice

RF-LAMBDA USA LLC: www.rflambda.com
Sales: sales@rflambda.com Technical: support@rflambda.com