

USB / Ethernet Absorptive Coaxial SP8T Switch 2GHz - 50GHz



Features

- USB / Ethernet Control
- Control SW included.
- Low Power Cold Switching
- Insertion Loss 5.5dB
- Isolation 70dB
- 50 Ohm Matched

Product Description

RFSP8TA0250GUSB2 is an absorptive USB / ethernet controlled coaxial single pole two throw switch with a frequency range of 2 to 50GHz.

The power input of this switch is 23dBm max. The insertion loss is 5.5dB with a typical isolation of 70dB.

This product features 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), USB Powered

Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	2		18	18		40	40		50	GHz
Insertion Loss		5.5	6.5		7.5	8.5		10.5	11.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	70		50	55		43	50		dB
Input VSWR		2.2	3.0		2.2	3.0		2.5	3.0	: 1
Output VSWR		2.2	3.0		2.2	3.0		2.5	3.0	: 1
RF Input Power (CW)			23			23			23	dBm
DC Power Dissipation		0.8			0.8			0.8		W
0.1dB Compression Point (P0.1dB)		23			23			23		dBm
IIP3		40			35			33		dBm
Bias Current					200 Max.					mA
Control Interface					USB2.0 & Ethernet(IPv4) (Control Cable Included)					
Weight					0.18 Max.					lbs
Impedance					50					Ω
Input / Output Connectors					2.4mm-Female(Input) – 2.4mm-Female(Output)					
Package					Epoxy Sealed (Standard)					
					Hermetically Sealed (Optional)					

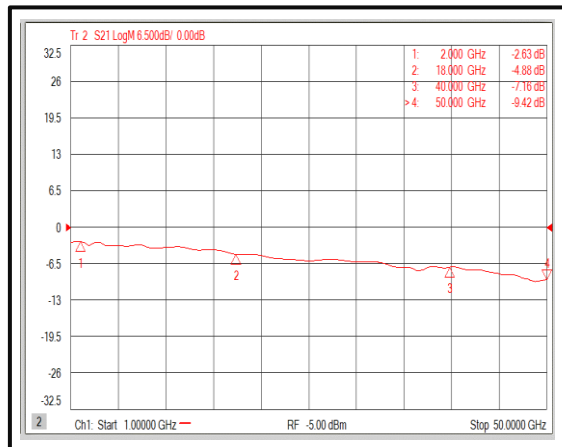
Environmental Specifications and Test Standards

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)

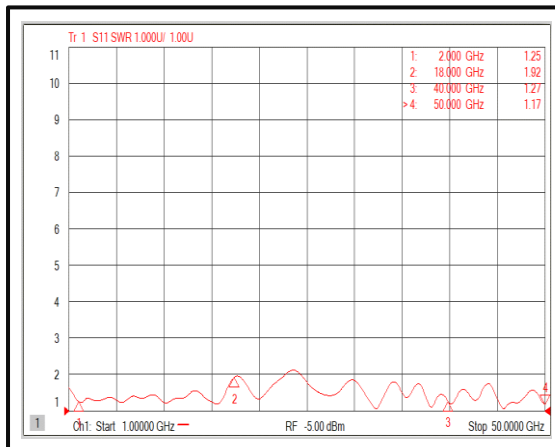
*For vibration testing details please see additional information section.

Typical Performance Plots

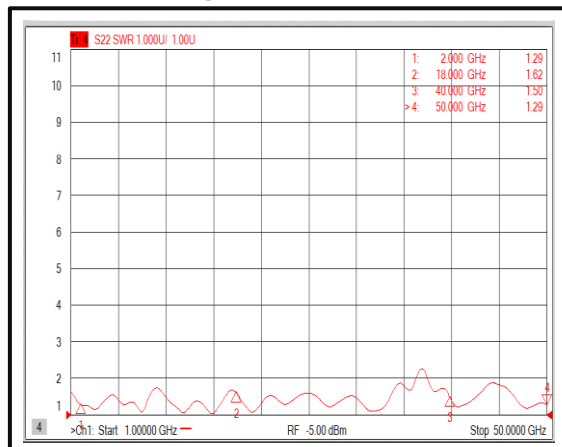
Insertion Loss @+25°C



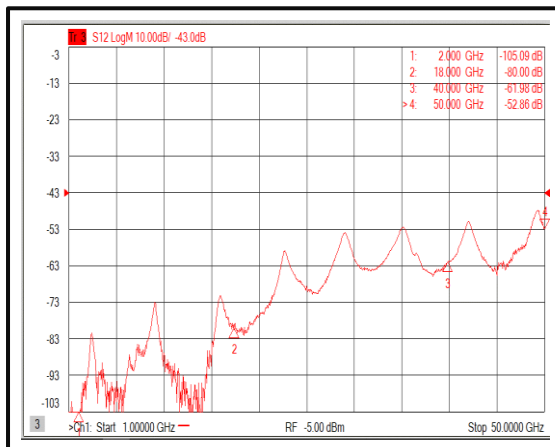
Input VSWR @+25°C



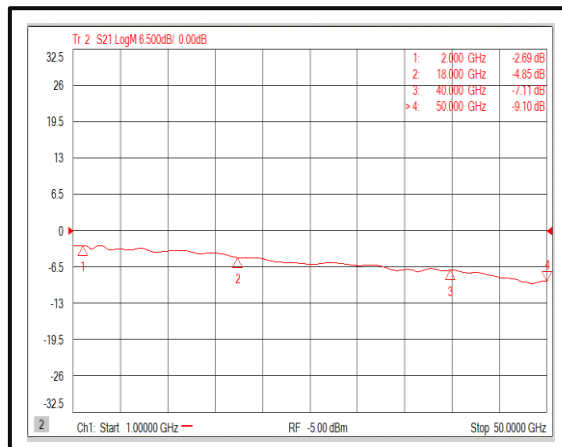
Output VSWR @+25°C



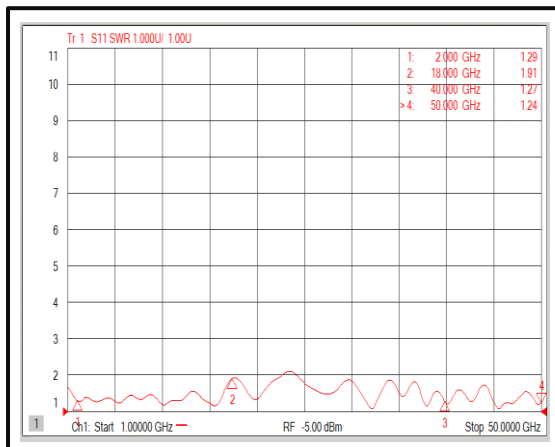
Isolation @+25°C



Insertion Loss @-40°C

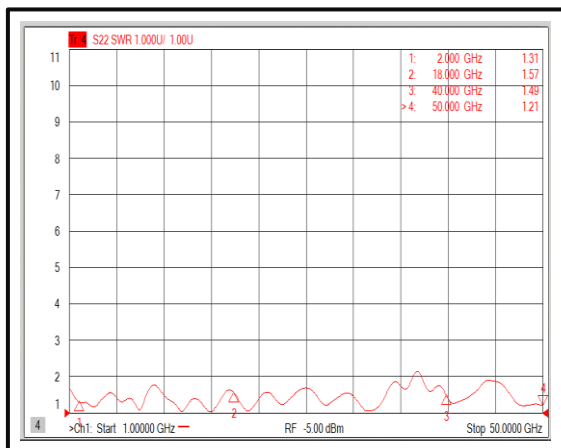


Input VSWR @-40°C

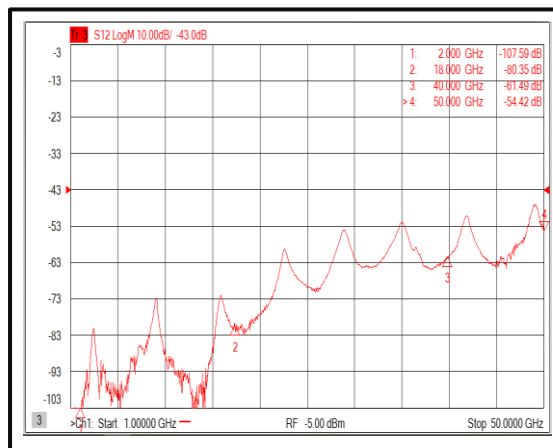


Typical Performance Plots

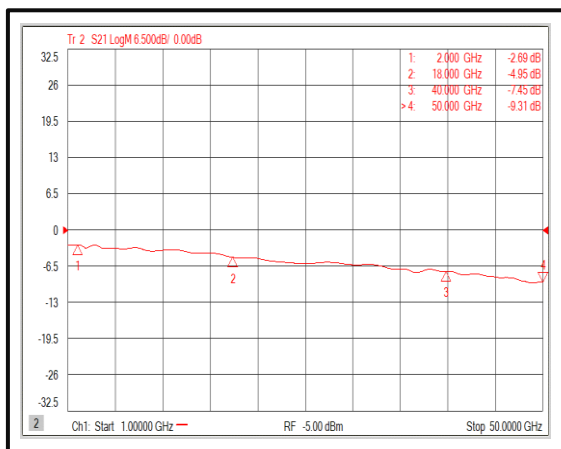
Output VSWR @-40°C



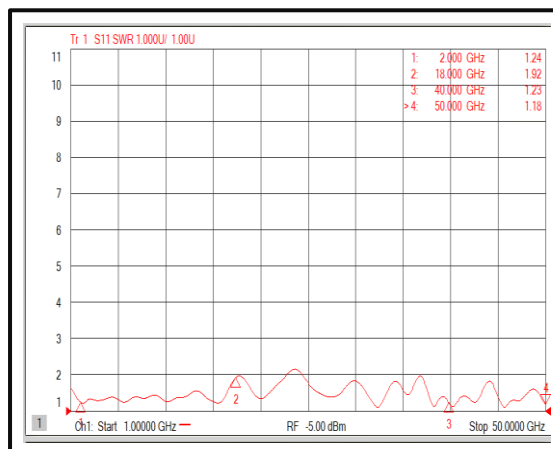
Isolation @-40°C



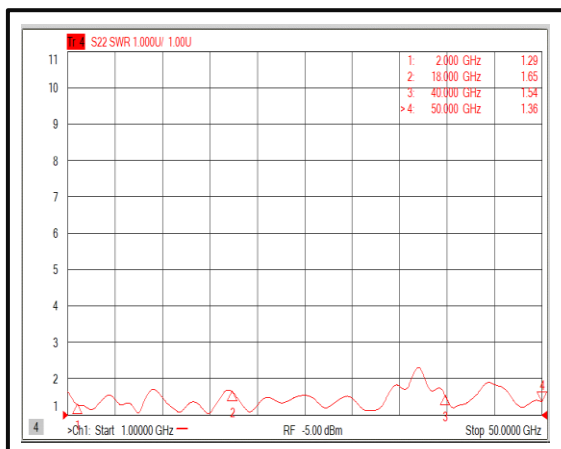
Insertion Loss @+85°C



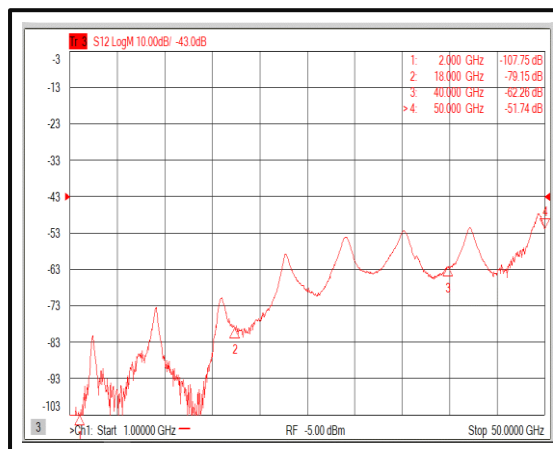
Input VSWR @+85°C



Output VSWR @+85°C

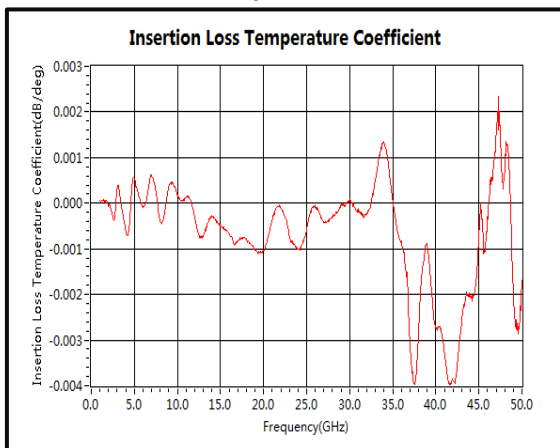


Isolation @+85°C

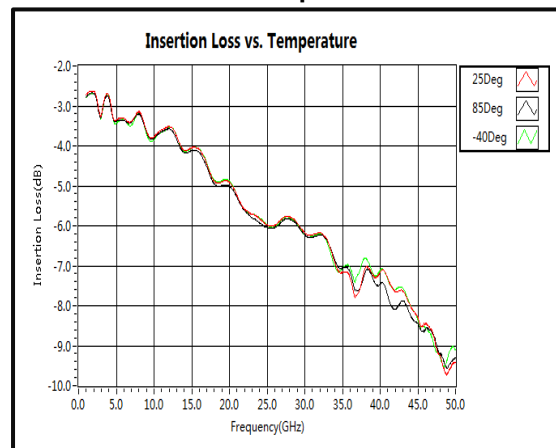


Typical Performance Plots

Insertion Loss Temperature Coefficient



Insertion Loss vs. Temperature



IIP3

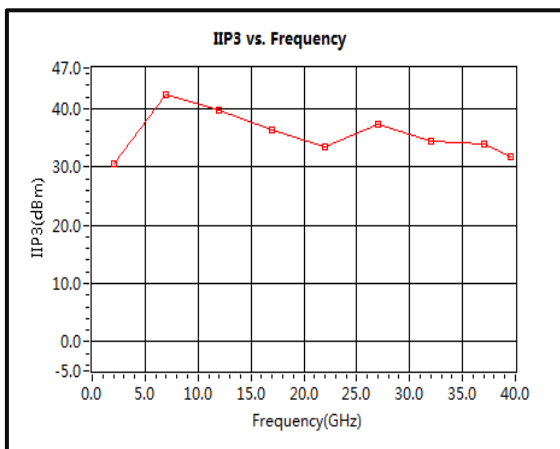
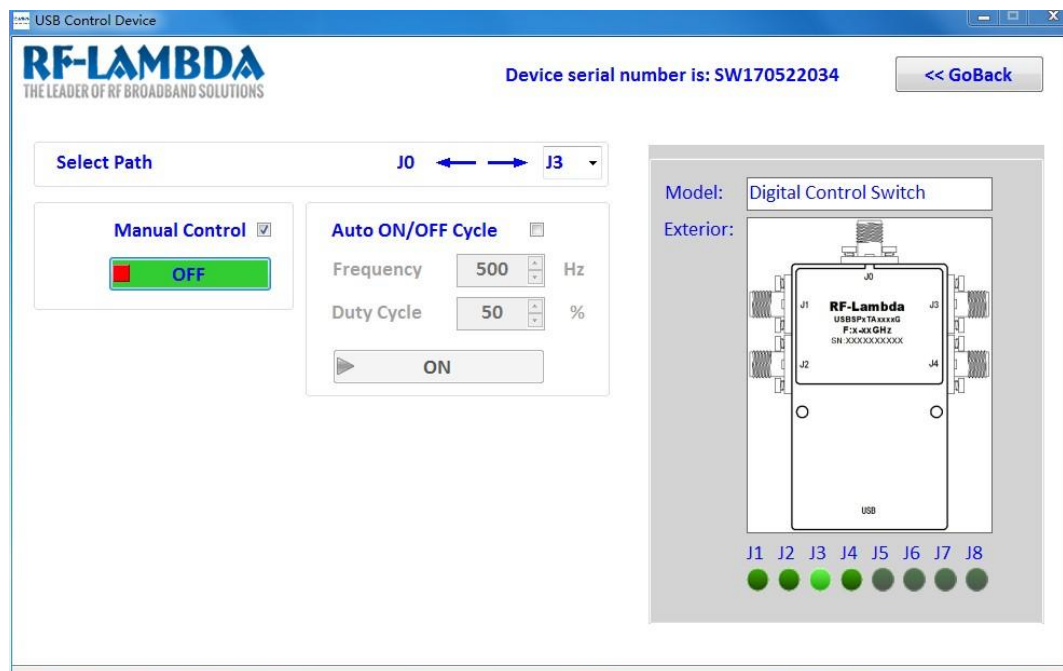
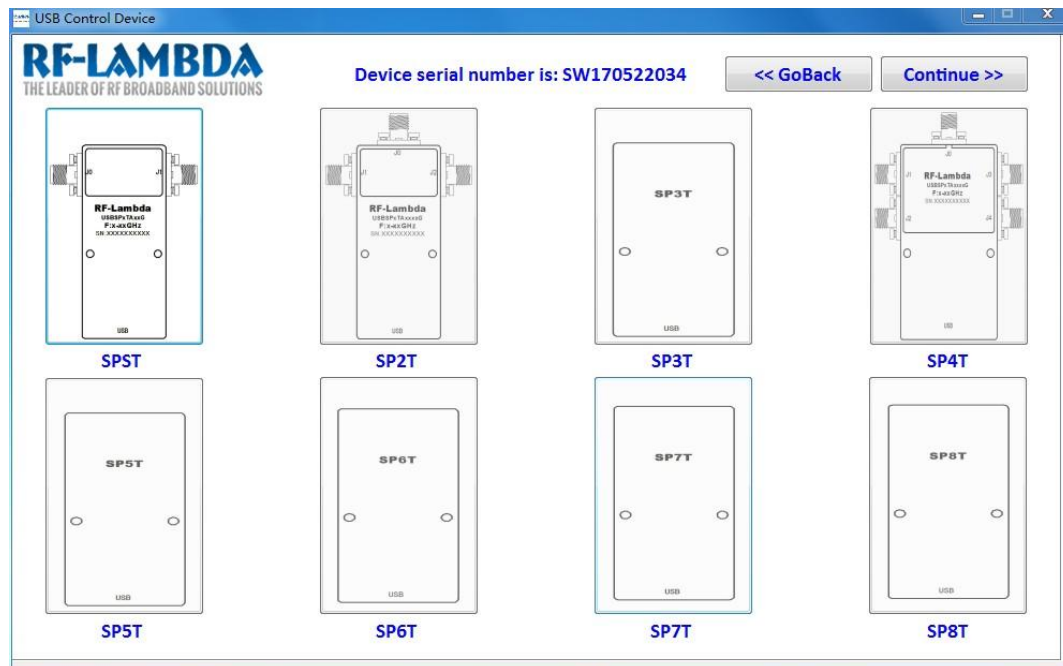


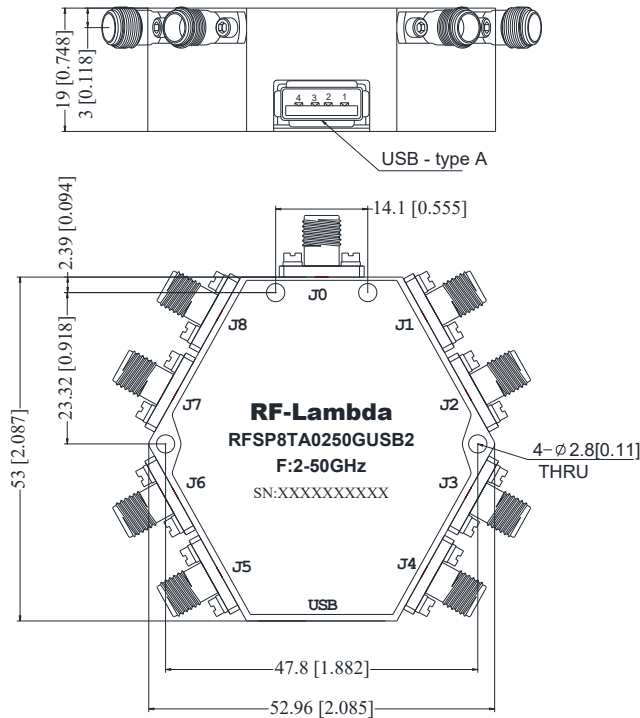


Figure 1 (USB Control Panel)



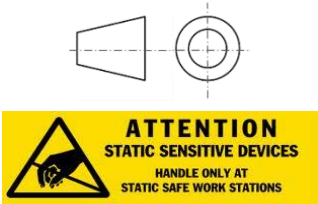


Outline Drawing



Notes:

1. Package Material: Aluminum
2. Finish: Nickel Plated
3. All dimensions are in millimeters [inches].
4. Outline Tolerances ± 0.15 [0.006] Mounting Holes Tolerances ± 0.1 [0.004] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.



Packing List

ID	Description	QTY
1	Fig a. USB/Ethernet Control RF Switch	1
2	Fig b. USB 2.0 Cable (5 feet / 1.5 meter)	1



Fig b.

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
RFSP8TA0250GUSB2	Connectors 2.4mm-Female	2GHz-50GHz SP8T USB / Ethernet Controlled Switch

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