

Absorptive Coaxial SPST Switch 18GHz-40GHz



Product Description

RFSPSTA1840G is an absorptive coaxial single pole single throw switch with a frequency range of 18 to 40GHz.

The maximum input power of this switch is 23dBm. The insertion loss is 3.6dB with a typical isolation of 80dB.

The product features 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
- Low Power Cold Switching
- Insertion Loss 3.6dB
- Isolation 80dB 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/-5V, TTL = 0 / +5V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		18-30			30-40		GHz
Insertion Loss		3	3.8		3.6	4.5	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Isolation (J0→J1)	75	80		70	80		dB
Input VSWR		1.3	2.5		1.8	2.2	: 1
Output VSWR		1.3	2.5		1.8	2.2	: 1
RF Input Power			23			23	dBm
Power Dissipation (CW)		0.25			0.25		W
0.1dB Compression Point (P0.1dB)		23			23		dBm
IIP3		40			36		dBm
Switching Speed			50 Max.				ns
Bias Current (+5V/-5V)			70/50 Max.				mA
Weight			0.033 Max.				lbs
Impedance			50				Ω
Input / Output Connectors		2.92mm-Female(Input) – 2.92mm-Female(Output)					
Package	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

* J0: Reflective Port J1: Absorptive port

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.

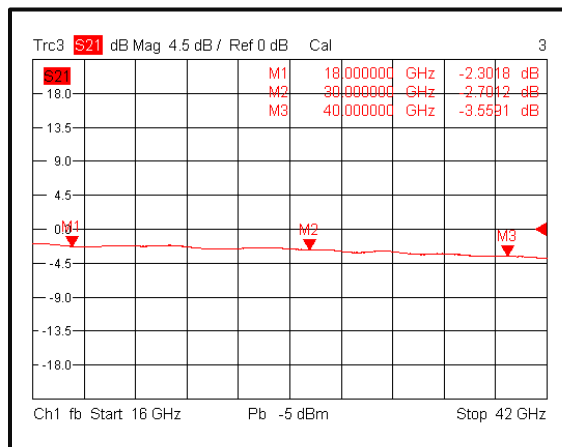
Environmental Specifications and Test Standards

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)

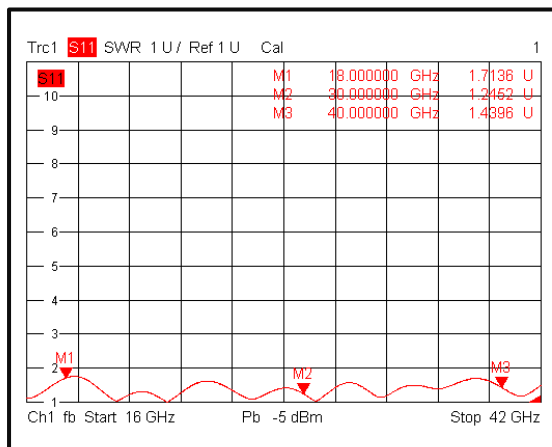
** For vibration testing details please see additional information section.

Typical Performance Plots

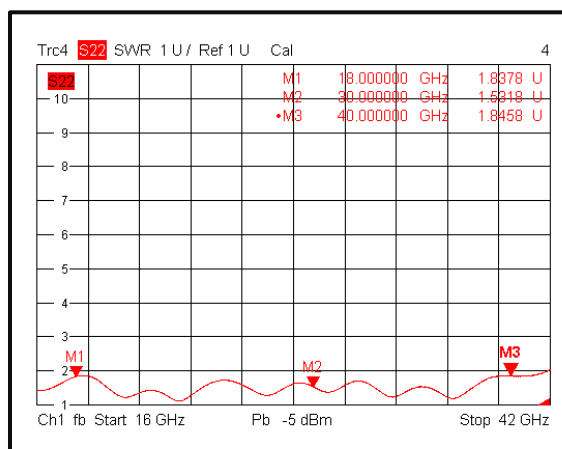
Insertion Loss @+25°C



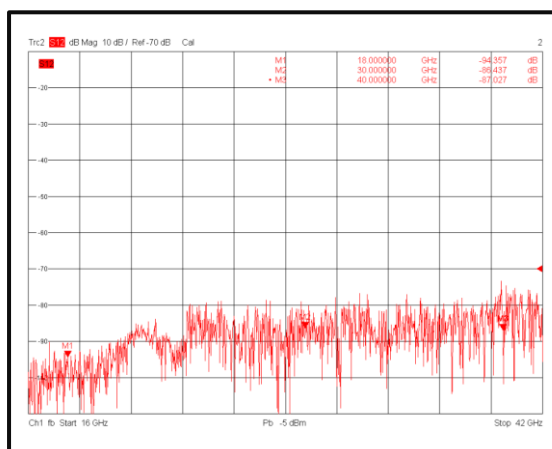
Input VSWR @+25°C



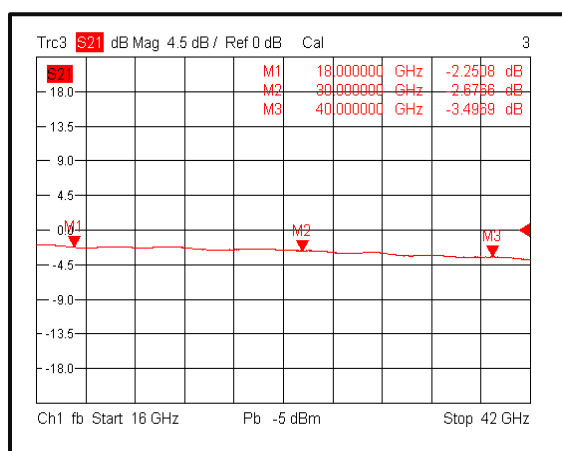
Output VSWR @+25°C



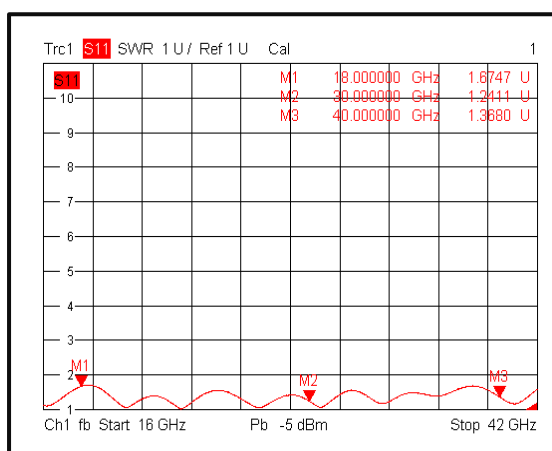
Isolation @+25°C



Insertion Loss @-40°C

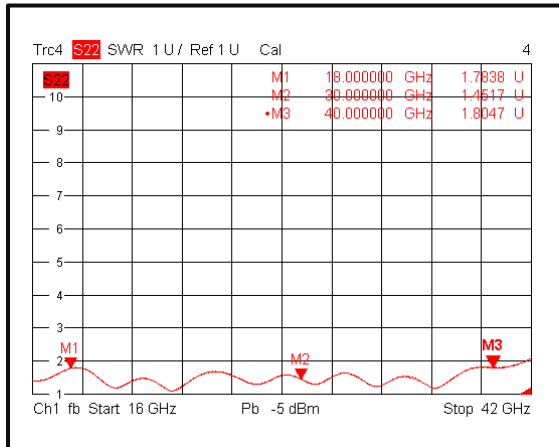


Input VSWR @-40°C

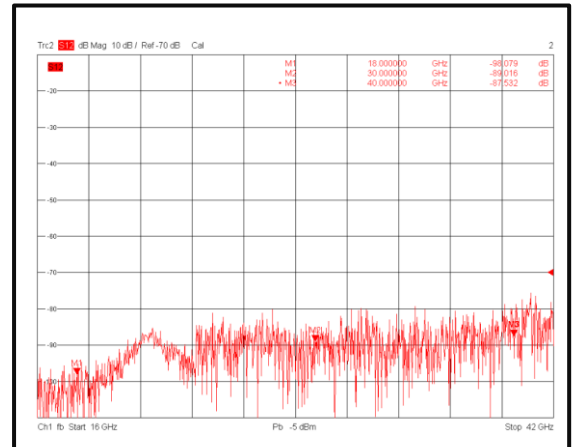


Typical Performance Plots

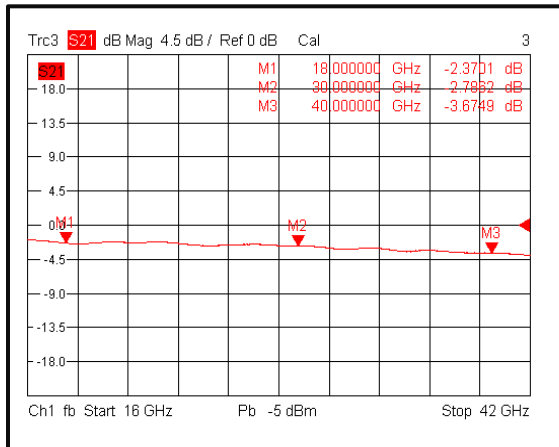
Output VSWR @-40°C



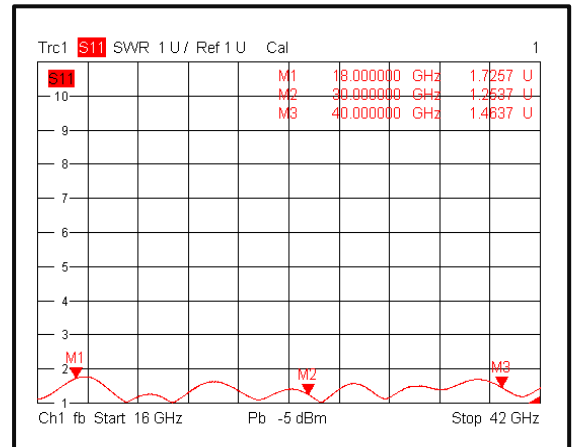
Isolation @-40°C



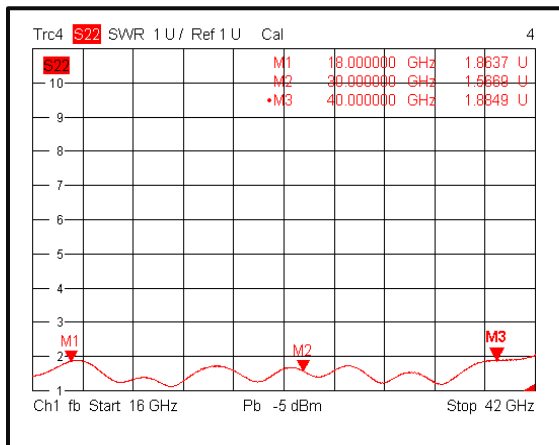
Insertion Loss @+85°C



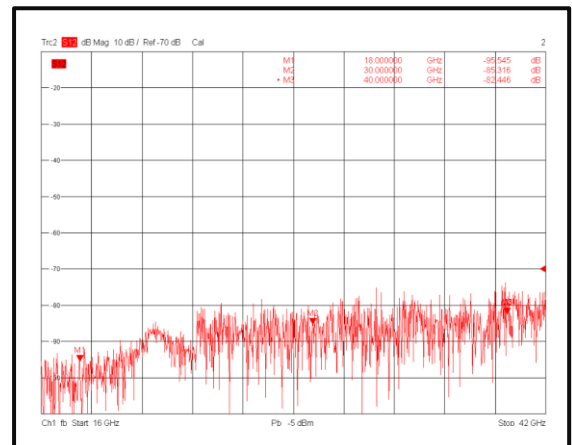
Input VSWR @+85°C



Output VSWR @+85°C

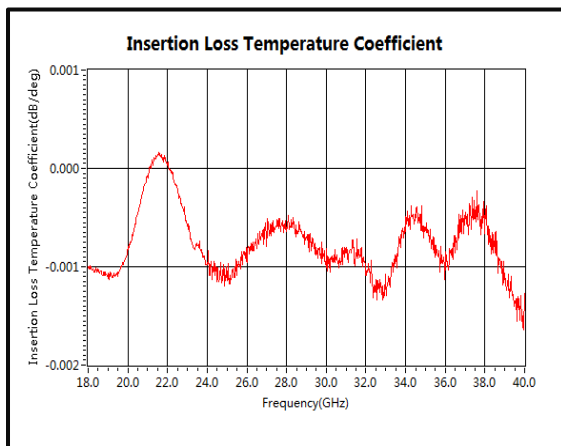


Isolation @+85°C

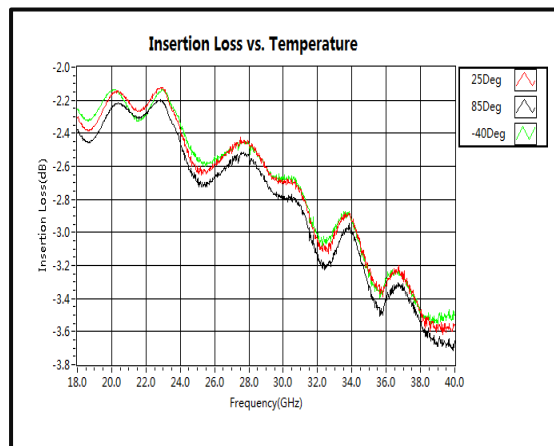


Typical Performance Plots

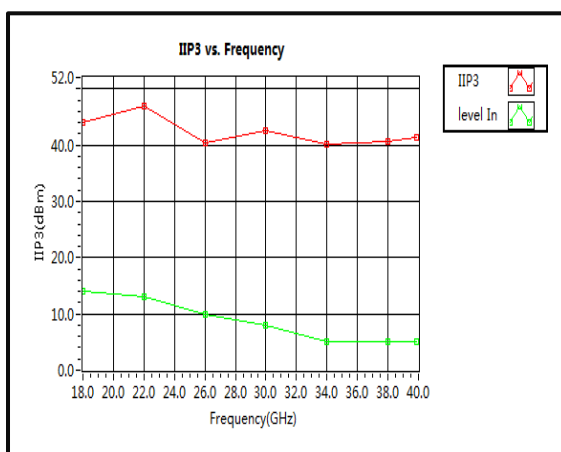
Insertion Loss Temperature Coefficient



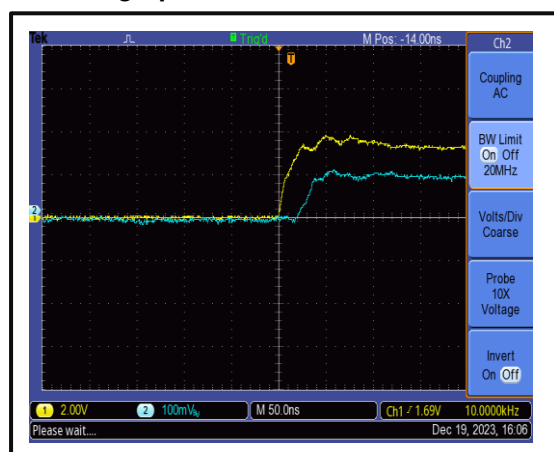
Insertion Loss vs. Temperature



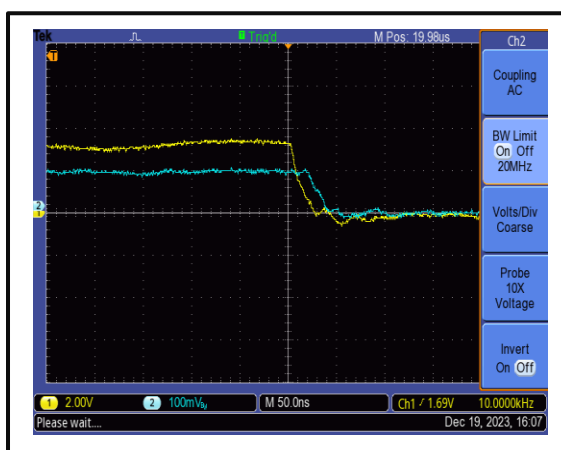
IIP3



Switching Speed

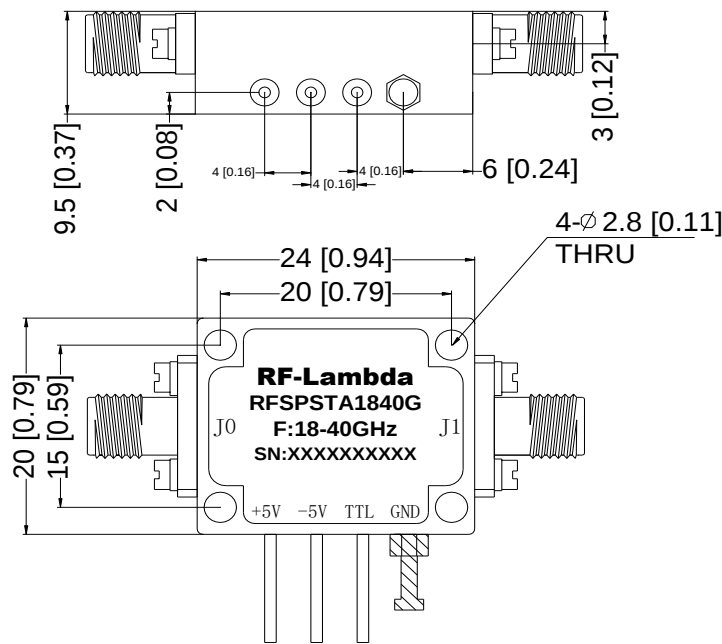


Switching Speed

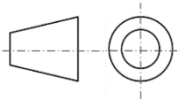


Outline Drawing

[X101]



Truth Table	
TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	High(1)=2.8~5V
Control Input TTL	State
1	ON
0	OFF
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.
 - 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
RFSPSTA1840G	Connectors 2.92mm-Female	18GHz-40GHz SPST PIN Diode Switch

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