

SPDT Reflective Electro-Mechanical Switch DC-50GHz



Product Description

RFSPDT50EMB-S is a SPDT reflective electro-mechanical switch with a frequency range of DC to 50GHz.

The power of this switch is 2W Max. The typical insertion loss is 0.8dB and the Isolation is 70 dB with the speed of 20ms. This electromechanical switch works with a +24 VDC power supply.

The repeatability and reliability of this switch is vital to ATS measurement accuracy and can cut the cost of ownership by reducing calibration cycles.

The working temperature of this product is between - 25°C and + 70°C

Features

- SPDT configuration
- Magnetic latching
- Operating life of 1 million cycles
- Guaranteed repeatability of 0.05dB up to 1 million cycles
- Excellent isolation, typically >80 dB to 20GHz
- Standard Drive Compatible
- Control cable included.

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 (T_A=+25°C)

Parameter		Min	Typ	Max	Units
Frequency Range		DC – 50			GHz
Insertion Loss	@DC-10GHz			0.4	dB
	@10-20GHz			0.8	dB
	@20-50GHz			1.2	dB
VSWR	@DC-10GHz			1.25	:1
	@10-20GHz			1.5	:1
	@20-50GHz			1.8	:1
Isolation	@DC-10GHz	85			dB
	@10-20GHz	77			dB
	@20-50GHz	70			dB
Input Power				2	W
Switching Speed				20	ms
Life Cycles		1			Million
Repeatability				0.05	dB
Supply Current (VCC=+24VDC)				0.2	A
Weight			0.11		lbs.
Impedance			50		Ohms
Connector		2.4mm Female			
Actuator Type		Latching			
Contact		Break Before Make			
Control		Ground			
Package		Epoxy Sealed (Standard)			
		Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	20 – 28VDC

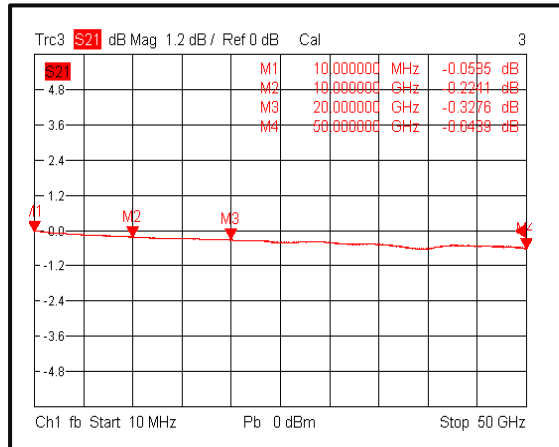
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-25°C to +70°C (Case Temperature)
Storage Temperature	-50°C to +85°C
Thermal Shock	-40°C → +70°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 +70°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)

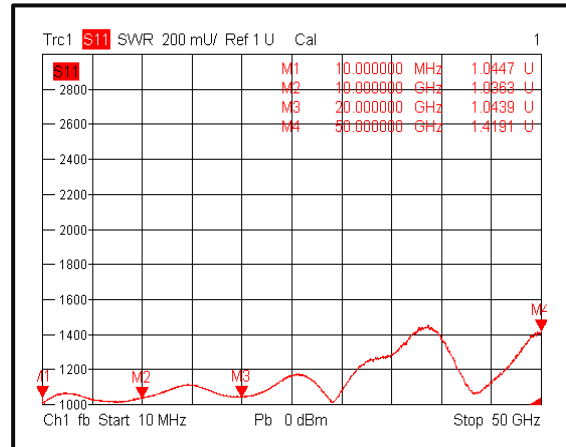
*For vibration testing details please see additional information section.

Typical Performance Plots

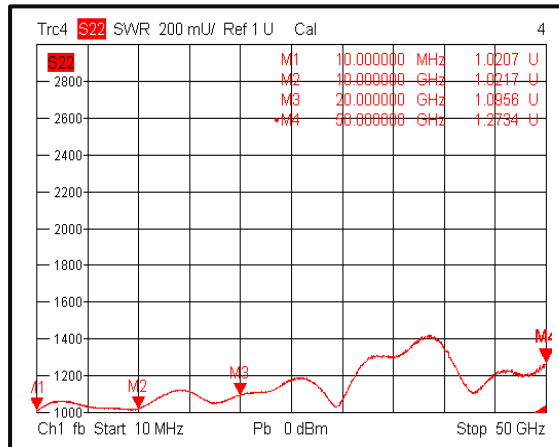
Insertion Loss@+25°C



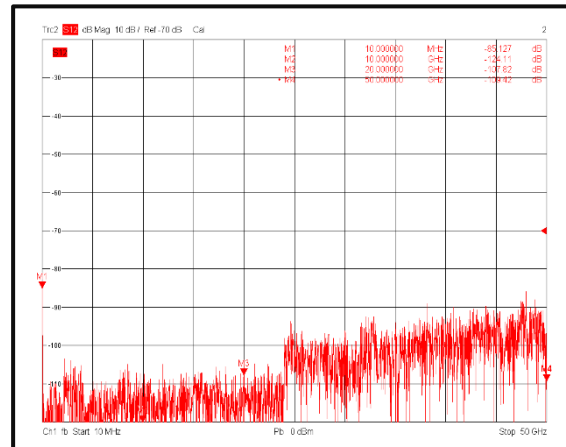
Input VSWR@+25°C



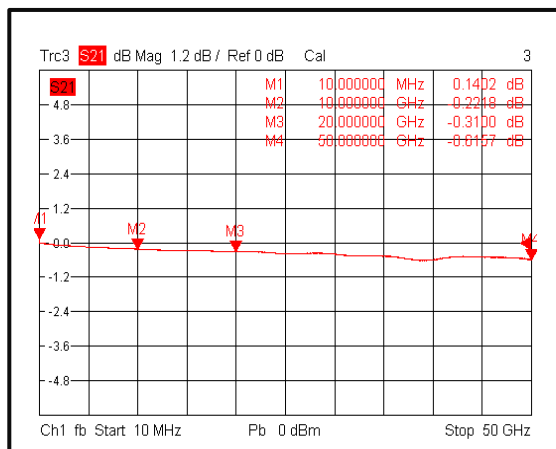
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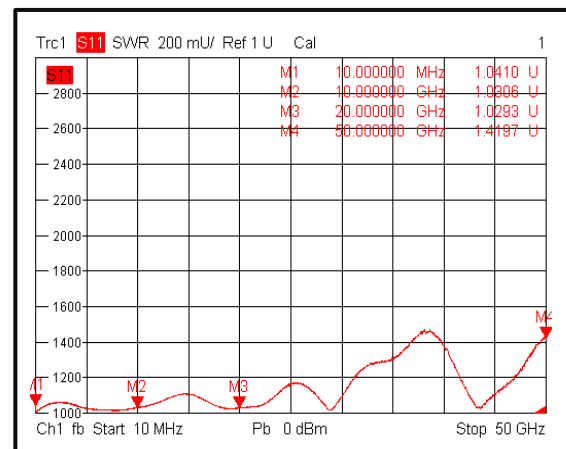
Isolation@+25°C



Insertion Loss @-25°C

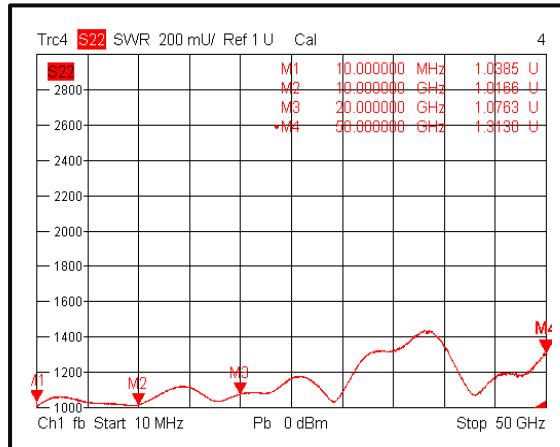


Input VSWR @-25°C

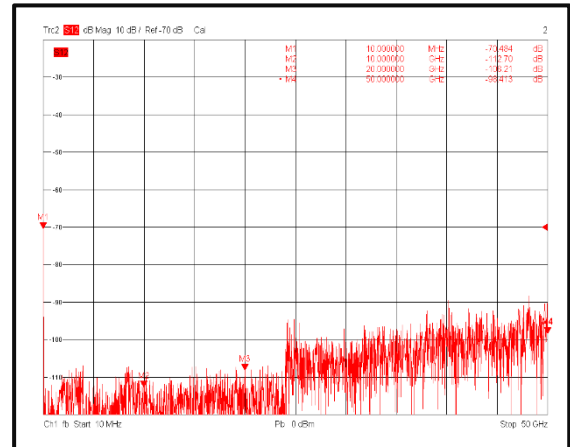


Typical Performance Plots

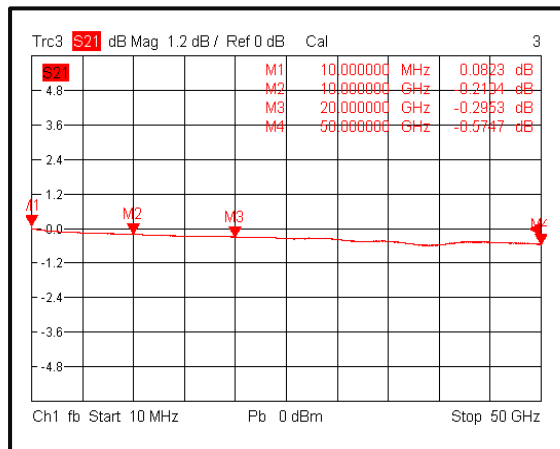
Output VSWR @-25°C



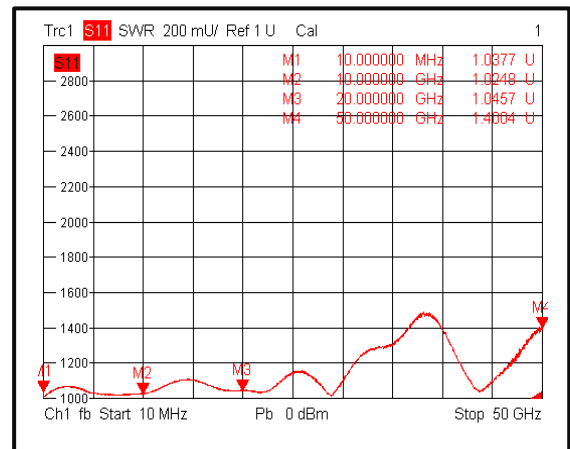
Isolation @-25°C



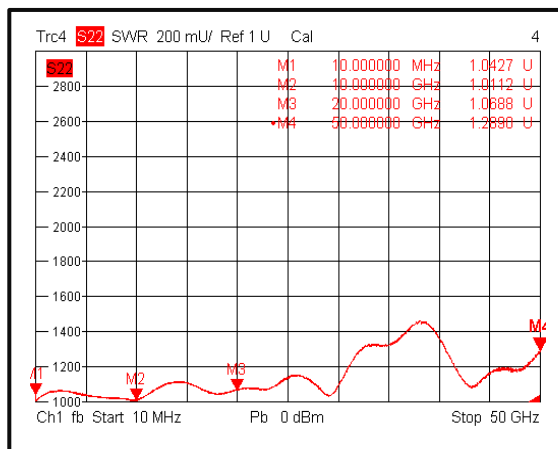
Insertion Loss @+70°C



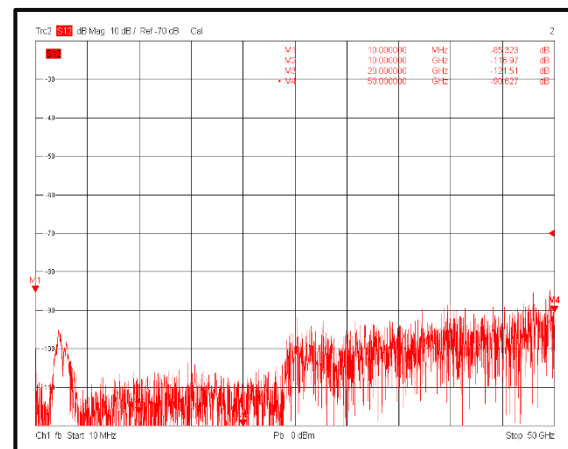
Input VSWR @+70°C



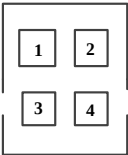
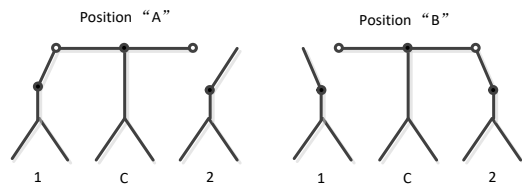
Output VSWR @+70°C



Isolation @+70°C

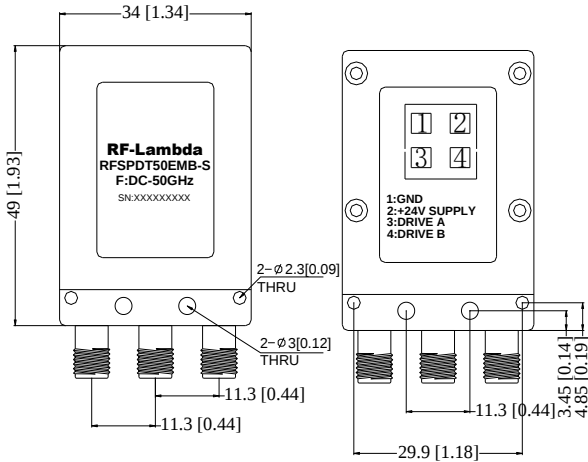


Control Information



PIN1	PIN2	PIN3	PIN4	Path
GND	+24V	GND	OPEN	PositionA (C↔ 1)
GND	+24V	OPEN	GND	PositionB (C↔ 2)
GND	+24V	OPEN	OPEN	Keep the original path
GND	+24V	GND	GND	Forbidden

Outline Drawing



- Notes:
1. Package Material: Aluminum
 2. Finish: Gray Paint
 3. All dimensions are in millimeters [inches].



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
RFSPDT50EMB-S	Connectors 2.4mm-Female Standard Ground	DC-67GHz SPDT Electromechanical Switch

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