

SPDT Reflective Electro-Mechanical Switch DC-18GHz



Product Description

RFSPDT18EMF-T is a SPDT reflective electro-mechanical switch with a frequency range of DC to 18GHz.

The power of this switch is 1W Max. The typical insertion loss is 0.6dB and the Isolation is 60dB with a switching speed of 20ms. This electromechanical switch works with a +12VDC power supply.

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

Features

- SPDT configuration TTL Control
- Magnetic latching
- Operating life of 1 million cycles
- Guaranteed repeatability of 0.05dB up to 1 million cycles
- Excellent isolation, typically >60 dB to 18GHz
- TTL/5V CMOS 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 – 18		GHz
Insertion Loss	@DC-12.4GHz			0.3	dB
	@12.4-18GHz			0.6	dB
VSWR	@DC-12.4GHz			1.3	:1
	@12.4-18GHz			1.5	:1
Isolation	@DC-18GHz	60			dB
Input Power				1	W
Switching Speed				20	ms
Life Cycles		1			Million
Repeatability				0.05	dB
Supply Current (VCC=+12VDC)				0.4	A
Weight			0.11 Max.		lbs.
Impedance			50		Ohms
Connector			SMA-Female		
Actuator Type			Latching		
Contact			Break Before Make		
Control			TTL		
Package		Epoxy Sealed (Standard)			
		Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	+10~15VDC

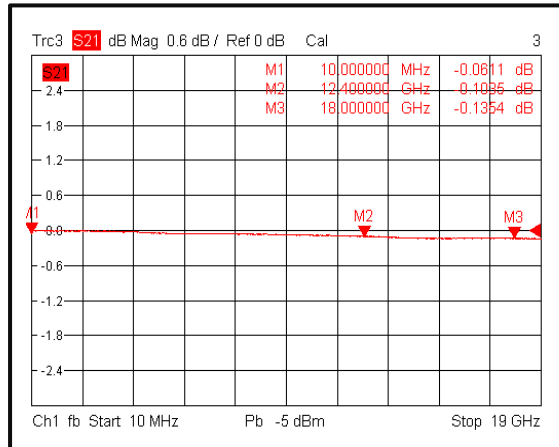
Environmental Specifications and Test Standards

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)

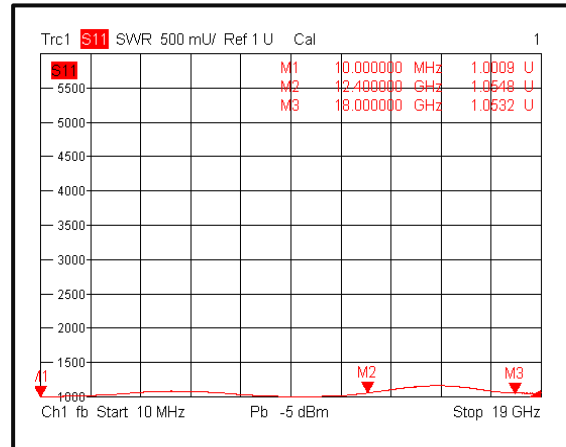
*For vibration testing details please see additional information section.

Typical Performance Plots

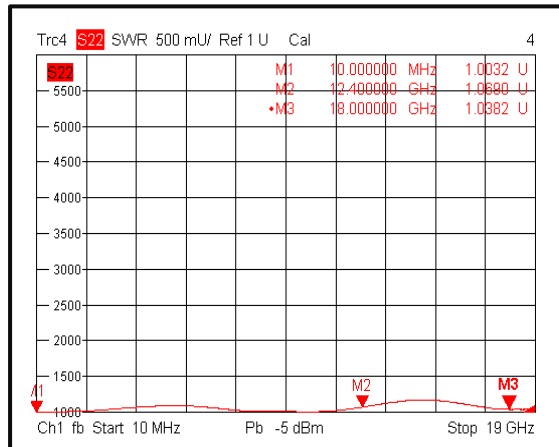
Insertion Loss@+25°C



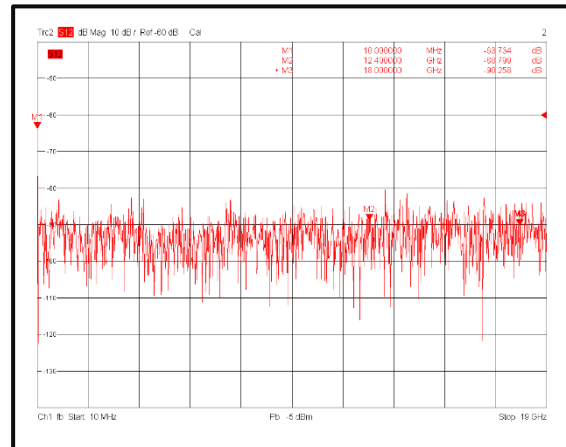
Input VSWR@+25°C



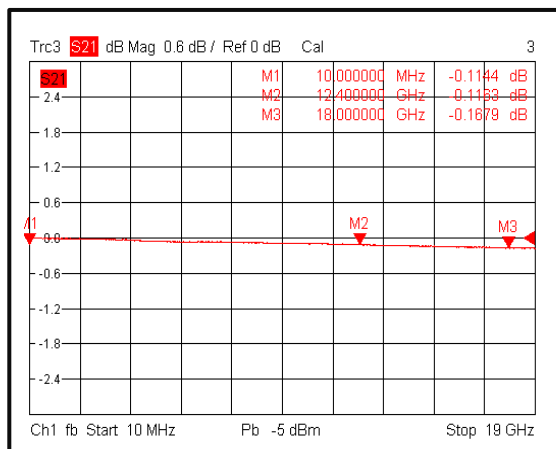
Output VSWR@+25°C



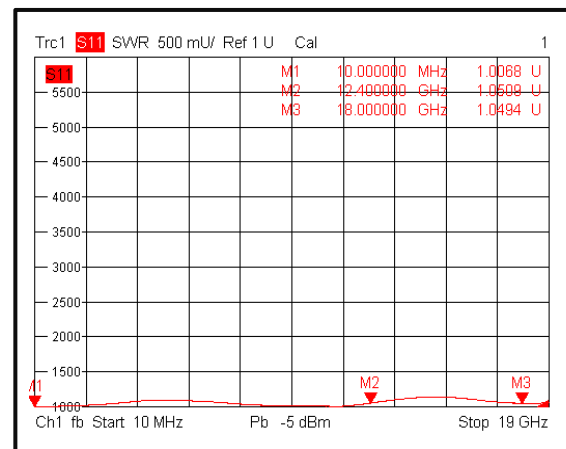
Isolation@+25°C



Insertion Loss @-25°C

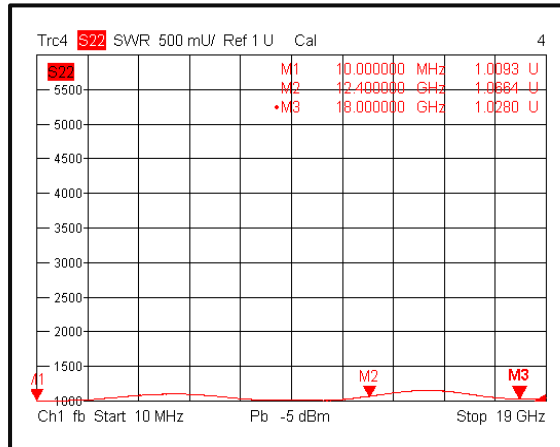


Input VSWR @-25°C

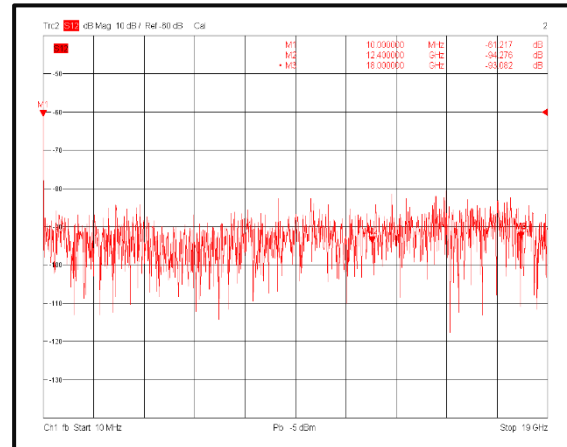


Typical Performance Plots

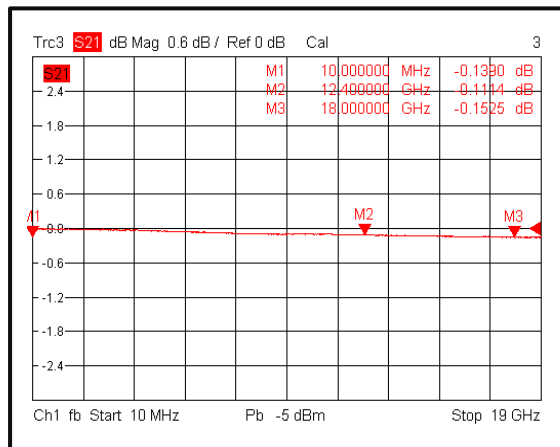
Output VSWR @-25°C



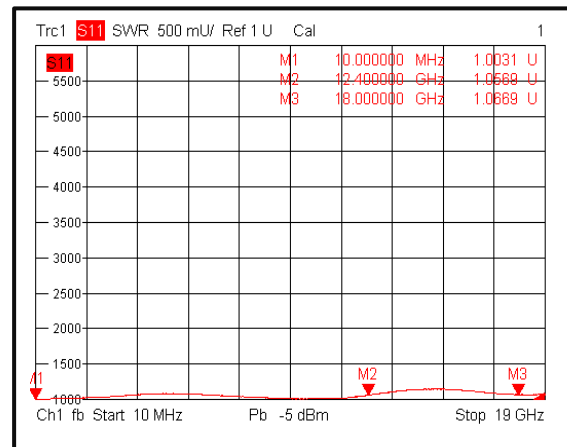
Isolation @-25°C



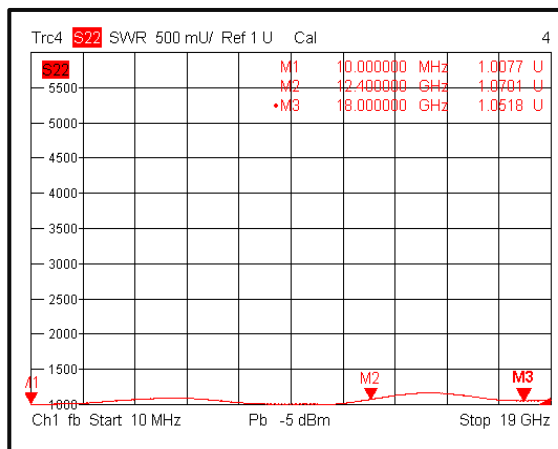
Insertion Loss @+70°C



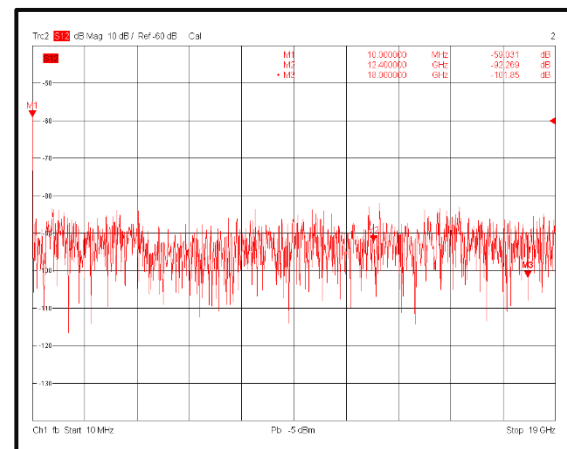
Input VSWR @+70°C



Output VSWR @+70°C

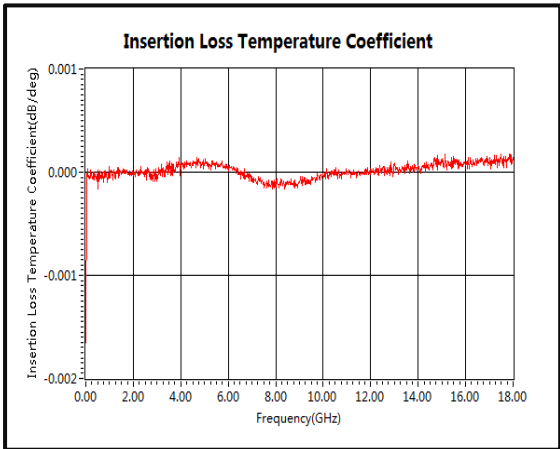


Isolation @+70°C

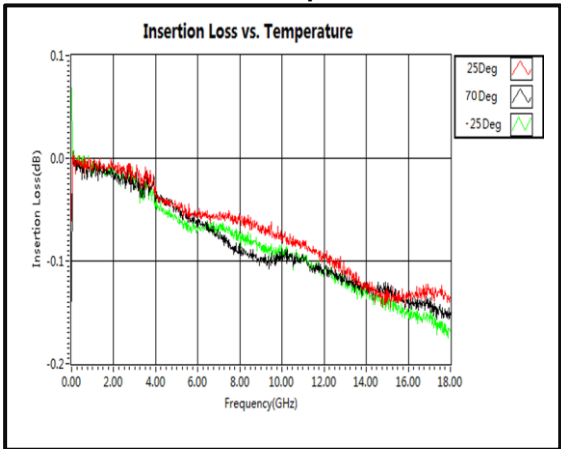


Typical Performance Plots

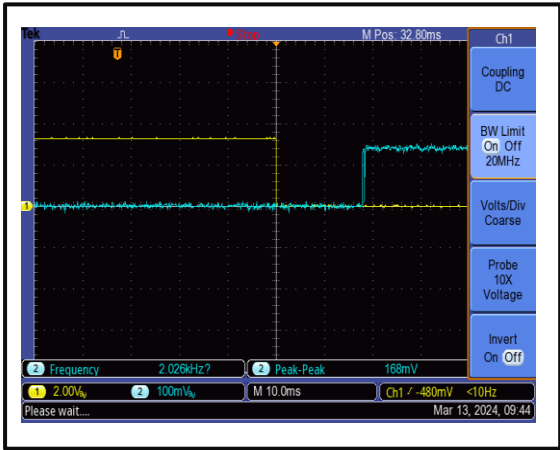
Insertion Loss Temperature Coefficient



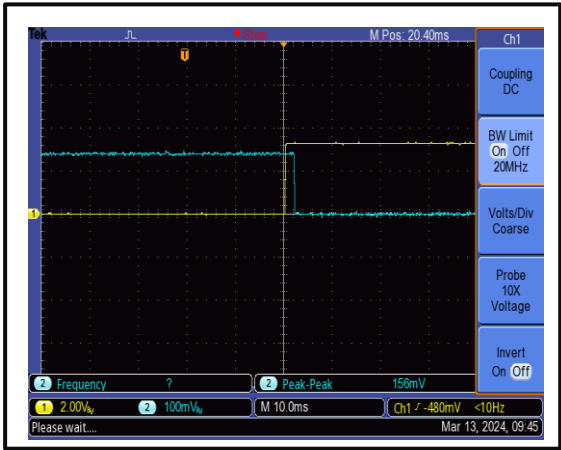
Insertion Loss vs. Temperature



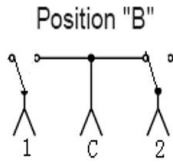
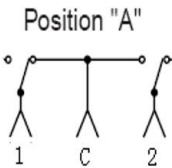
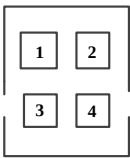
Switching Speed



Switching Speed

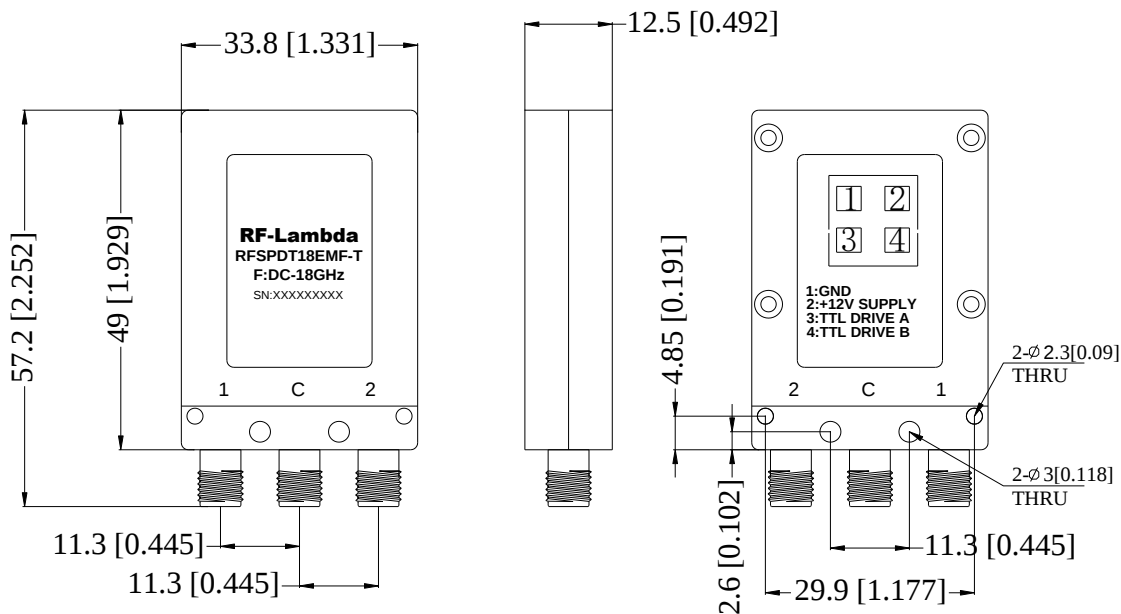


TTL Control Type Functional Diagram



Parameter	PIN1	PIN2	PIN3	PIN4
RF to 1	GND	+12V	High	Low
RF to 2	GND	+12V	Low	High

Outline Drawing



Notes:

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



Additional Information

Documentation

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
RFSPDT18EMF-T	Connectors SMA-Female TTL Control	DC-18GHz SPDT Electromechanical Switch

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