SPDT Reflective Electro-Mechanical Switch DC-18GHz

Product Description

RFSPDT18EMBET-T is a extended temperature range SPDT reflective electro-mechanical switch with a frequency range of DC to 18GHz.

The max power handling of this switch is 2W max. The typical insertion loss is 0.6dB and the Isolation is 60dB with the speed of 20ms.

The working temperature of this product is between - 40℃ and + 85℃

Features

- SPDT configuration
- Magnetic latching
- Operating life of 1 million cycles
- Guaranteed repeatability of 0.05dB up to 1 million cycles
- TTL drive
- 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=+25ºC)

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				2	W
Swtiching Speed				20	ms
Life Cycles		1			Million
Repeatability				0.05	dB
Supply Current	VCC=+24VDC		200		mA
Weight			0.1Max.		lbs.
Impedance			50		Ohms
Connector			SMA-Female		
Actuator Type			Latching		
Contact			Break Before Make		
Control			TTL		
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
Supply Voltage Range	+20 - 28V

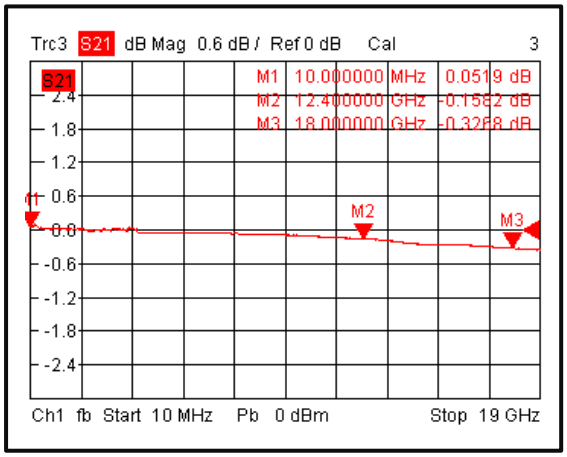
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40ºC to +85ºC (Case Temperature)
Storage Temperature	-50ºC to +85ºC
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)

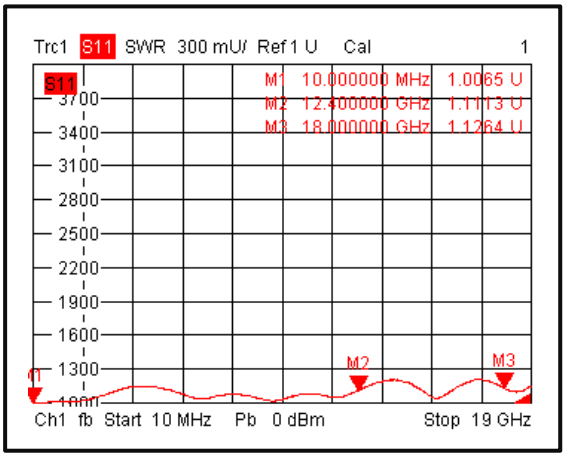
*For vibration testing details please see additional information section.

Typical Performance Plots

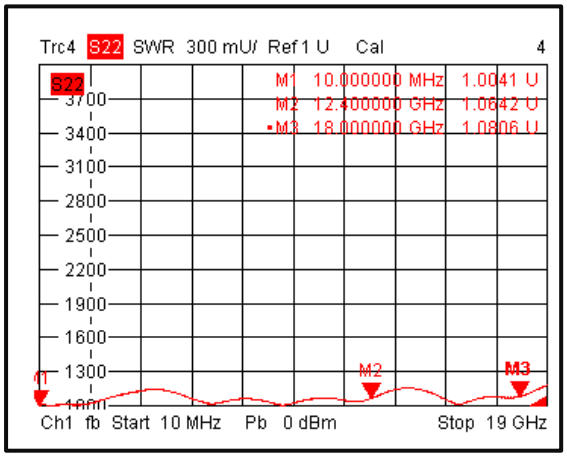
Insertion Loss@+25℃



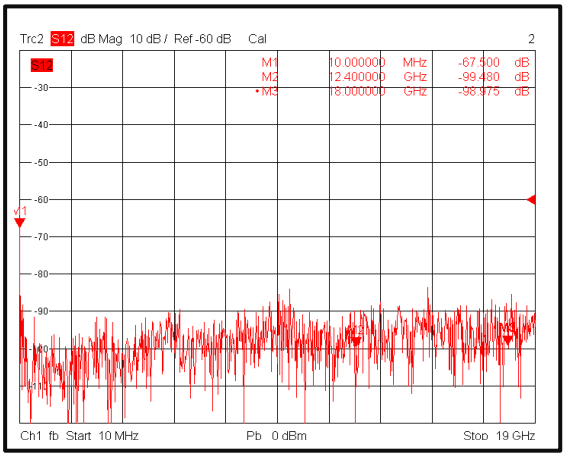
Input VSWR@+25℃



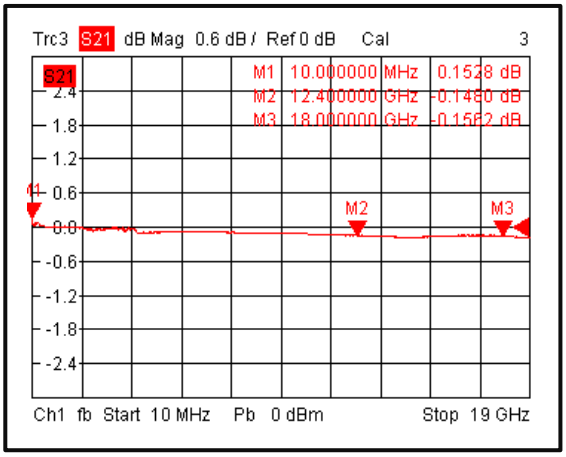
Output VSWR@+25℃



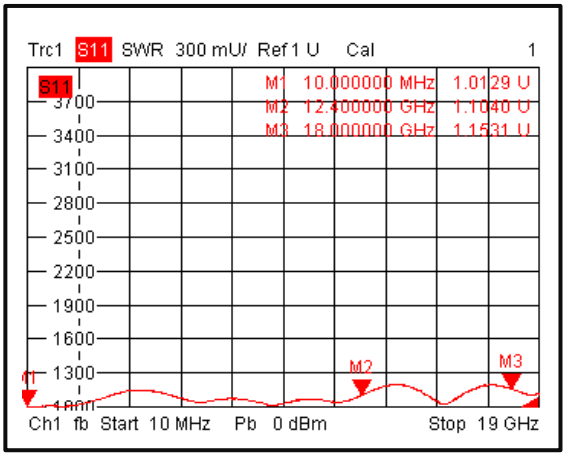
Isolation@+25℃



Insertion Loss @-40℃

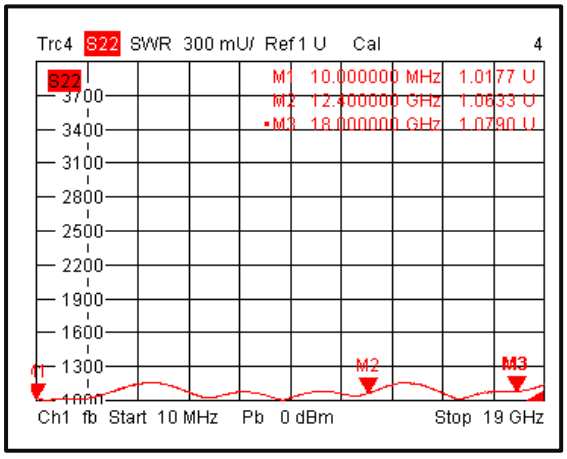


Input VSWR @-40℃

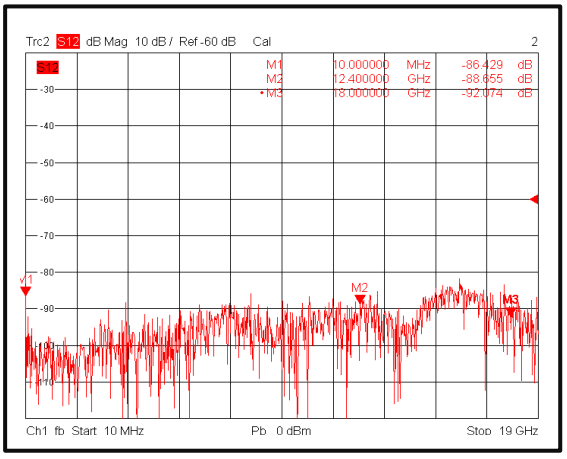


Typical Performance Plots

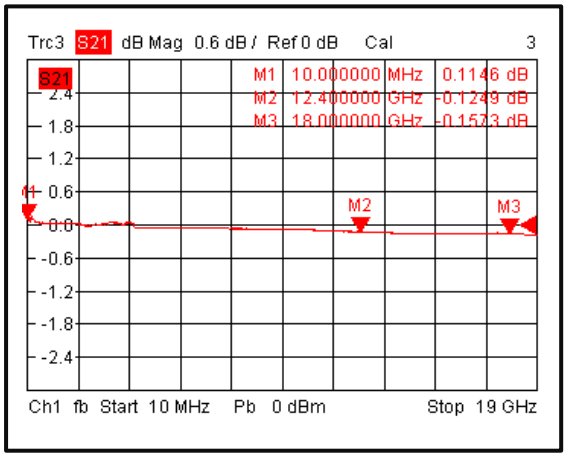
Output VSWR @-40℃



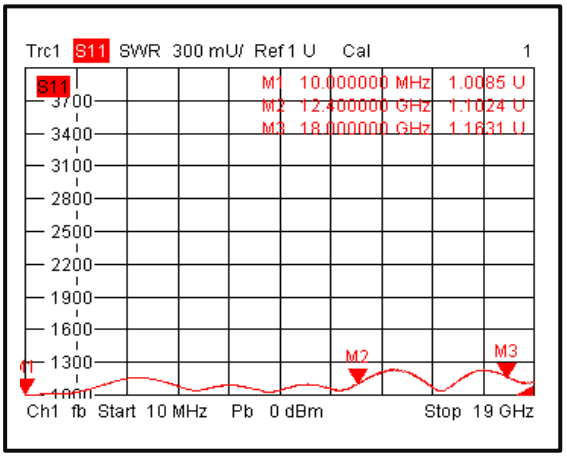
Isolation @-40℃



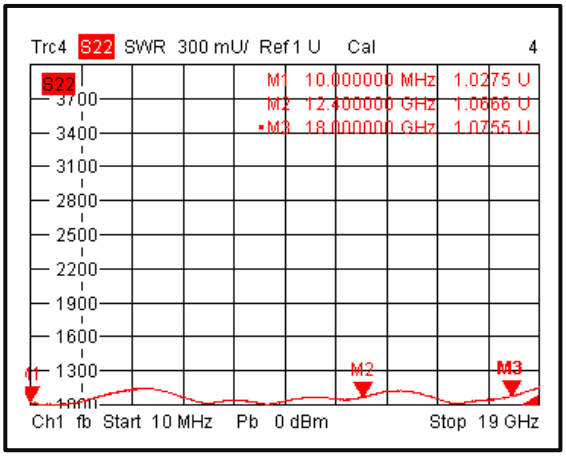
Insertion Loss @+85℃



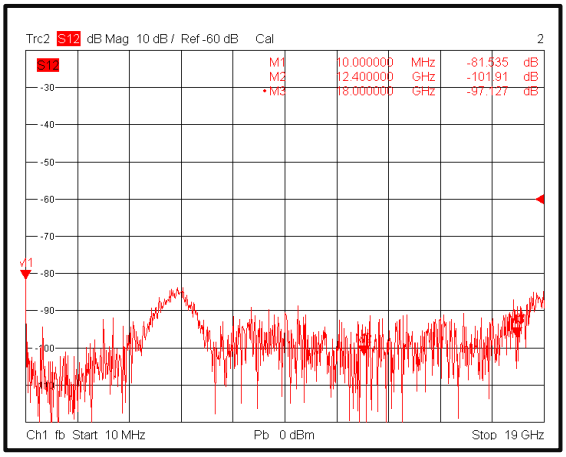
Input VSWR @+85℃



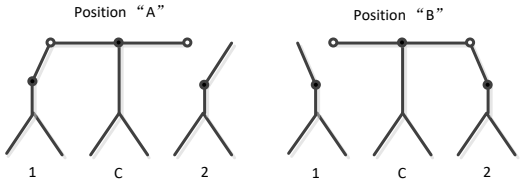
Output VSWR @+85℃

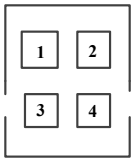


Isolation @+85℃



Functional Diagram





PIN 1 connect the ground, PIN 2 connect +24V/+12V/+5V, PIN3 and PIN4 are control PINS.

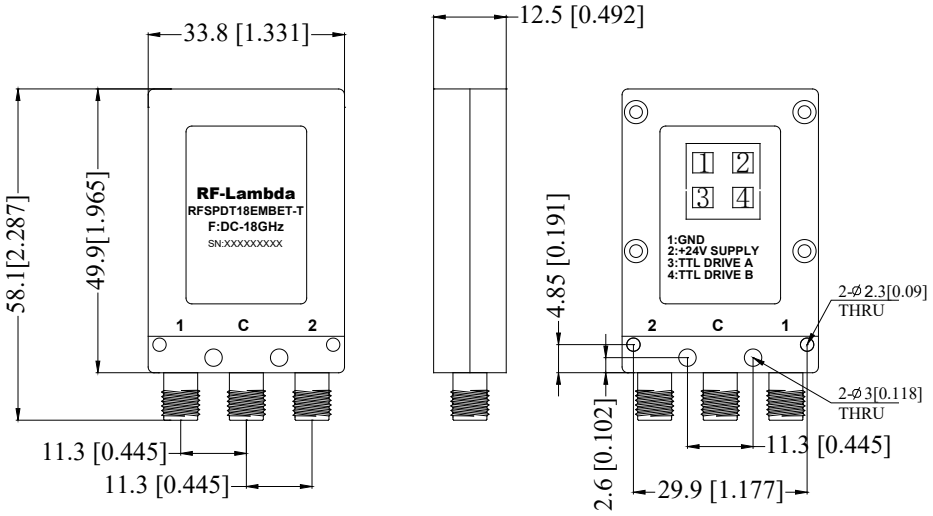
Control Table

TTL（3.3～5.5V）				Path
PIN1	PIN2	PIN3	PIN4	
GND	+24V/+12V/+5V	TTL	OPEN	PositionA（C↔1）
GND	+24V/+12V/+5V	OPEN	TTL	PositionB（C↔2）
GND	+24V/+12V/+5V	OPEN	OPEN	Keep the original path
GND	+24V/+12V/+5V	TTL	TTL	Forbidden

Notes:

1. When the power path of the switch is in the off state, the switch port is connected to the load sheet, so at this time the max input power of the port is 1W(CW).
2. The negative pole must always be connected to ground. if the negative pole is not connected to power supply ground, catastrophic failure will occur.
3. Before switching, microwave signal sources must be cut off.

Outline Drawing



Notes:
1. Package Material: Aluminum
2. Finish: Grey Paint
3. All dimensions are in millimeters [inches].
4. Tolerances ±0.5 [0.02] unless otherwise specified.

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
RFSPDT18EMBET-T	Connectors SMA-Female TTL	DC-18GHz SPDT Electromechanical Switch

Important Notice

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