Absorptive SP6T Electro-Mechanical Switch DC-18GHz

Product Description

RFSP6T18EMA-T is an absorptive SP6T electro-mechanical switch with a frequency range of DC to 18GHz.

The power of this switch is 50W Max. The typical insertion loss is 0.4dB and the isolation is 70dB with a switching speed of 15ms.This electromechanical switch works with a +24VDC power supply.

The working temperature of this product is between - 20℃ and + 70℃.

Features

- SP6T 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 18GHz
- Terminated ports
- TTL/5V CMOS compatible (optional)
- 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-4GHz			0.2	dB
	@4-12.4GHz			0.4	dB
	@12.4-18GHz			0.5	dB
VSWR	@DC-4GHz			1.1	:1
	@4-12.4GHz			1.2	:1
	@12.4-18GHz			1.5	:1
Isolation	@DC-4GHz	80			dB
	@4-12.4GHz	70			dB
	@12.4-18GHz	60			dB
Input Power	@DC-4GHz			50	W
	@4-12.4GHz			40	W
	@12.4-18GHz			30	W
Switching Speed				15	ms
Life Cycles		1			Million
Repeatability				0.05	dB
Supply Current (VCC=+24VDC)			240		mA
Weight			0.5 Max.		lbs.
Impedance			50		Ohms
Connector			SMA-Female		
Actuator Type			Latching		
Contact			Break Before Make		
Control			TTL		
Package			Epoxy Sealed (Standard)		
			Hermetically Sealed (Optional)		

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Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	22 – 28VDC

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-20ºC to +70ºC (Case Temperature)
Storage Temperature	-55ºC to +85ºC
Thermal Shock	-20ºC → +70ºC (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 +70ºC 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.

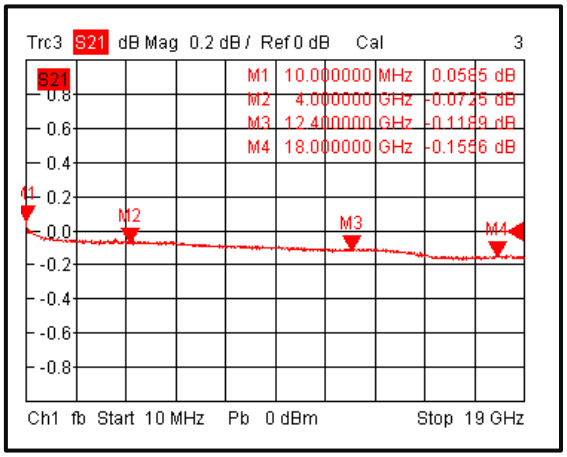
PIN	1	15	TTL Drive Voltage (High = 2.5 to 5V, Low = 0 to 0.8V)						
STATUS			3	5	7	9	11	13	16
RF to 1	22-28V	GND	High	Low	Low	Low	Low	Low	Low
RF to 2			Low	High	Low	Low	Low	Low	Low
RF to 3			Low	Low	High	Low	Low	Low	Low
RF to 4			Low	Low	Low	High	Low	Low	Low
RF to 5			Low	Low	Low	Low	High	Low	Low
RF to 6			Low	Low	Low	Low	Low	High	Low
Reset			Low	Low	Low	Low	Low	Low	High

Note:
VCC:+22V ~+28V (Rated voltage:+24V)
GND:Ground

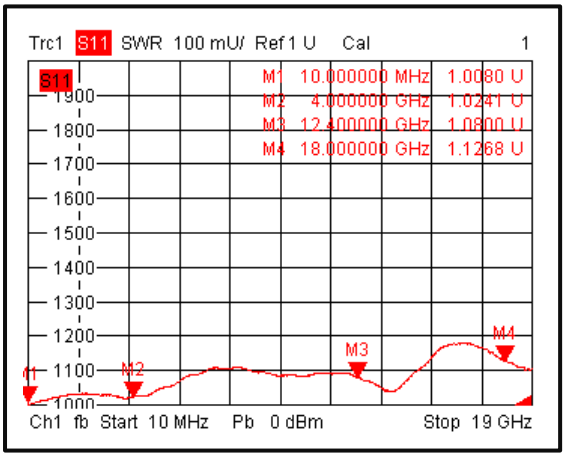
Applying "High" to the corresponding pin can control the connection to the corresponding RF channel. At the same time, other RF channels are automatically disconnected. When the High level is applied to the "Reset" pin, all RF channels of the switch are disconnected. Note that applying “High” to multiple pins at one time is forbidden and can damage the switch. In the case of an absorptive switch model, disconnected ports are connected to the built-in 50 Ω load.

Typical Performance Plots

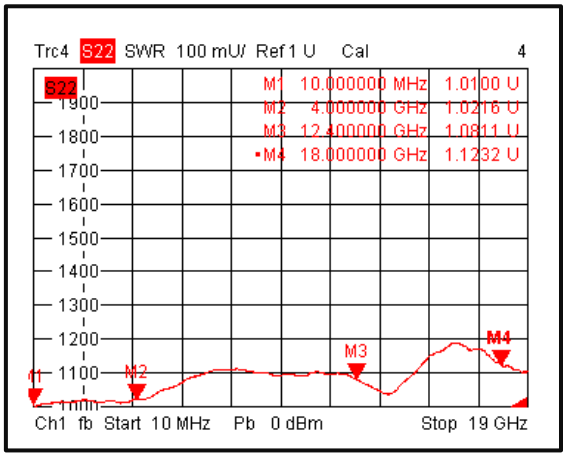
Insertion Loss@+25℃



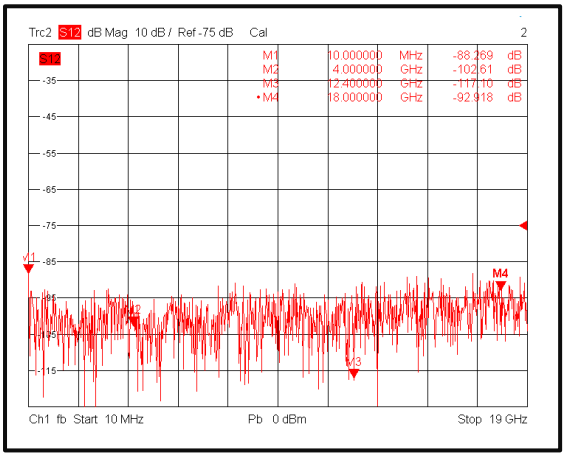
Input VSWR@+25℃



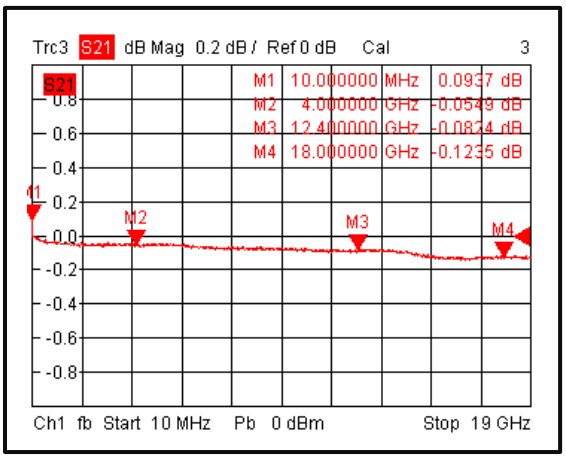
Output VSWR@+25℃



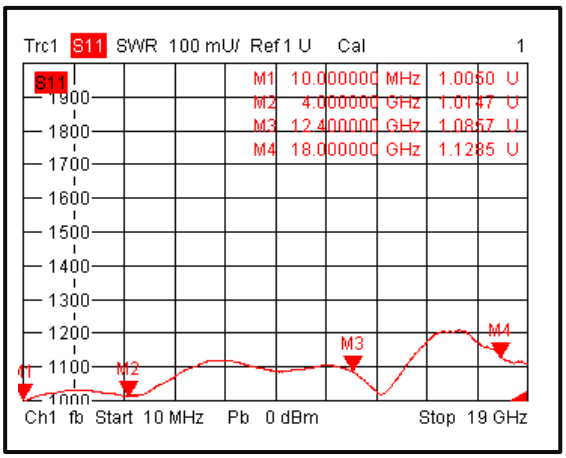
Isolation@+25℃



Insertion Loss @-25℃

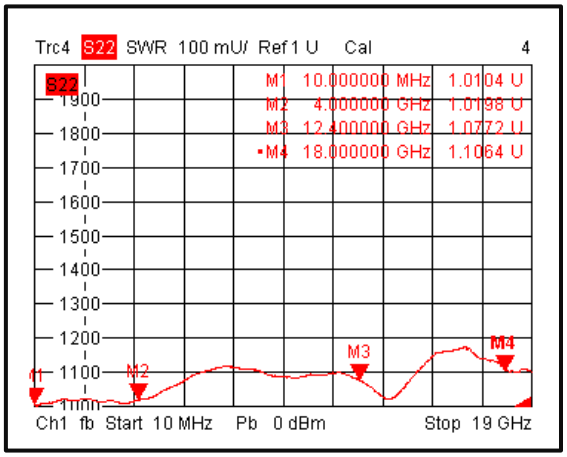


Input VSWR @-25℃

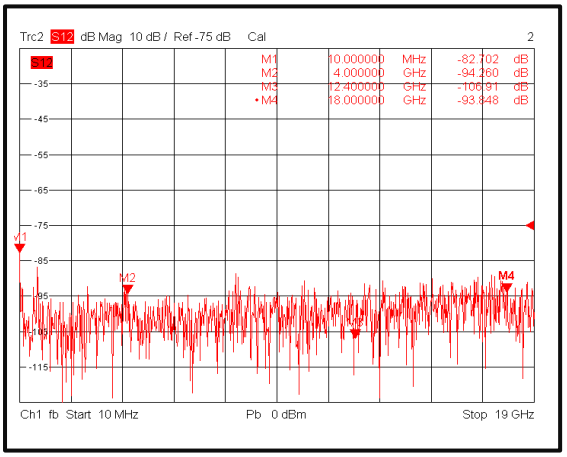


Typical Performance Plots

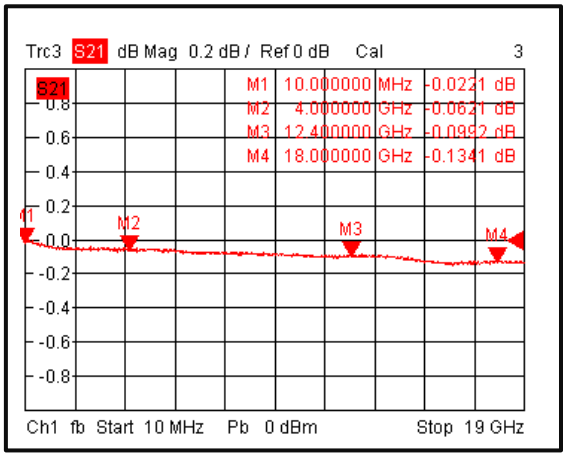
Output VSWR @-25℃



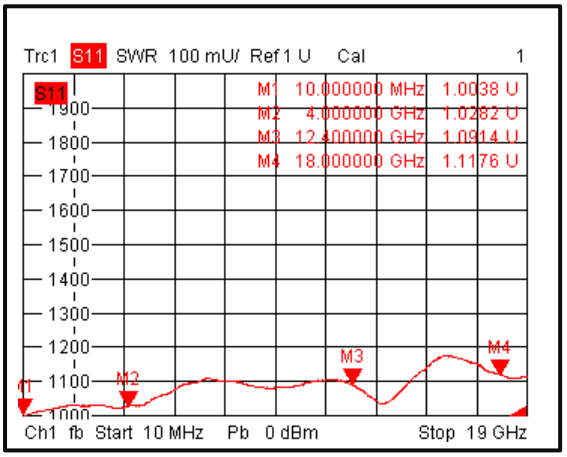
Isolation @-25℃



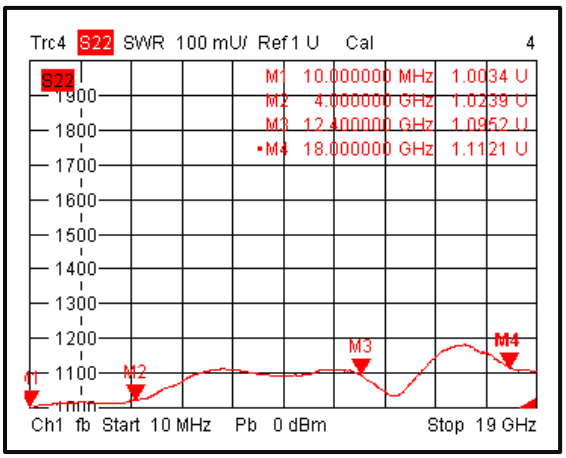
Insertion Loss @+70℃



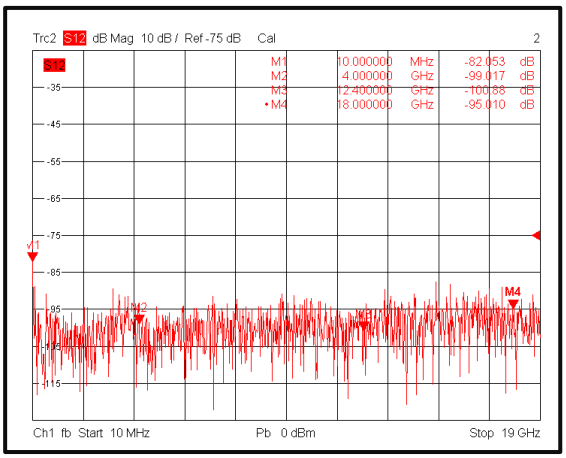
Input VSWR @+70℃



Output VSWR @+70℃

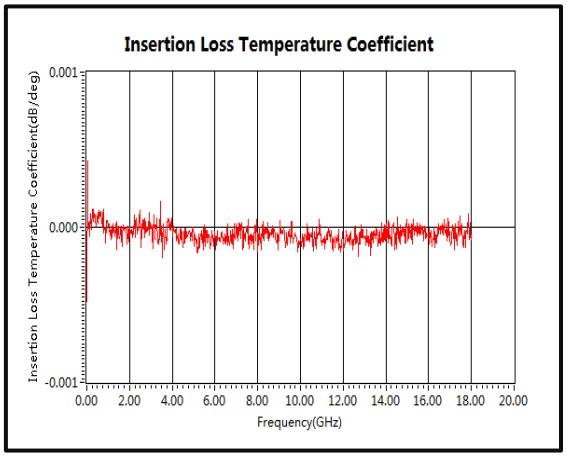


Isolation @+70℃

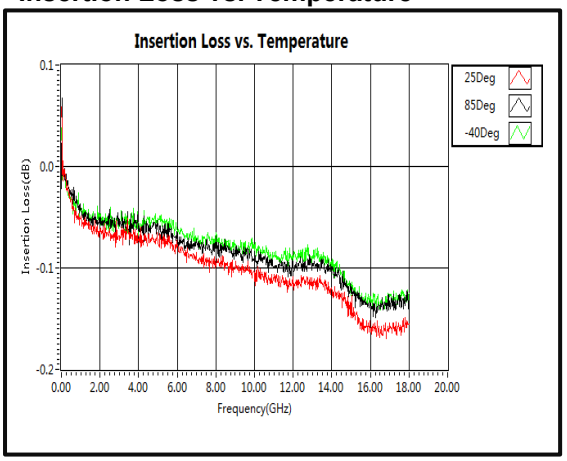


Typical Performance Plots

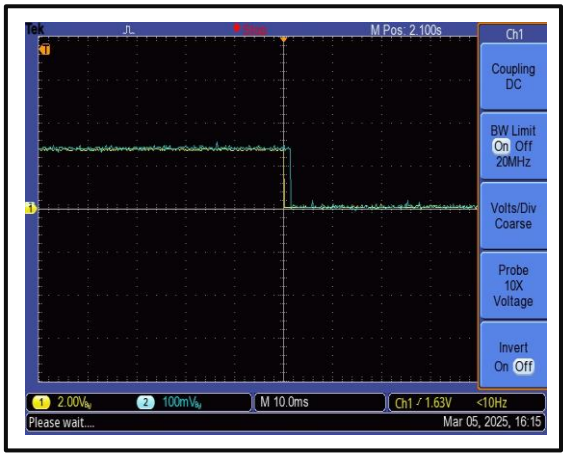
Insertion Loss Temperature Coefficient



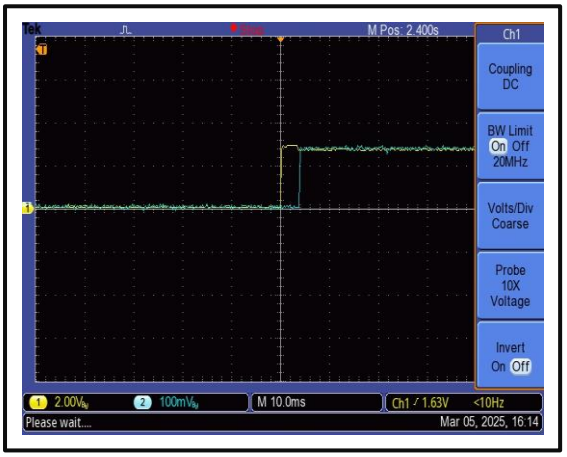
Insertion Loss vs. Temperature



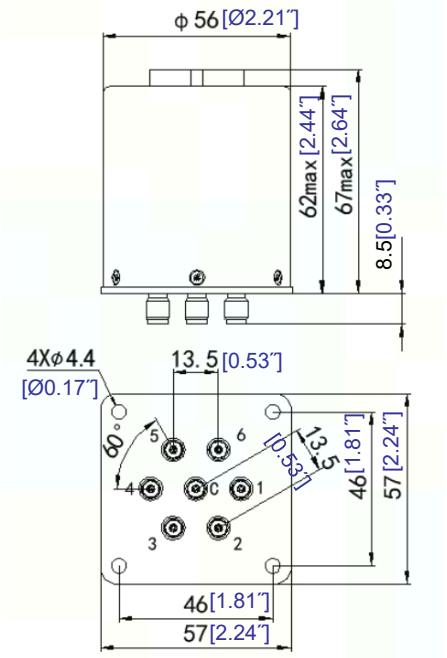
Switching Speed

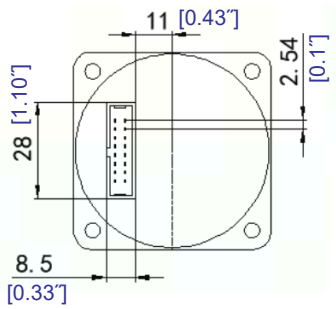


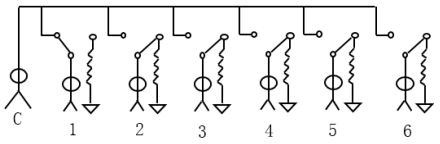
Switching Speed

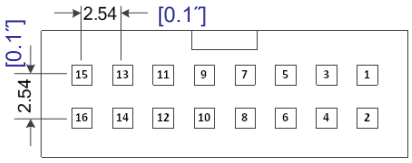


Outline Drawing









Notes:
1. Package Material: Aluminum
2. Finish: Black 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
RFSP6T18EMA-T	connectors SMA-Female TTL	DC-18GHz SP6T Electromechanical Switch

Important Notice