Absorptive SP8T Electro-Mechanical Switch DC-67GHz

Product Description

RFSP8T67EMA-T is an absorptive SP8T electro-mechanical switch with a frequency range of DC to 67GHz.

The power of this switch is 1W Max. The typical insertion loss is 1.6dB and the isolation is 60dB with a switching speed of 15ms.This electromechanical switch works with a +28VDC power supply.

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

Features

- SP8T configuration
- Magnetic latching
- Operating life of 1 million cycles
- Guaranteed repeatability of 0.1dB up to 100 million cycles
- Excellent isolation, typically >60 dB to 50GHz
- 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 – 67		GHz
Insertion Loss	@DC-12GHz			0.8	dB
	@12-26.5GHz			1.2	dB
	@26.5-50GHz			1.6	dB
	@50-67GHz			2.0	dB
VSWR	@DC-12GHz			1.6	:1
	@12-26.5GHz			1.8	:1
	@26.5-50GHz			2.0	:1
	@50-67GHz			2.2	:1
Isolation	@DC-12GHz	60			dB
	@12-26.5GHz	60			dB
	@26.5-50GHz	60			dB
	@50-67GHz	50			dB
Input Power				1	W
Switching Speed				15	ms
Life Cycles		1			Million
Repeatability				0.1	dB
Supply Current (VCC=+28VDC)			165		mA
Weight			0.706		lbs.
Impedance			50		Ohms
Connector			1.85mm-Female		
Control interface			25 core D-SUB pin		
Actuator Type			Normally open		
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	24 – 30VDC

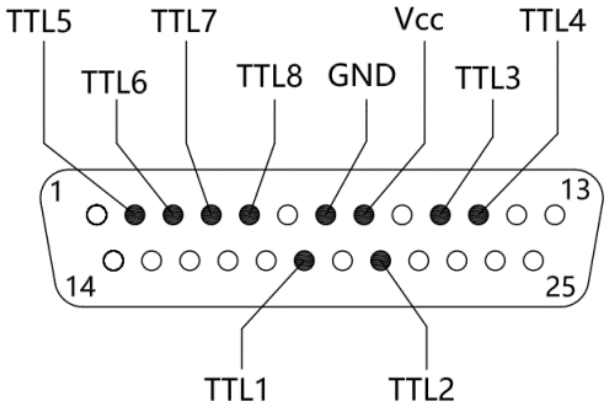
Environmental Specifications and Test Standards

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

Interface definition and description

Connector pins are shown in the figure below.
Control Cable is included.



Drive type

STATUS	TTL Drive Voltage (High = 2.5 to 5V, Low = 0 to 0.8V)									
	VCC	GND	TTL1	TTL2	TTL3	TTL4	TTL5	TTL6	TTL7	TTL8
RF to 1	VCC	GND	**High**	Low	Low	Low	Low	Low	Low	Low
RF to 2	VCC	GND	Low	**High**	Low	Low	Low	Low	Low	Low
RF to 3	VCC	GND	Low	Low	**High**	Low	Low	Low	Low	Low
RF to 4	VCC	GND	Low	Low	Low	**High**	Low	Low	Low	Low
RF to 5	VCC	GND	Low	Low	Low	Low	**High**	Low	Low	Low
RF to 6	VCC	GND	Low	Low	Low	Low	Low	**High**	Low	Low
RF to 7	VCC	GND	Low	Low	Low	Low	Low	Low	**High**	Low
RF to 8	VCC	GND	Low	Low	Low	Low	Low	Low	Low	**High**

Note:

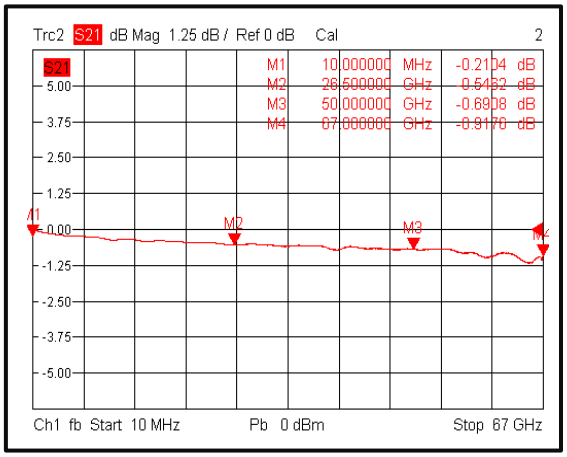
VCC:+24V～+30V（Rated voltage:+28V）

GND:Ground

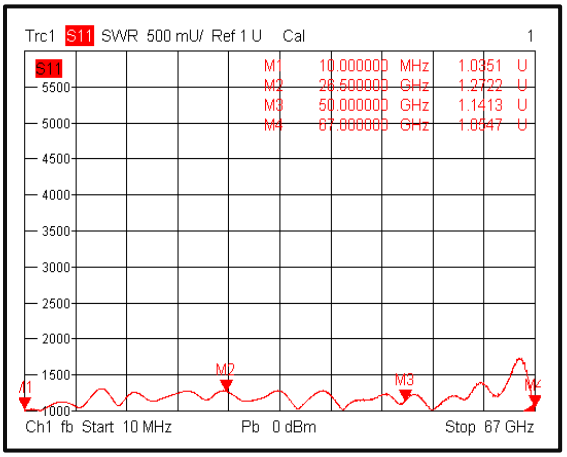
Applying "High" to the corresponding pin can control the connection to the corresponding RF channel. At the same time, other RF channels are automatically disconnected. When the High level is applied to the "Reset" pin, all RF channels of the switch are disconnected. Note that applying “High” to multiple 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

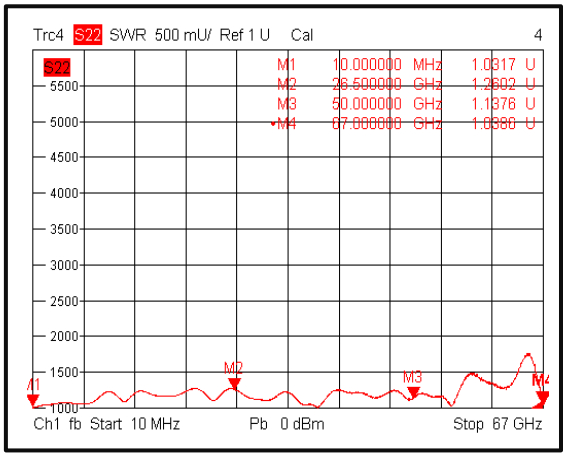
Insertion Loss@+25℃



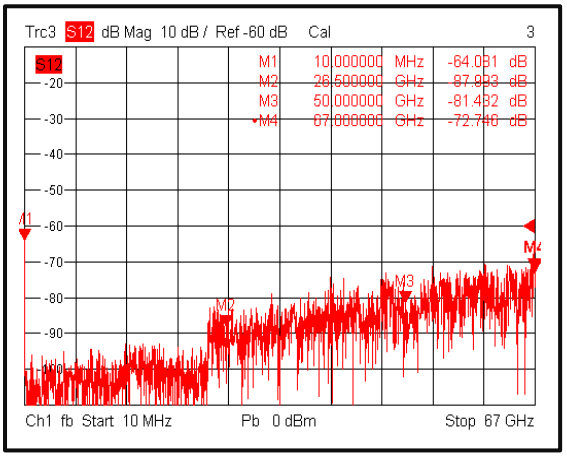
Input VSWR@+25℃



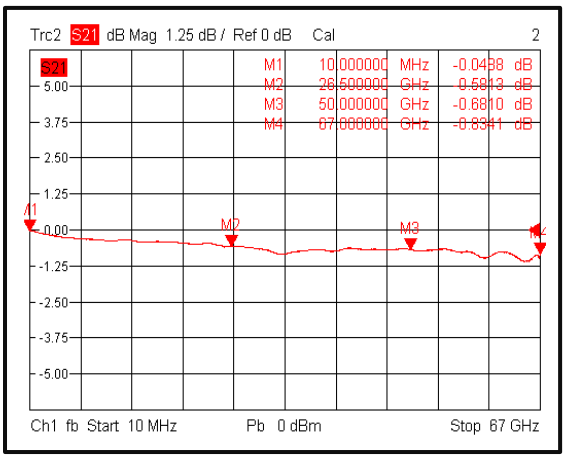
Output VSWR@+25℃



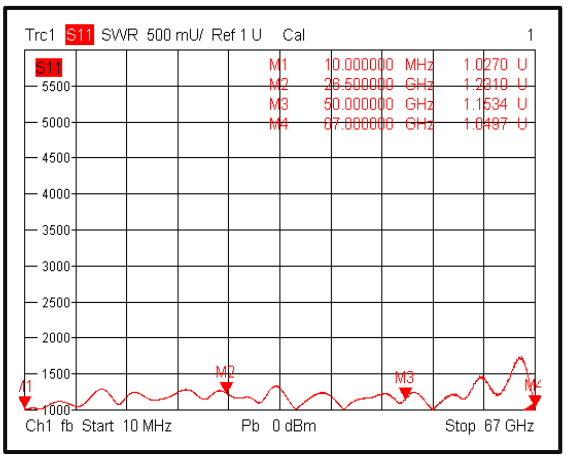
Isolation@+25℃



Insertion Loss @-20℃

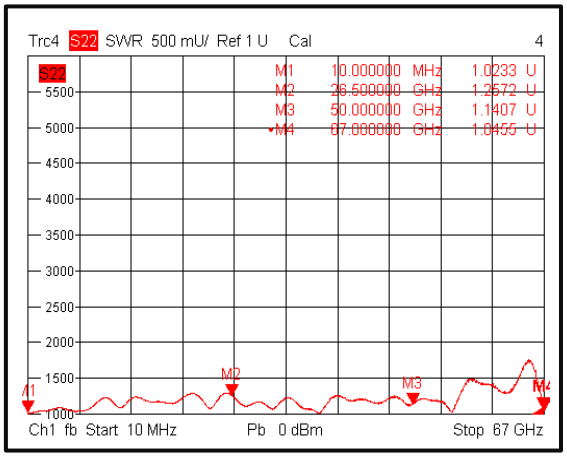


Input VSWR @-20℃

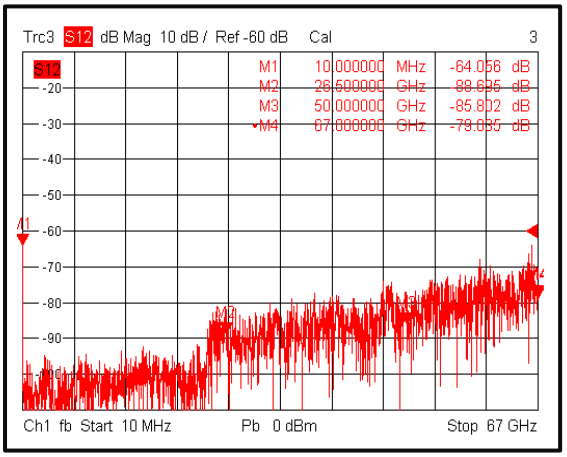


Typical Performance Plots

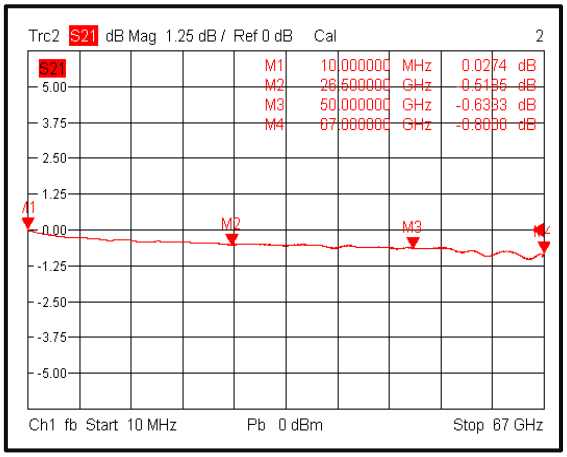
Output VSWR @-20℃



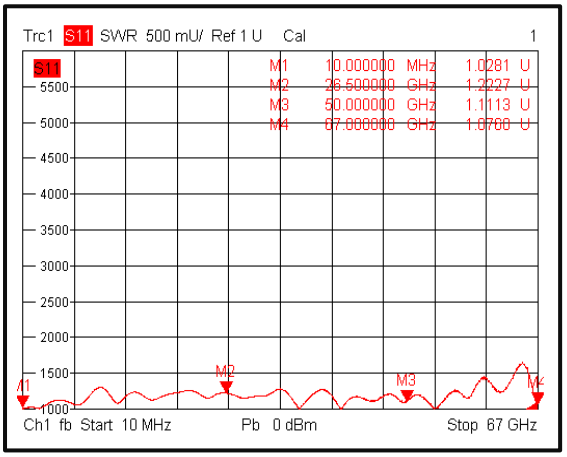
Isolation @-20℃



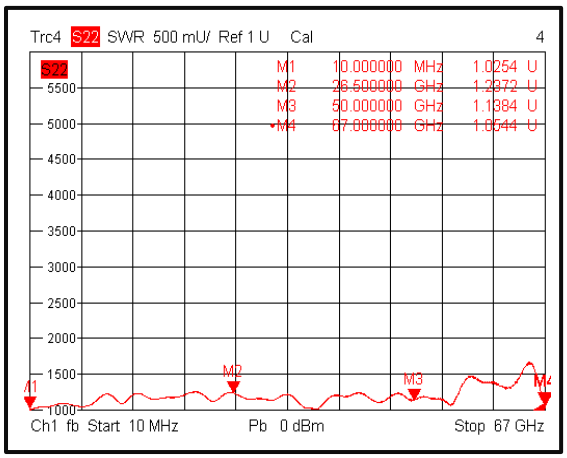
Insertion Loss @+70℃



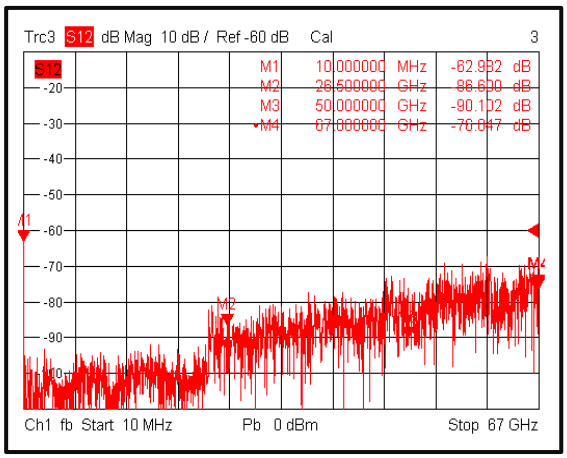
Input VSWR @+70℃



Output VSWR @+70℃

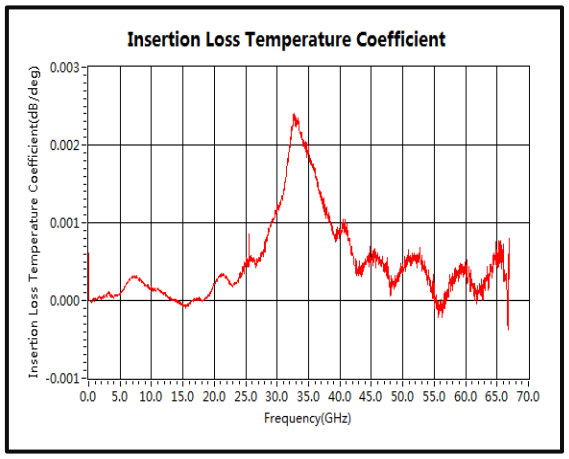


Isolation @+70℃

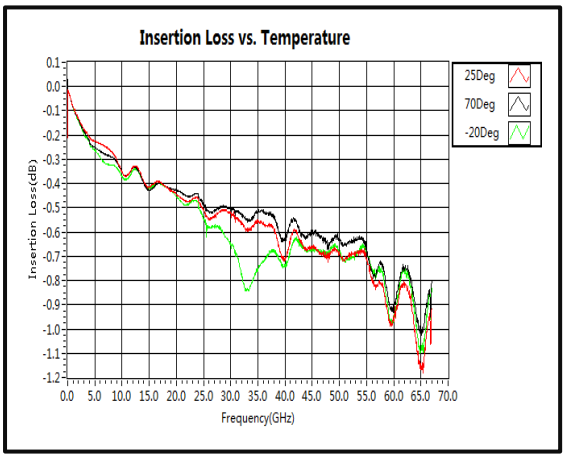


Typical Performance Plots

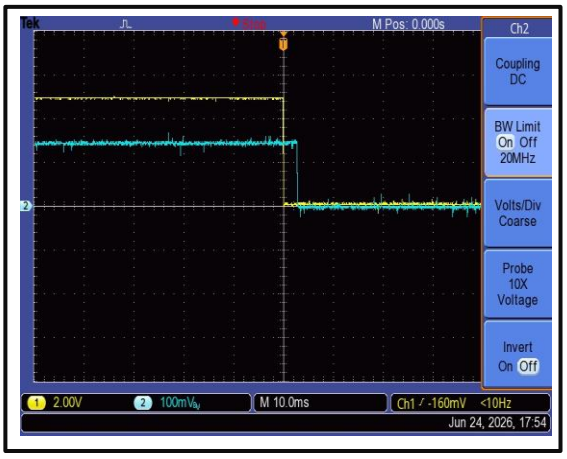
Insertion Loss Temperature Coefficient



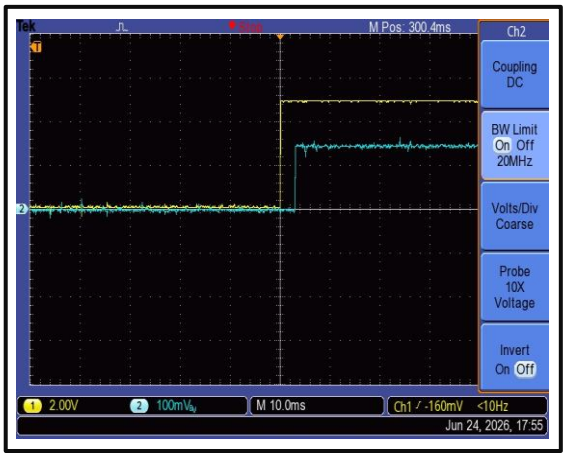
Insertion Loss vs. Temperature



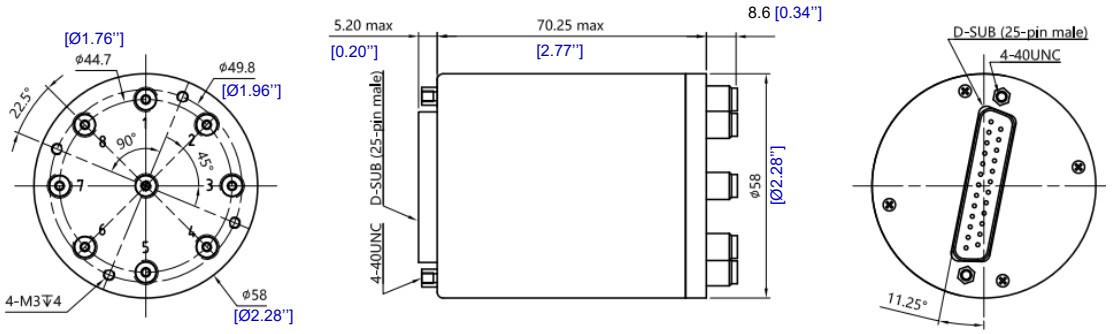
Switching Speed



Switching Speed



Outline Drawing



Notes:
1. Package Material: Aluminum
2. Finish: Black Paint
3. All dimensions are in millimeters [inches].
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
RFSP8T67EMA-T	connectors 1.85mm-Female TTL	DC-67GHz SP8T Electromechanical Switch

Important Notice