Absorptive SP8T Electro-Mechanical Switch
DC - 40GHz

Product Description

RFSP8T40EMA-T is an absorptive SP8T electro-mechanical switch with a frequency range of DC to 40GHz.

The power of this switch is 25W Max. The typical insertion loss is 0.8dB and the Isolation is 60dB with a switching speed of 20ms. 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 0.05dB up to 1 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 – 40		GHz
Insertion Loss	@DC-18GHz			0.6	dB
	@18-26.5GHz			0.8	dB
	@26.5-40GHz			1.0	dB
VSWR	@DC-18GHz			1.4	:1
	@18-26.5GHz			1.6	:1
	@26.5-40GHz			1.8	:1
Isolation	@DC-18GHz	70			dB
	@18-26.5GHz	60			dB
	@26.5-40GHz	60			dB
Input Power	@DC-18GHz			25	W
	@18-26.5GHz			15	W
	@26.5-40GHz			5	W
Switching Speed				20	ms
Life Cycles		1			Million
Repeatability				0.05	dB
Supply Current (VCC=+28VDC)			165		mA
Weight			0.668 Max.		lbs.
Impedance			50		Ohms
Connector			2.92mm-Female		
Control interface			25 core D-SUB pin		
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	26 – 30VDC

Environmental Specifications and Test Standards

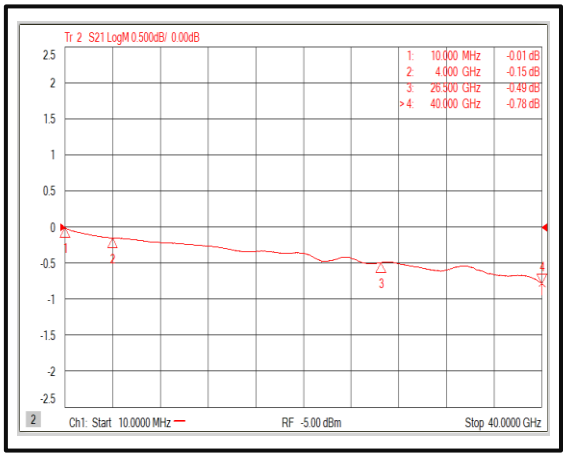
Parameter	Description
Operational Temperature	-20ºC to +70ºC (Case Temperature)
Storage Temperature	-55ºC to +85ºC
Thermal Shock	-40ºC → +85ºC (5 Cycles / 10 hours)
*Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +70ºC for 72 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.

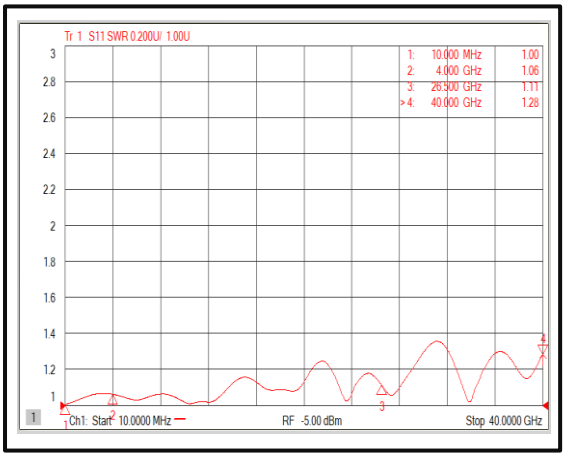
PIN STATUS	VCC	GND	TTL Drive Voltage (High = 2.5 to 5.5V, Low = 0 to 0.8V)							
			TTL1	TTL2	TTL3	TTL4	TTL5	TTL6	TTL7	TTL8
RF to 1	+26~+30V	GND	High	Low	Low	Low	Low	Low	Low	Low
RF to 2			Low	High	Low	Low	Low	Low	Low	Low
RF to 3			Low	Low	High	Low	Low	Low	Low	Low
RF to 4			Low	Low	Low	High	Low	Low	Low	Low
RF to 5			Low	Low	Low	Low	High	Low	Low	Low
RF to 6			Low	Low	Low	Low	Low	High	Low	Low
RF to 7			Low	Low	Low	Low	Low	Low	High	Low
RF to 8			Low	Low	Low	Low	Low	Low	Low	High

Typical Performance Plots

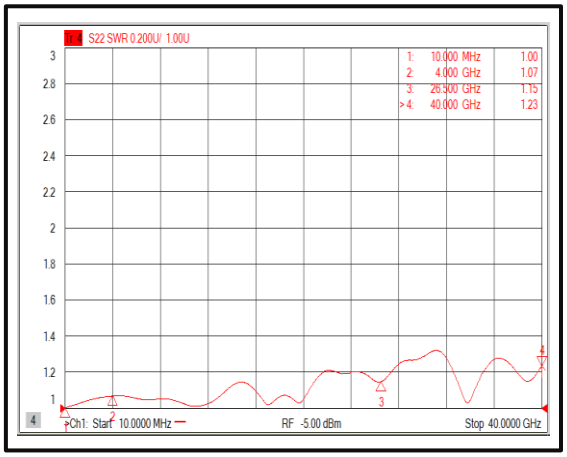
Insertion Loss@+25℃



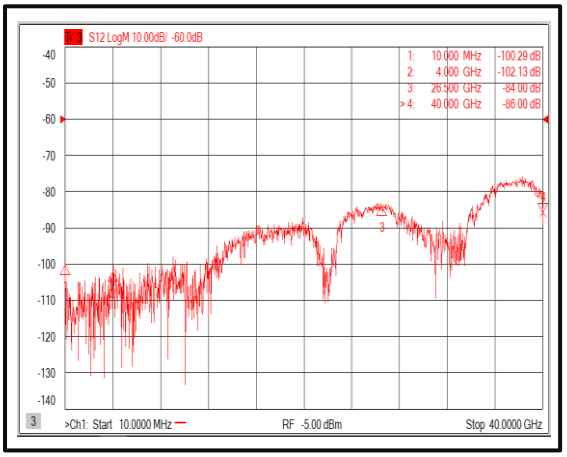
Input VSWR@+25℃



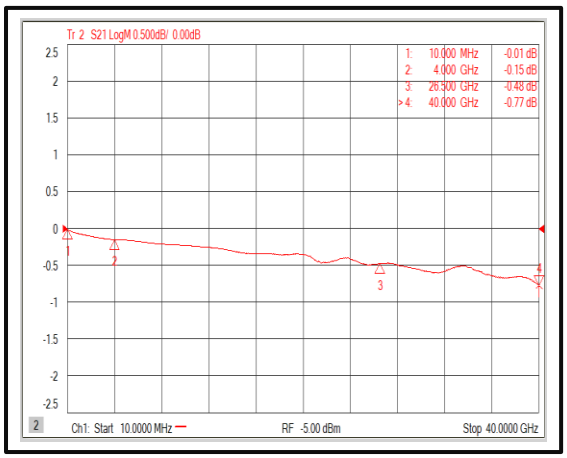
Output VSWR@+25℃



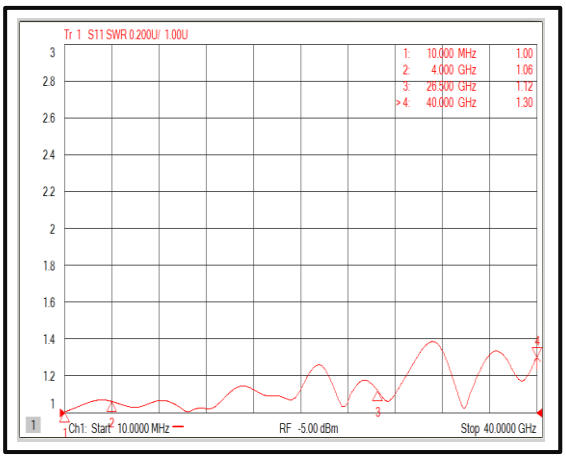
Isolation@+25℃



Insertion Loss @-20℃

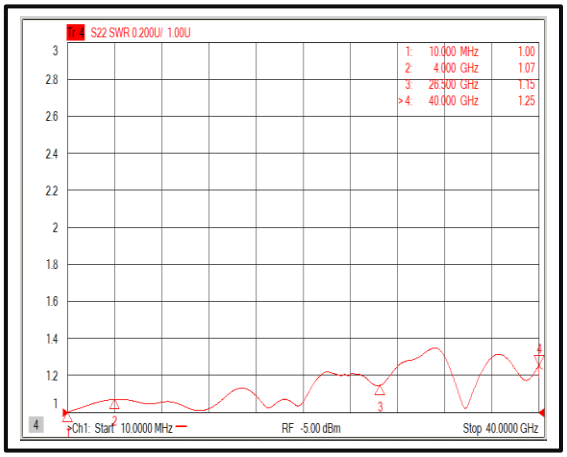


Input VSWR @-20℃

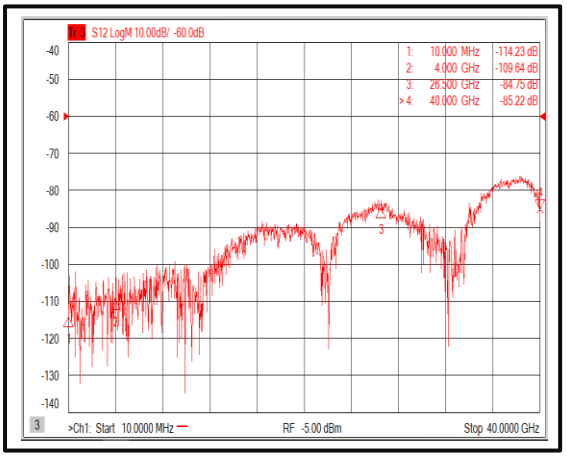


Typical Performance Plots

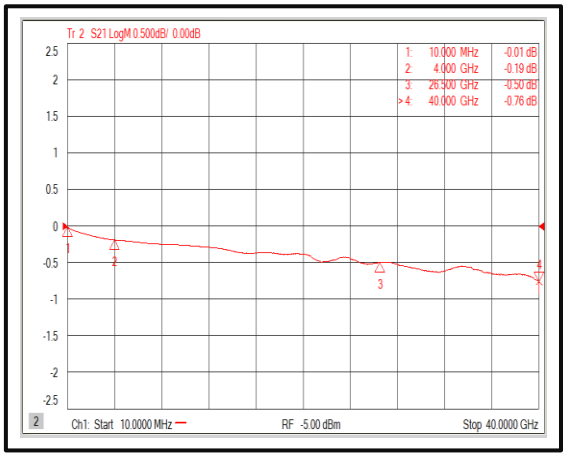
Output VSWR @-20℃



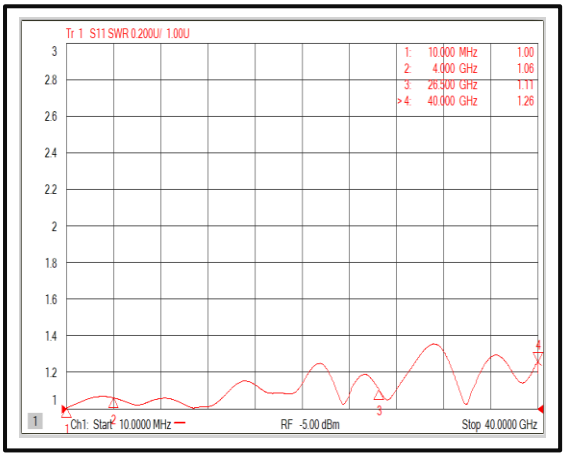
Isolation @-20℃



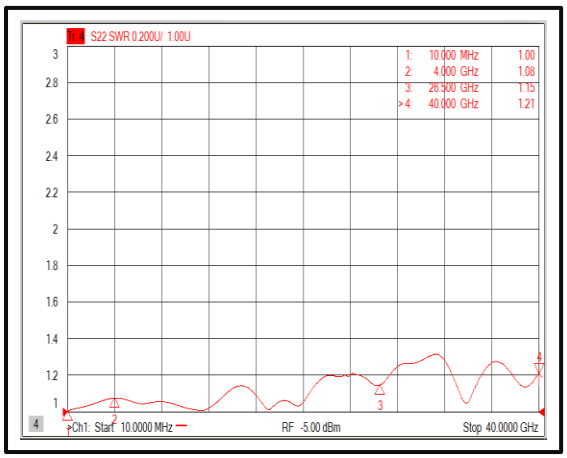
Insertion Loss @+70℃



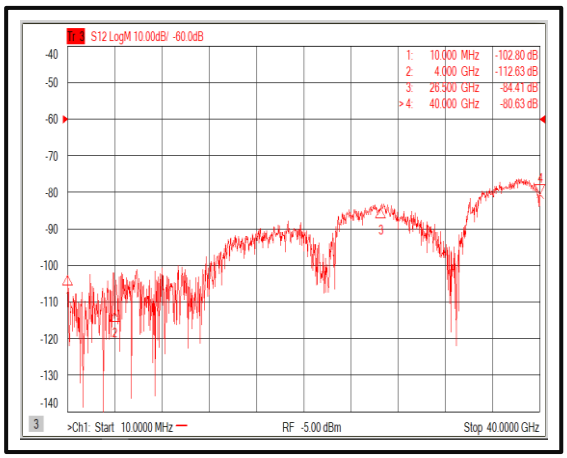
Input VSWR @+70℃



Output VSWR @+70℃

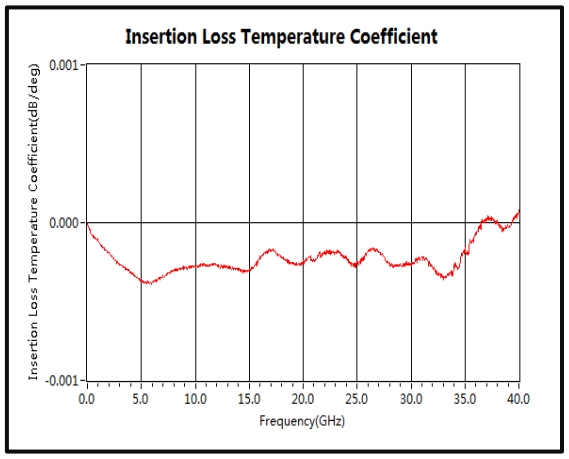


Isolation @+70℃

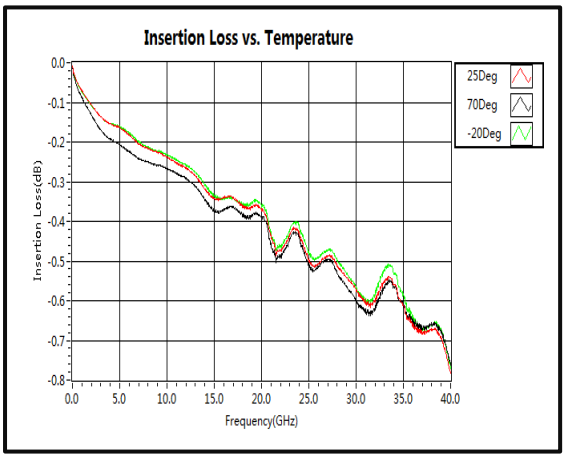


Typical Performance Plots

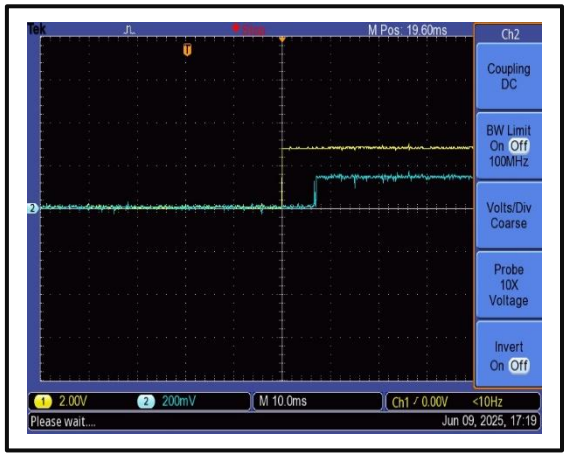
Insertion Loss Temperature Coefficient



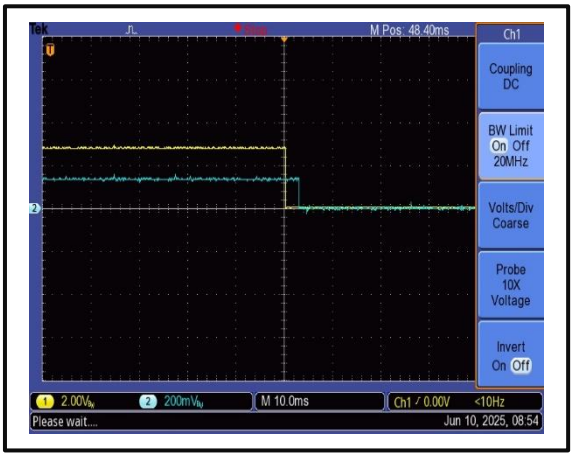
Insertion Loss vs. Temperature



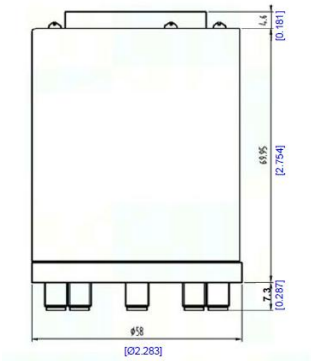
Switching Speed

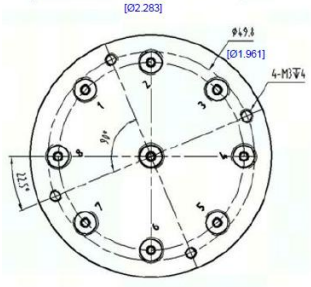


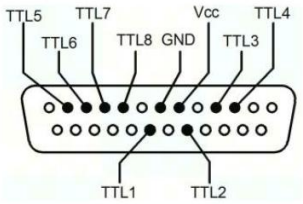
Switching Speed



Outline Drawing







VCC: +28V
GND: Ground
TTL1~TTL8: Control Pins
Other Pins: No Connect

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
RFSP8T40EMA-T	connectors 2.92mm-Female TTL	DC-40GHz SP8T Electromechanical Switch

Important Notice

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