

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°C and + 70°C .

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=+25°C)

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)		

Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	26 – 30VDC

Environmental Specifications and Test Standards

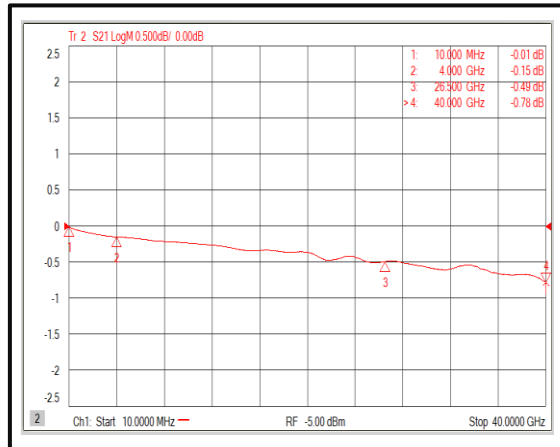
Parameter	Description
Operational Temperature	-20°C to +70°C (Case Temperature)
Storage Temperature	-55°C to +85°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
*Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +70°C for 72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

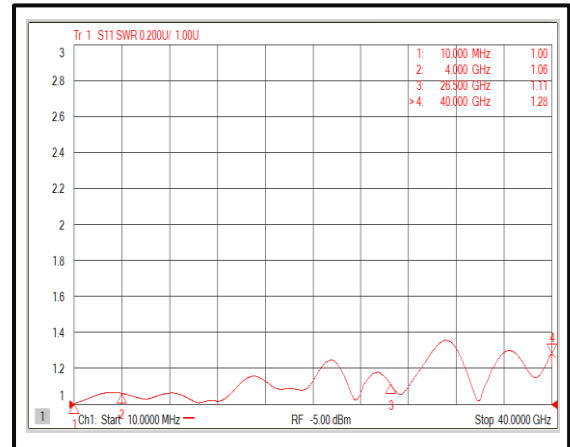
STATUS	PIN	VCC	GND	TTL Drive Voltage (High = 2.5 to 5.5V, Low = 0 to 0.8V)							
				TTL1	TTL2	TTL3	TTL4	TTL5	TTL6	TTL7	TTL8
RF to 1				High	Low	Low	Low	Low	Low	Low	Low
RF to 2				Low	High	Low	Low	Low	Low	Low	Low
RF to 3				Low	Low	High	Low	Low	Low	Low	Low
RF to 4		+26~+30V	GND	Low	Low	Low	High	Low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

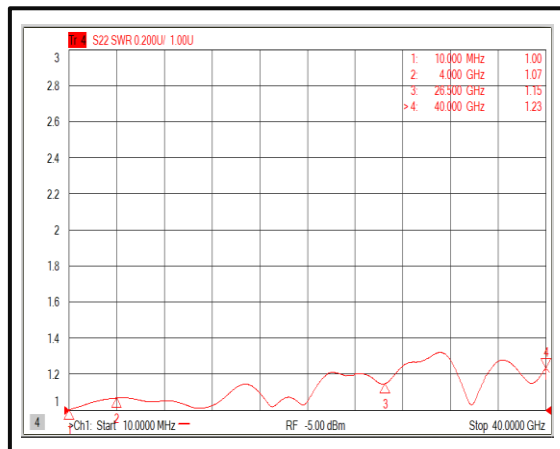
Insertion Loss@+25°C



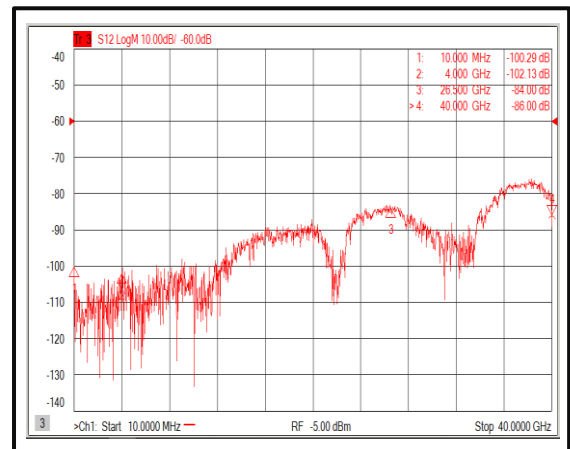
Input VSWR@+25°C



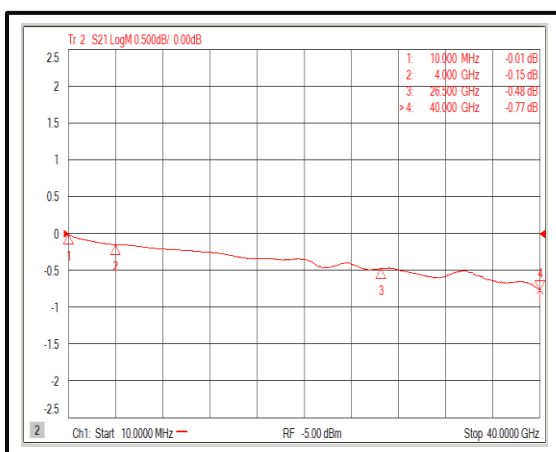
Output VSWR@+25°C



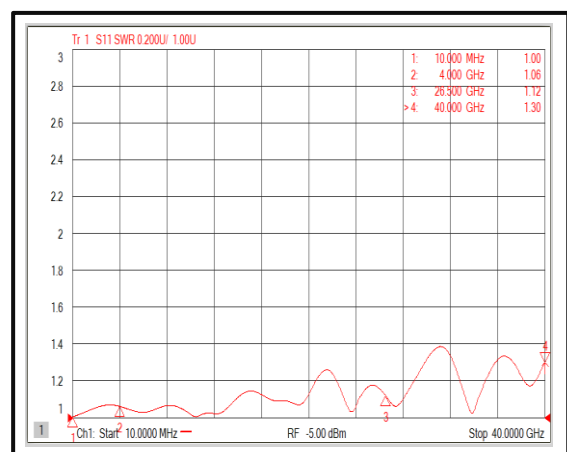
Isolation@+25°C



Insertion Loss @-20°C

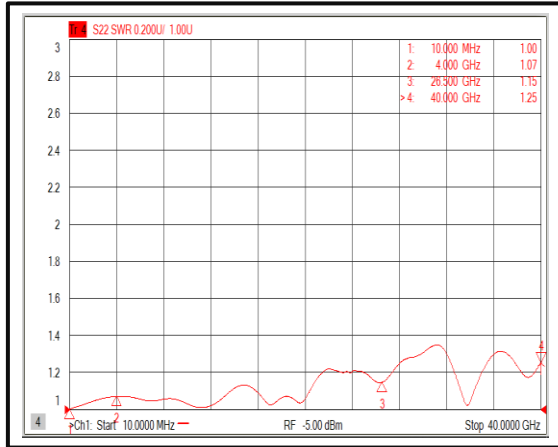


Input VSWR @-20°C

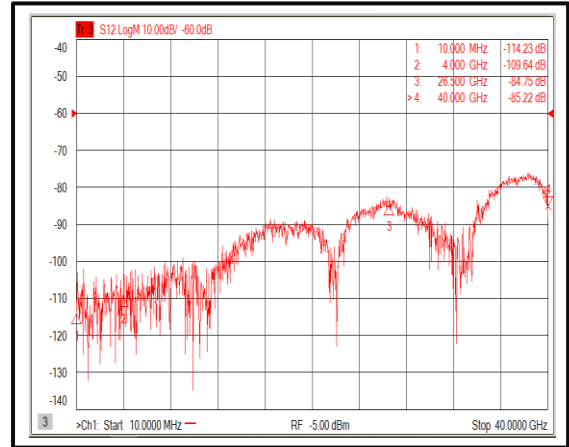


Typical Performance Plots

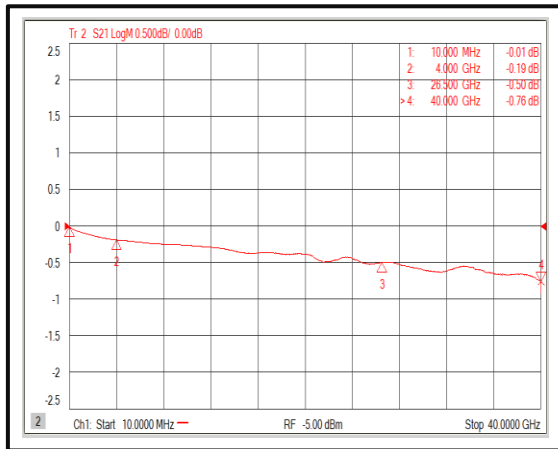
Output VSWR @-20°C



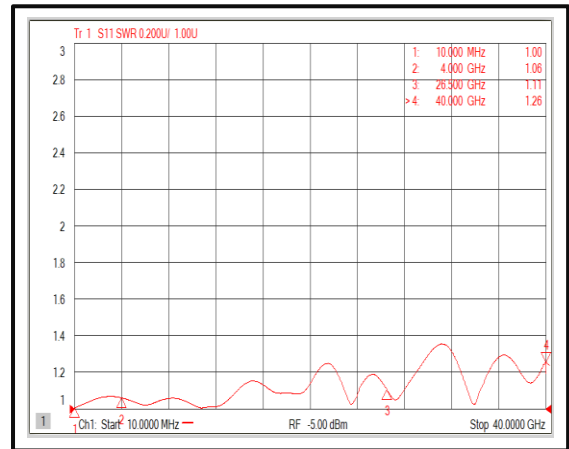
Isolation @-20°C



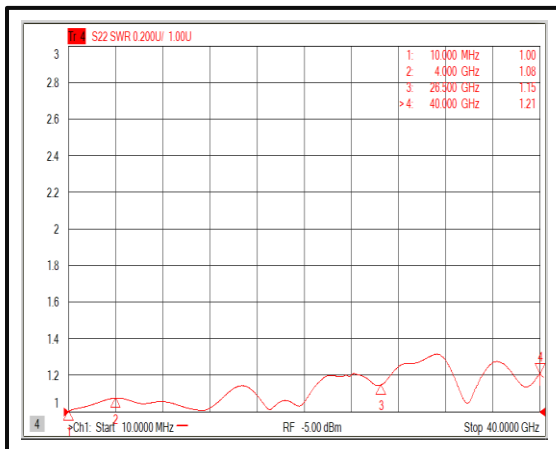
Insertion Loss @+70°C



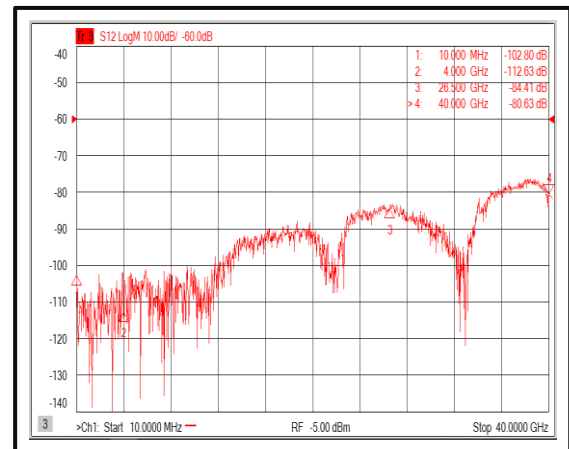
Input VSWR @+70°C



Output VSWR @+70°C

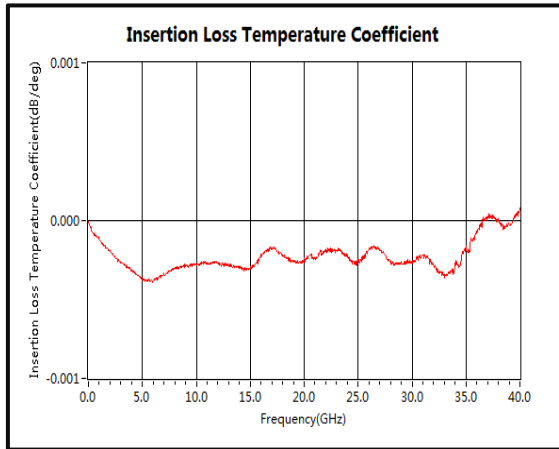


Isolation @+70°C

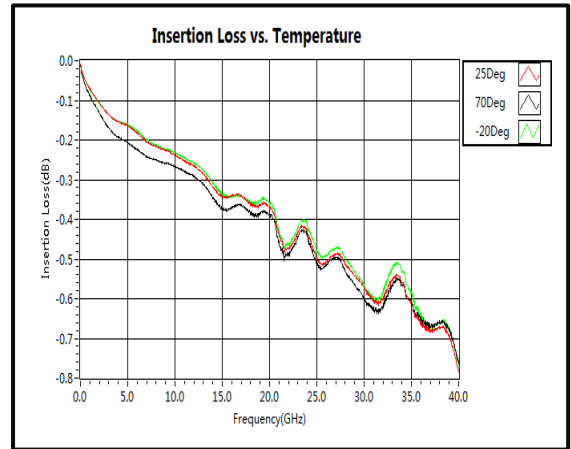


Typical Performance Plots

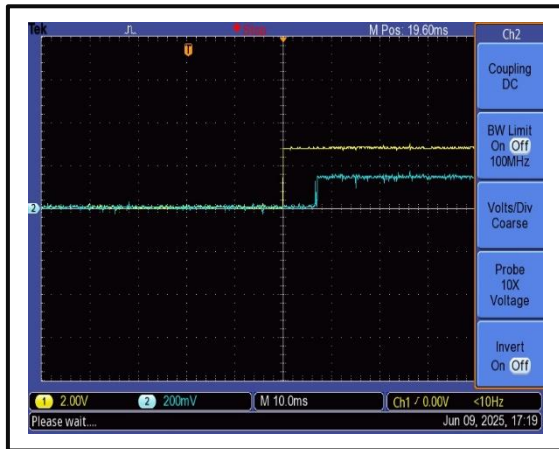
Insertion Loss Temperature Coefficient



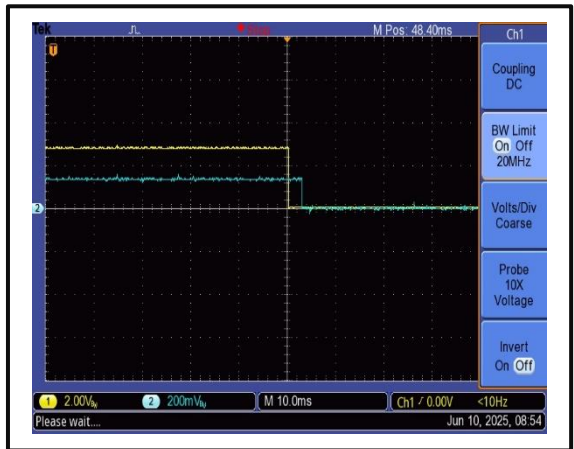
Insertion Loss vs. Temperature



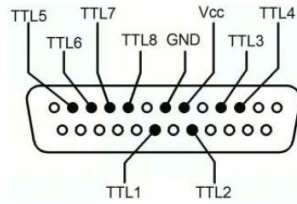
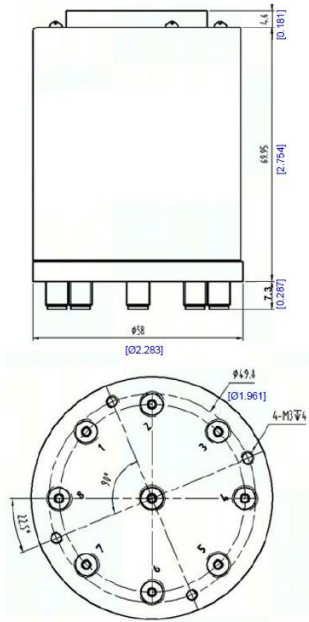
Switching Speed



Switching Speed



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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