

Absorptive SP6T Electro-Mechanical Switch DC-67GHz



Product Description

RFSP6T67EMA-T is an absorptive SP6T electro-mechanical switch with a frequency range of DC to 67GHz.

The power of this switch is 1W Max. The typical insertion loss is 0.8dB and the isolation is 70 dB with a switching speed of 20ms. This electromechanical switch works with a +24 VDC power supply.

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

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 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=+25°C)

Parameter	Min	Typ	Max	Units
Frequency Range		DC – 67		GHz
Insertion Loss	@DC-10GHz		0.4	dB
	@10-20GHz		0.8	dB
	@20-50GHz		1.8	dB
	@50-67GHz		2.1	dB
VSWR	@DC-10GHz		1.3	:1
	@10-20GHz		1.6	:1
	@20-50GHz		2.3	:1
	@50-67GHz		2.3	:1
Isolation	@DC-10GHz		80	dB
	@10-20GHz		70	dB
	@20-50GHz		70	dB
	@50-67GHz		60	dB
Input Power			1	W
Switching Speed		20		ms
Life Cycles		1		Million
Repeatability			0.05	dB
Supply Current (VCC=+24VDC)		0.24		A
Weight		0.5 Max		lbs.
Impedance		50		Ohms
Connector		1.85mm-Female		
Actuator Type		Latching		
Contact		Break Before Make		
Control		TTL		
Package		Epoxy Sealed (Standard)		
		Hermetically Sealed (Optional)		

Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	22 – 28VDC

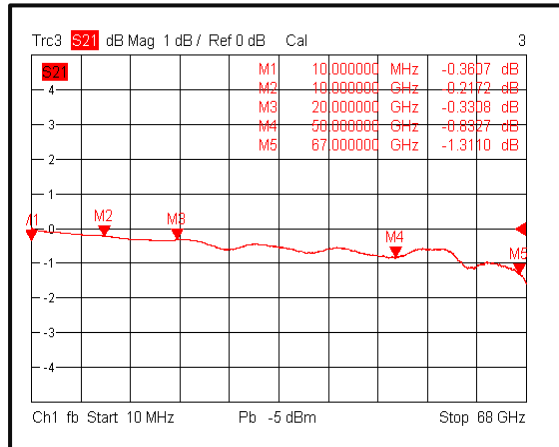
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-20°C to +70°C (Case Temperature)
Storage Temperature	-50°C to +85°C
Thermal Shock	-40°C → +70°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)

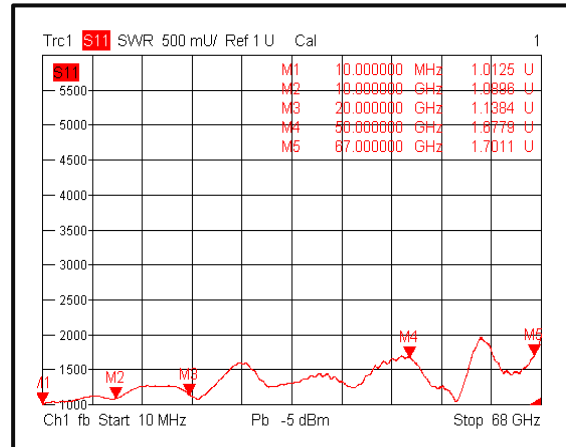
*For vibration testing details please see additional information section.

Typical Performance Plots

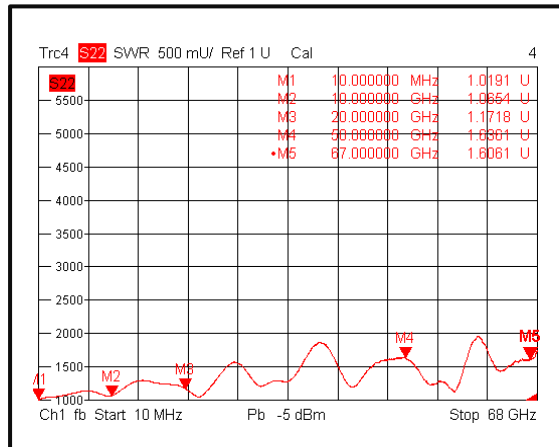
Insertion Loss@+25°C



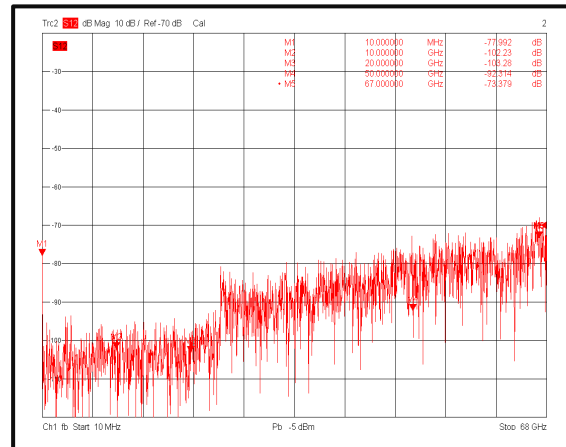
Input VSWR@+25°C



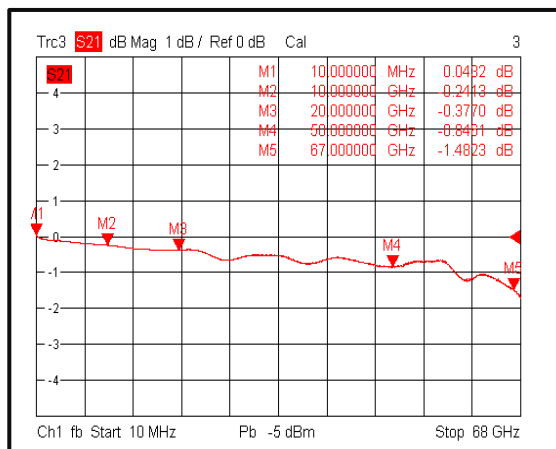
Output VSWR@+25°C



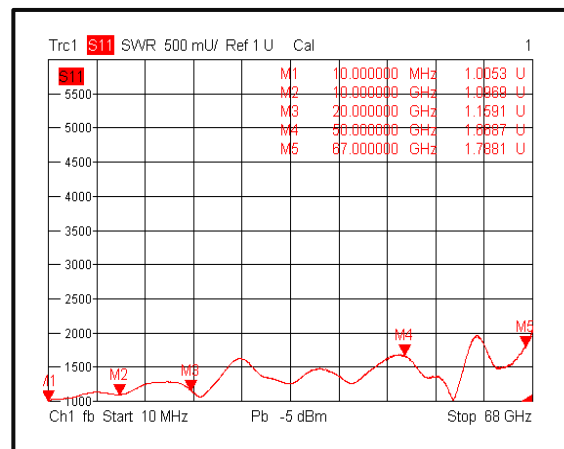
Isolation@+25°C



Insertion Loss @-25°C

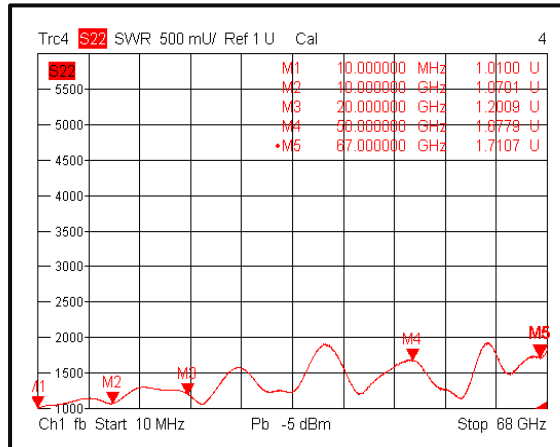


Input VSWR @-25°C

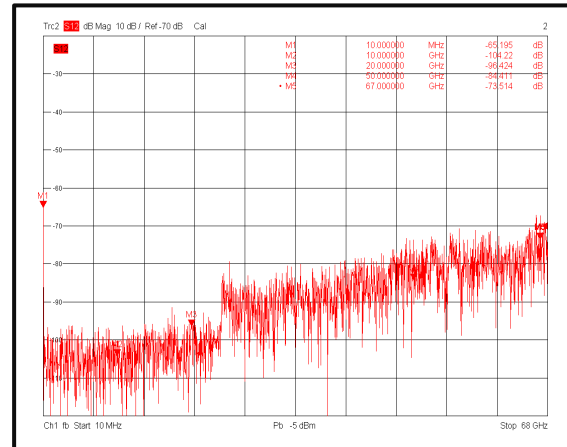


Typical Performance Plots

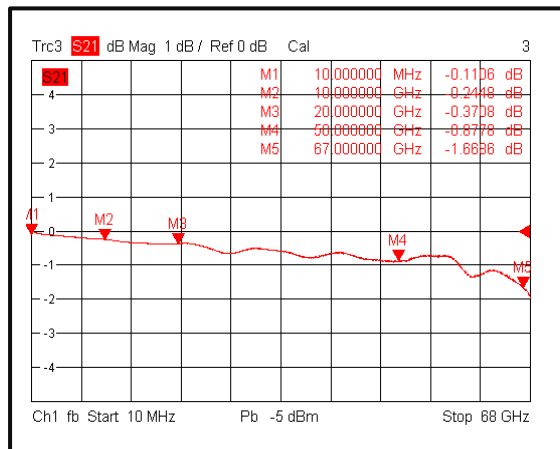
Output VSWR @-25°C



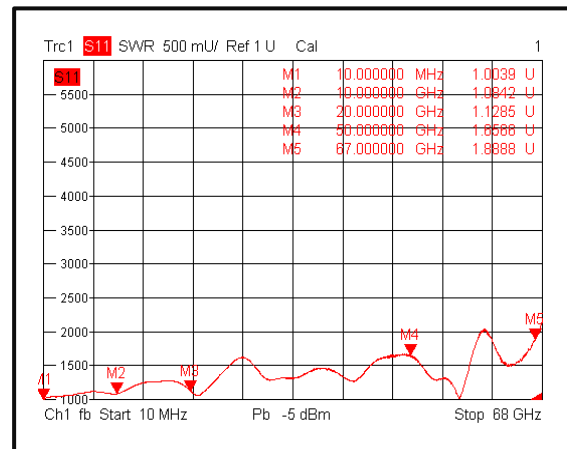
Isolation @-25°C



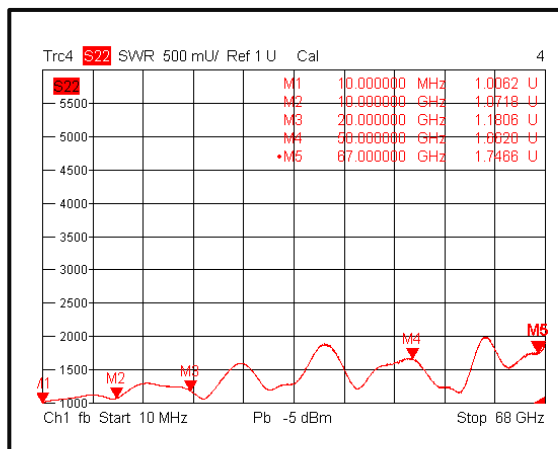
Insertion Loss @+70°C



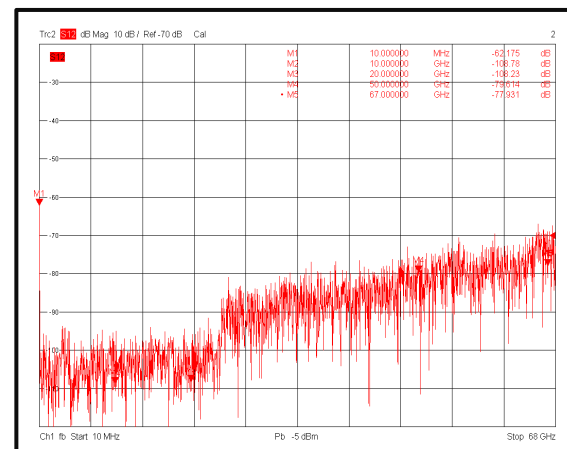
Input VSWR @+70°C



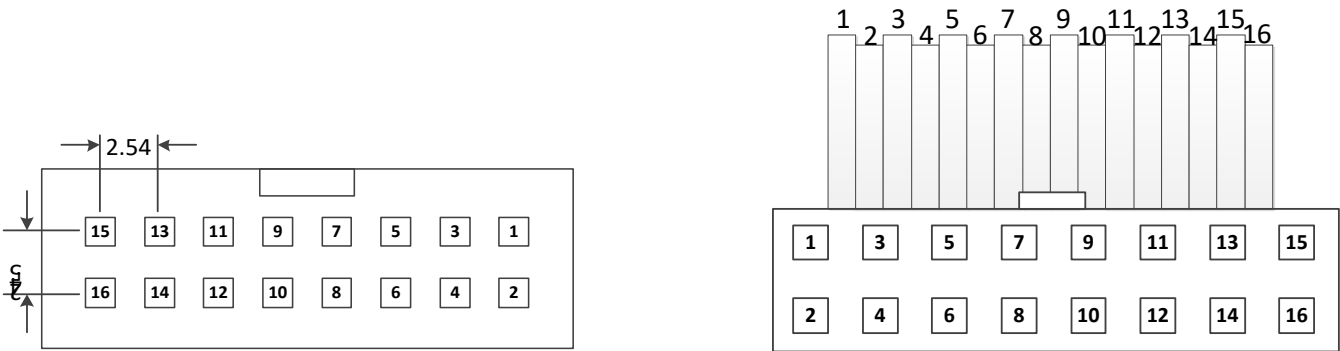
Output VSWR @+70°C



Isolation @+70°C



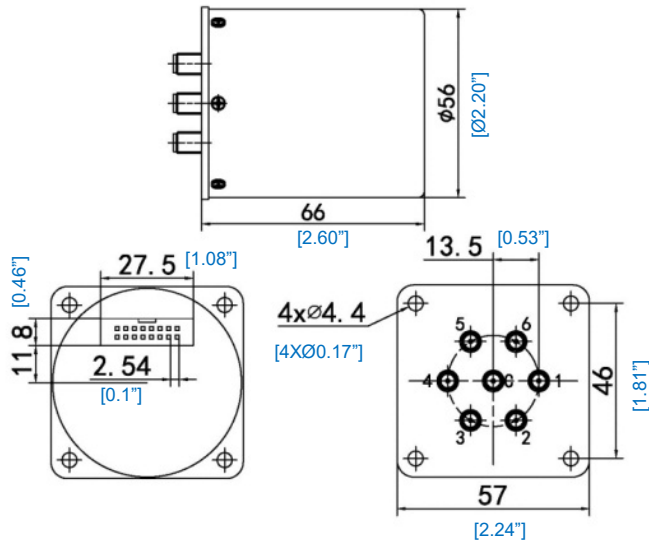
Control Port



Drive type

TTL Drive Voltage (High = 2.5 to 5.5V, Low = 0 to 0.8V)									
STATUS	Pin1	Pin 3	Pin 5	Pin 7	Pin 9	Pin 11	Pin13	Pin15	Pin16
RF to 1	VCC	High	Low	Low	Low	Low	Low	GND	Low
RF to 2	VCC	Low	High	Low	Low	Low	Low	GND	Low
RF to 3	VCC	Low	Low	High	Low	Low	Low	GND	Low
RF to 4	VCC	Low	Low	Low	High	Low	Low	GND	Low
RF to 5	VCC	Low	Low	Low	Low	High	Low	GND	Low
RF to 6	VCC	Low	Low	Low	Low	Low	High	GND	Low
Reset	VCC	Low	Low	Low	Low	Low	Low	Low	High

Outline Drawing



- Notes:
1. Package Material: Aluminum
 2. Finish: Black
 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
RFSP6T67EMA-T	connectors 1.85mm-Female TTL	DC-67GHz SP6T Electromechanical Switch

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