SPDT Absorptive Electromechanical Switch DC–90GHz

Note: The photo is for illustration purposes only.
Please refer to outline drawing.

Product Description

RFSPDT90EMC-T12 is a absorptive electromechanical switch with a frequency range of DC to 90GHz.

The power handling of this switch is 1W max. The typical insertion loss is 0.8dB and the isolation is 70dB with the speed of 20ms. This electromechanical switch works with a +12VDC power supply.

The electromechanical switch's connectors are 1.0mm-Female.
The operating temperature of this product is from -20 to +70ºC.

Features

- Reflective Electromechanical Switch
- SPDT configuration
- Magnetic latching
- Operating life of 0.5 million cycles
- Guaranteed repeatability of 0.1dB up to 0.5 million cycle
- TTL Drive Compatible
- Supply Voltage +12VDC
- Insertion Loss +0.8dB
- Isolation 70dB
- 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		90	GHz
Insertion Loss	@DC-10GHz			0.4	dB
	@10-20GHz			0.8	dB
	@20-67GHz			1.5	dB
	@67-90GHz			2.5	dB
VSWR	@DC-10GHz			2.0	:1
	@10-20GHz			2.0	:1
	@20-67GHz			2.5	:1
	@67-90GHz			2.5	:1
Isolation	@DC-10GHz	80			dB
	@10-20GHz	70			dB
	@20-67GHz	60			dB
	@67-90GHz	55			dB
Input Power (CW)				1	W
Swtiching Speed				20	ms
Life Cycles		0.5			Million
Repeatability				0.1	dB
Supply Current (VCC=+12VDC)			800		mA
Impedance			50		Ohms
Connector			1mm-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	10 – 15VDC

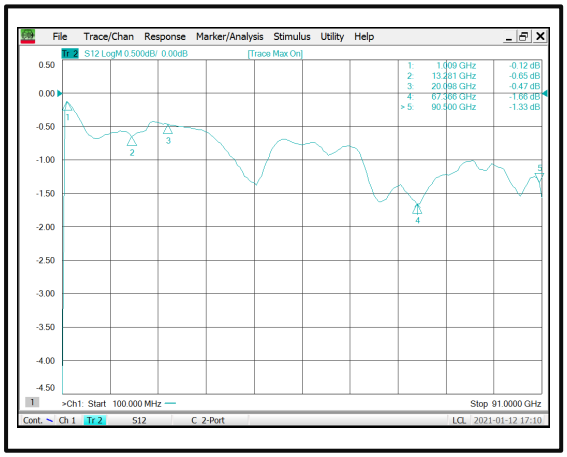
Environmental Specifications and Test Standards

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 +85ºC 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)

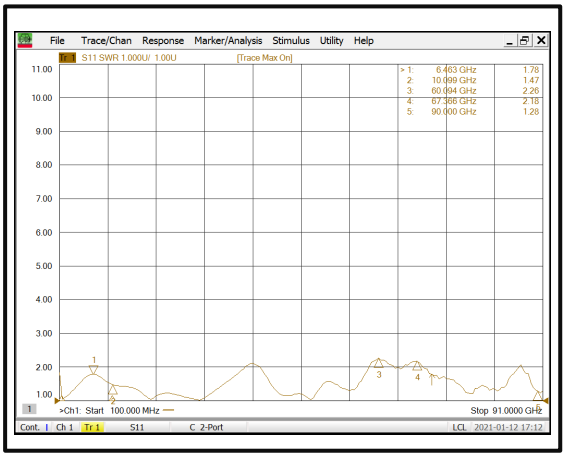
*For vibration testing details please see additional information section.

Typical Performance Plots

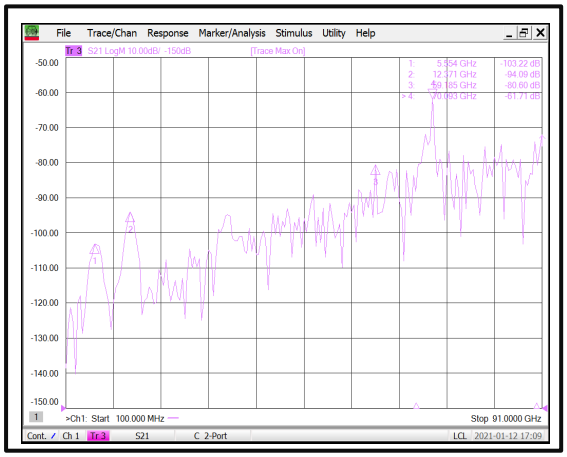
Insertion Loss



VSWR



Isolation



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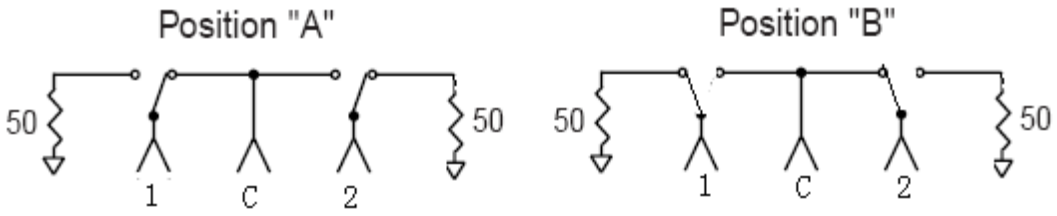
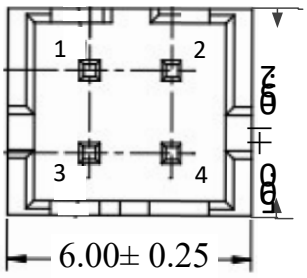
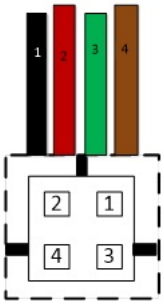
Control Method



Pin Descriptions

Pin 1 connect ground, Pin 2 connect +12V, Pin3 and Pin4 are control pins.





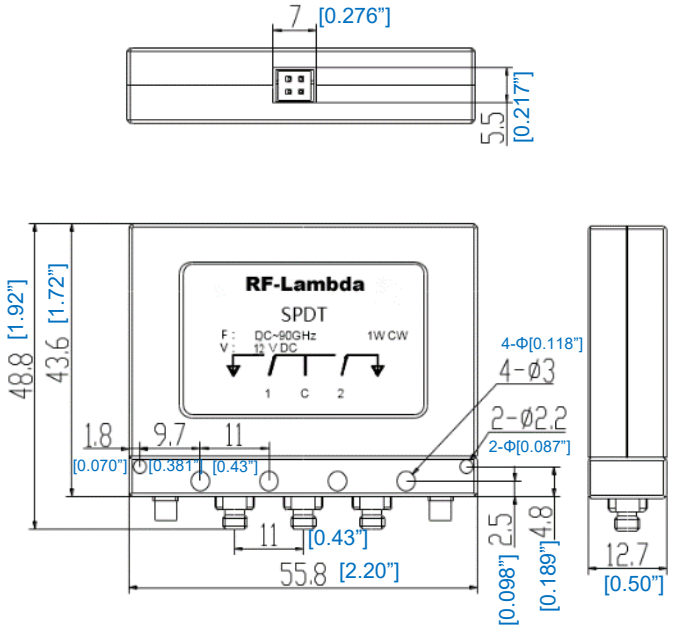
Switch Control Cable

Pin		TTL（3～5.5V）		RF Channel
Pin1	Pin2	Pin3	Pin4	
Ground	+12V	HIGH	LOW	PositionB（C↔2）
Ground	+12V	LOW	HIGH	PositionA（C↔1）
Ground	+12V	LOW	LOW	Holding
Ground	+12V	HIGH	HIGH	Forbid

Notes:

- HIGH:+3.3V(+3V~+5.5V).
- LOW:0V(0V~+0.8V).

Outline Drawing



Notes:
1. Package Material: Aluminum
2. Finsh: Oxidized
3. All dimensions are in millimeters [inches].
4. Tolerances ±0.2 [0.008] 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
RFSPDT90EMC-T12	1.0mm-Female	DC-90GHz SPDT Electromechanical Switch

Important Notice

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