

## SPDT Absorptive Electro-Mechanical Switch DC-40GHz



### Features

- SPDT 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 20GHz
- Terminated ports
- TTL/5V CMOS compatible (optional)

### Description

RF-Lambda's multiport switch offers low insertion loss and high isolation, which is necessary for high performance test systems. The repeatability and reliability of this switch is vital to ATS measurement accuracy and can cut the cost of ownership by reducing calibration cycles.

Our electro-mechanical switches are made through RF-Lambda's rigorous design and tight manufacturing specifications.

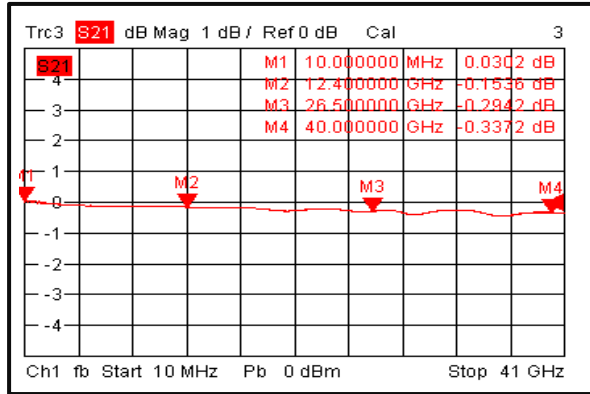
Part Number	description	Typ	Low Freq (GHz)	High Freq (GHz)	Max Power Input(Watts)
RFSPDT40EMC-T	Absorptive Electromechanical Switches	SPDT	DC	40	1
Insert. Loss (dB)	VSWR (Max:1)	Isolation (dB)	Actuator Type	Switching Speed (ms Max)	Contact
0.4(DC~10GHz) 0.8 (10~20GHz) 1.0(20~40GHz)	1.3(DC~10 GHz) 1.5(10~20GHz) 1.8(20~40GHz)	80(DC~10GHz) 70(10~20GHz) 60(20~40GHz)	Latching Holding reflection	20	Break Before Make
Repeatability (dB) max.	Life Cycle	Connector	Biasing (VDC)	Current (mA DC)	Control
0.05	1,000,000	2.92mm (Female)	+24V (22-28V)	240mA dc (200-300mA DC)	TTL type

*Environmental Specifications and Test Standards*

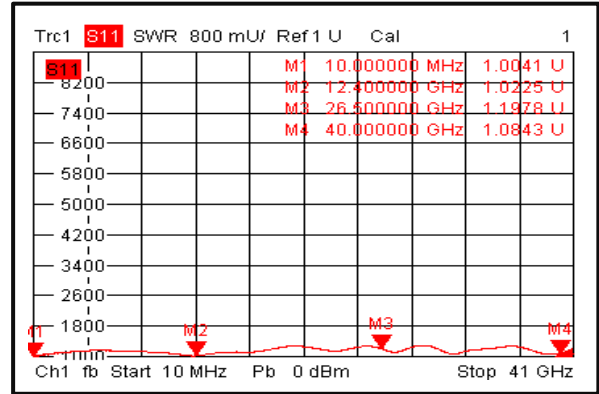
Parameter	Description
Operational Temperature	-25°C~+75°C (Case Temperature)
Storage Temperature	-55°C~+85°C
Thermal Shock	-25°C → +75°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +75°C for 72 Hours
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)

**Typical Performance Plots**

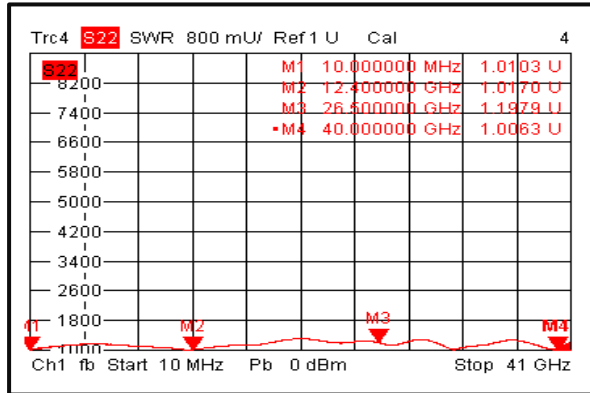
**Insertion Loss@+25°C**



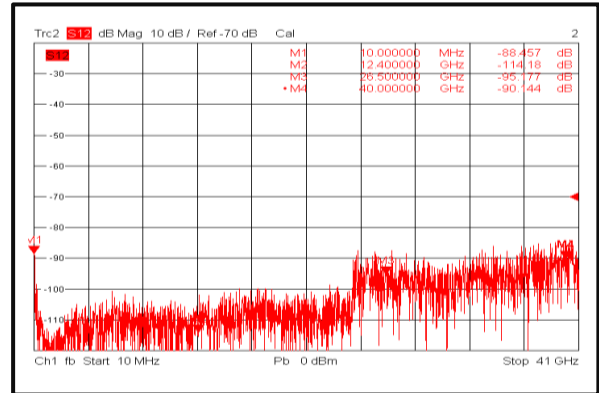
**Input VSWR@+25°C**



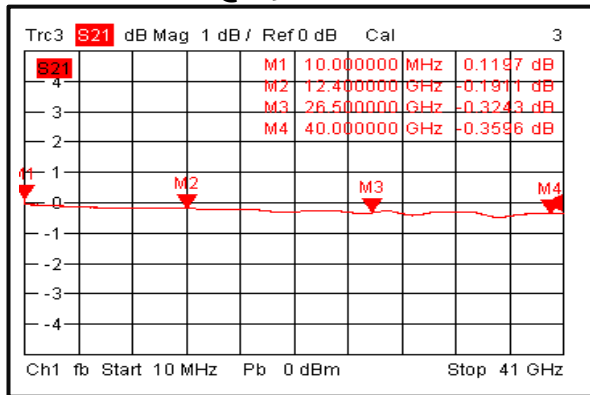
**Output VSWR@+25°C**



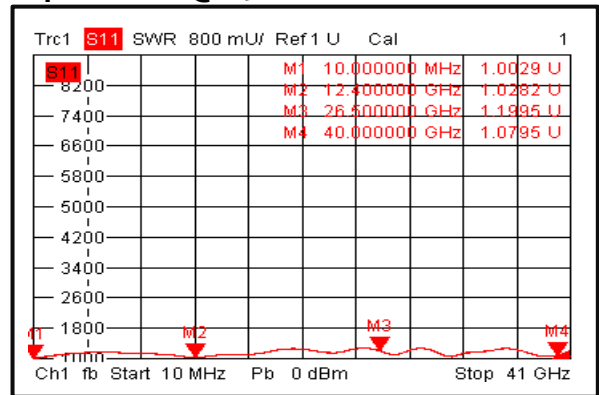
**Isolation@+25°C**



**Insertion Loss @-25°C**

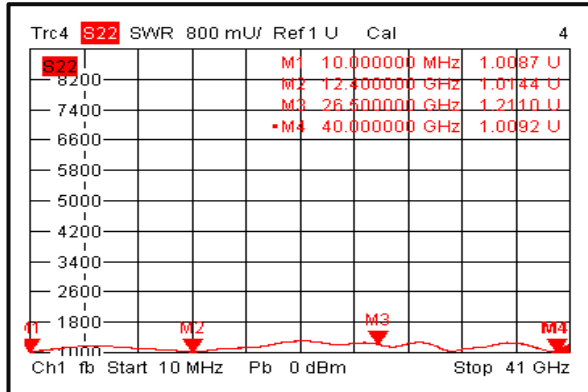


**Input VSWR @-25°C**

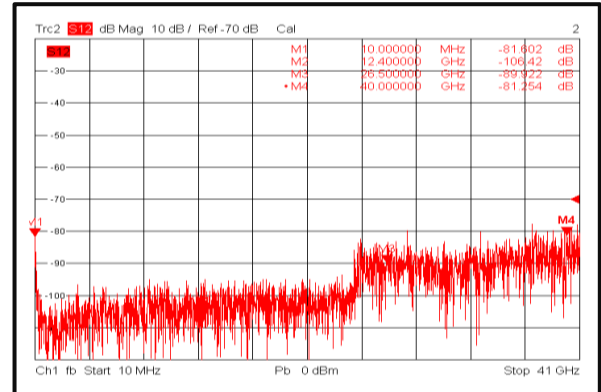


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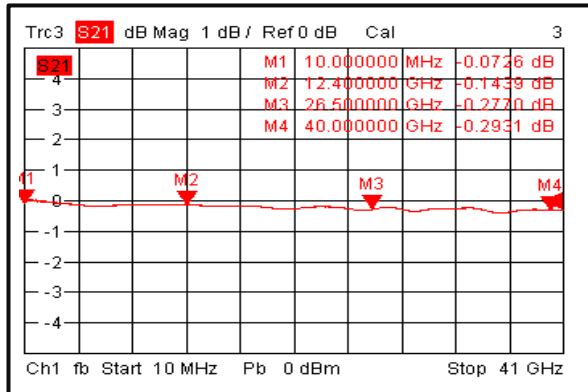
**Output VSWR @-25°C**



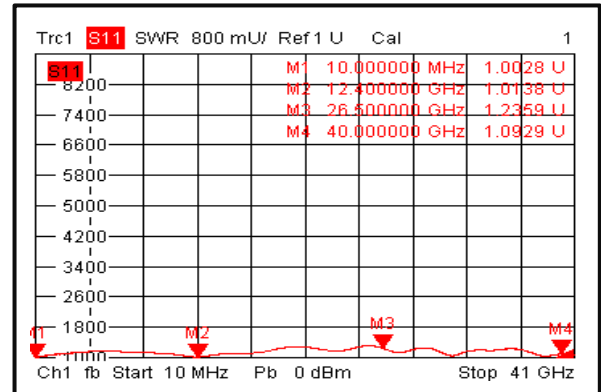
**Isolation @-25°C**



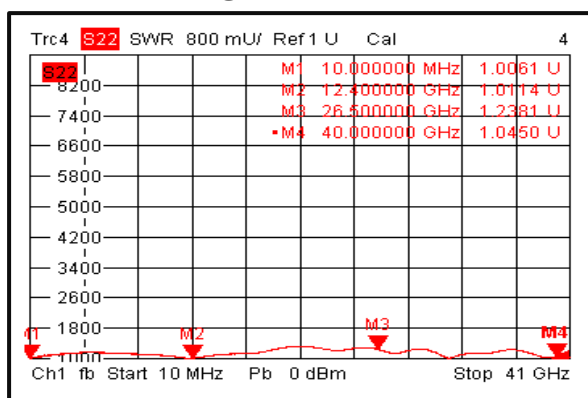
**Insertion Loss @+75°C**



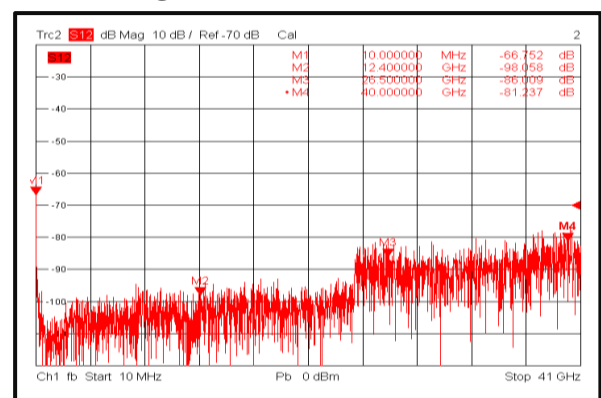
**Input VSWR @+75°C**



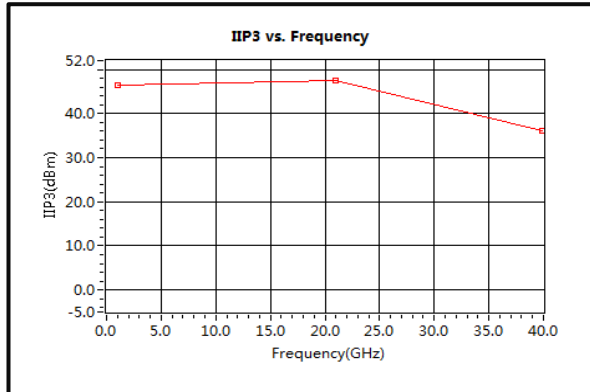
**Output VSWR @+75°C**



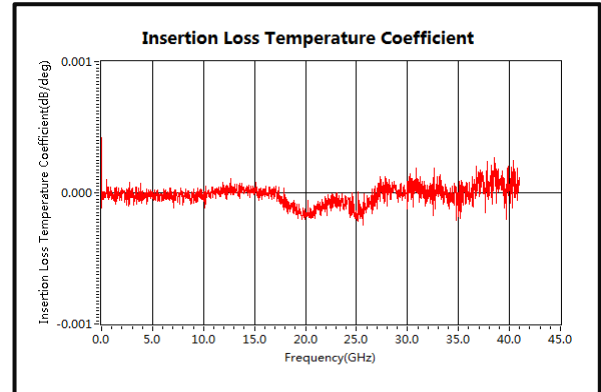
**Isolation @+75°C**



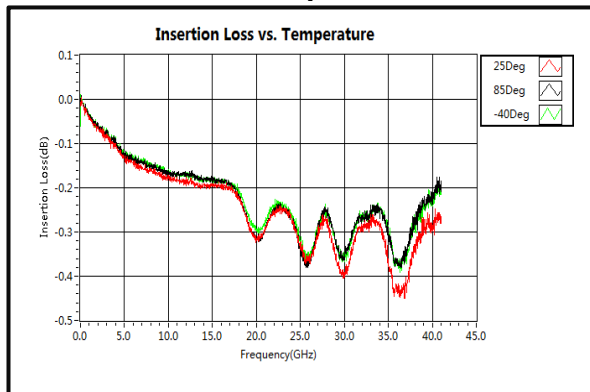
**IIP3**



**Insertion Loss Temperature Coefficient**

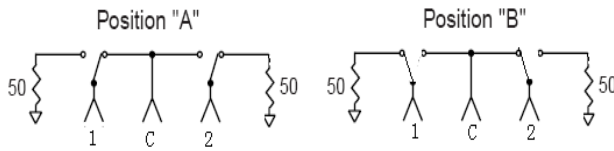


**Insertion Loss vs. Temperature**

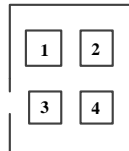


**SPDT Absorptive Electro-Mechanical Switch DC-40GHz**

**Functional Diagram:**



**Pin Descriptions:**



PIN 1 connect the ground, PIN 2 connect +24V, PIN3 and PIN4 are control PINS.

	PIN1	PIN2	PIN3	PIN4
Position A	GND	+24V	Open	TTL
Position B	GND	+24V	TTL	Open

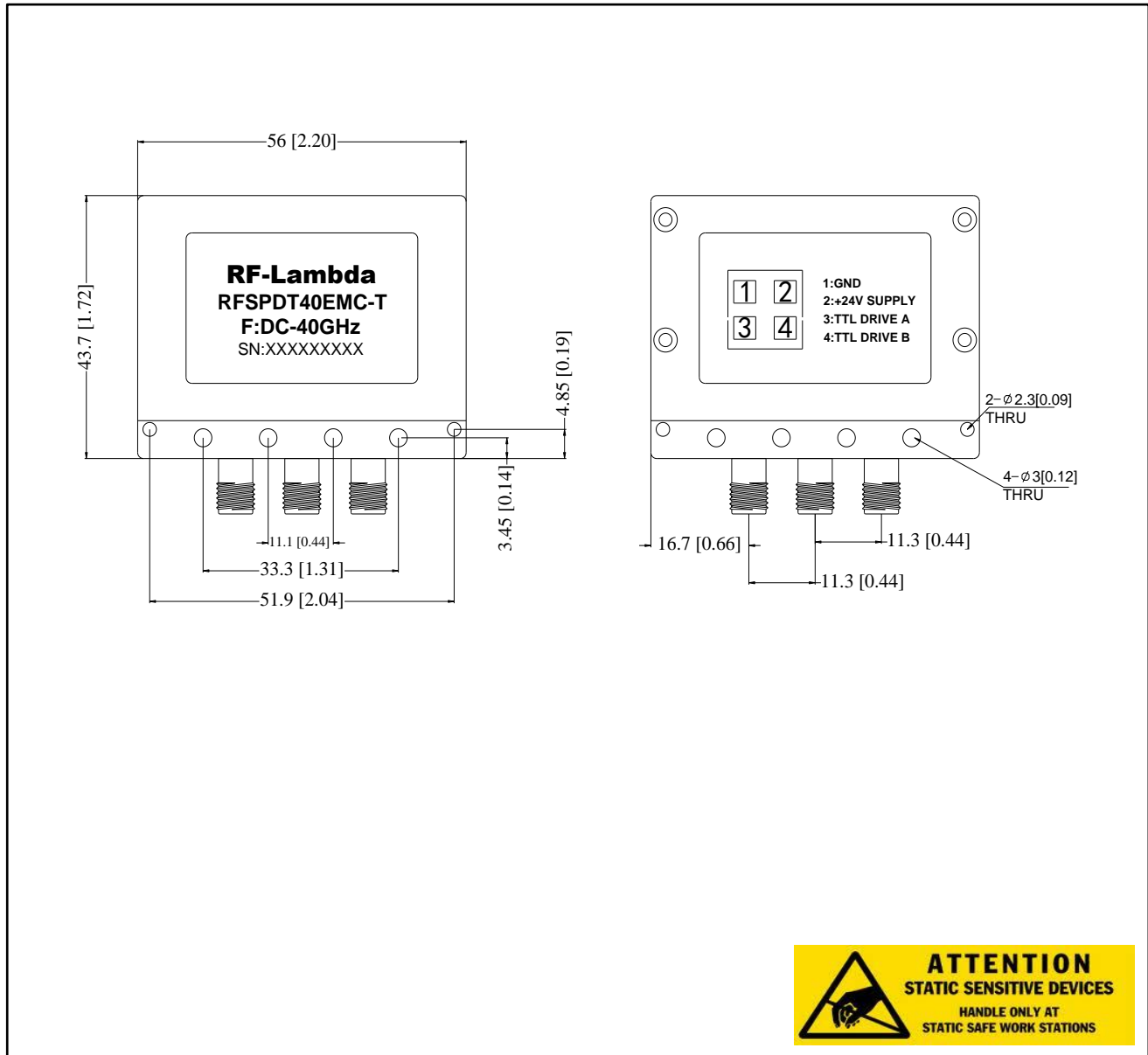
**Notes:**

- When the power path of the switch is in the off state, the switch port is connected to the load sheet, so at this time the max input power of the port is 1W(CW).
- The negative pole must always be connected to ground. if the negative pole is not connected to power supply ground, catastrophic failure will occur.
- Before switching, microwave signal sources must be cut off.

**Outline Drawing:**

All Dimensions in mm [inches]

Tolerances  $\pm 0.1$  [0.004]



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