

## Reflective Coaxial SP2T Switch 0.001GHz-1GHz



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

### Features

- TTL compatible driver included
- Fast Switching Speed
- High Power Cold Switching
- Insertion Loss 0.5dB Typical
- Isolation 30dB Typical
- 50 Ohm Matched

### Product Description

RFSP2TR1M1G200W is a reflective coaxial single pole double throw switch with a frequency range of 0.001 to 1GHz.

The maximum power input of this switch is 200W. The insertion loss is 0.5dB with a typical isolation of 30dB.

The product features fast switching speed, low insertion loss and high isolation.

The working temperature of this product is between - 40°C and + 85°C

### 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(TA = +25°C), Vdd = +5V, TTL = 0 / +5V

| Parameter                              | Min                                | Typ    | Max | Units  |
|----------------------------------------|------------------------------------|--------|-----|--------|
| Frequency Range                        | 0.001                              |        | 1   | GHz    |
| Insertion Loss                         |                                    | 0.5    |     | dB     |
| Insertion Loss Temperature Coefficient |                                    | 0.003  |     | dB/ °C |
| Isolation                              |                                    | 20     |     | dB     |
| Input VSWR                             |                                    | 1.8    |     | : 1    |
| Output VSWR                            |                                    | 1.8    |     | : 1    |
| RF Input Power (CW)                    |                                    |        | 200 | W      |
| DC Power Dissipation                   |                                    | 0.25   |     | W      |
| 0.1dB Compression Point (P0.1dB)       |                                    | 53     |     | dBm    |
| IIP3                                   |                                    | 50     |     | dBm    |
| Switching Speed                        |                                    | 100    |     | us     |
| Bias Current (+5V)                     |                                    | 50     |     | mA     |
| Weight                                 | Net                                | / Max. |     | lbs    |
|                                        | Including Heat sink                | / Max. |     |        |
| Impedance                              |                                    | 50     |     | Ω      |
| Input / Output Connectors              | N-Female(Input) – N-Female(Output) |        |     |        |
| Package                                | Epoxy Sealed (Standard)            |        |     |        |
|                                        | Hermetically Sealed (Optional)     |        |     |        |

### Absolute Maximum Ratings

| Parameter | Rating  |
|-----------|---------|
| Biasing   | +5V±10% |

Notes:

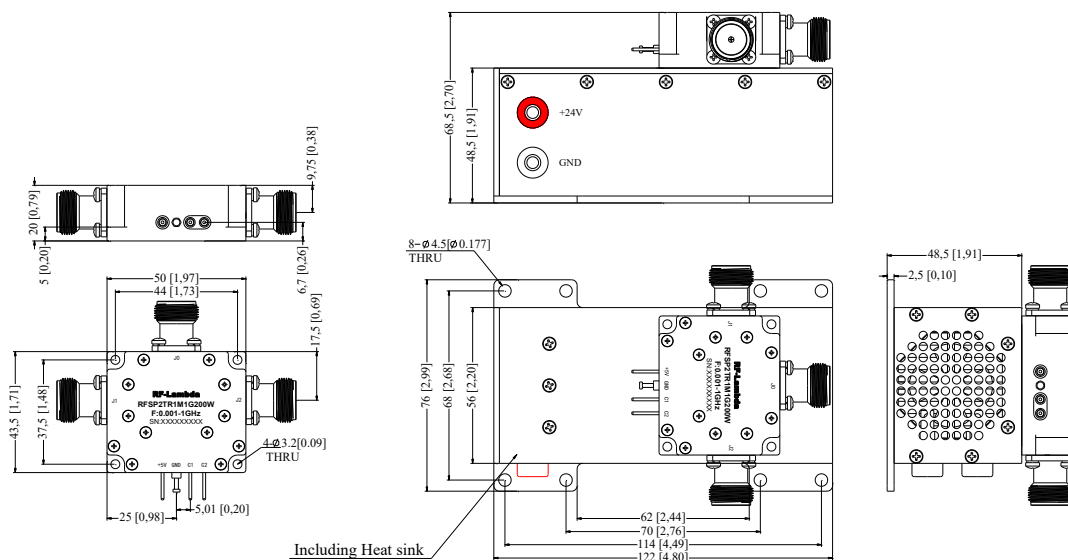
1. TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.
2. Cold Switching: Before changing any TTL signal(s), the RF input power must be blanked or the switch could be damaged.

### Environmental Specifications and Test Standards

| Parameter                         | Description                                                                                                                                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Temperature           | -40°C to +85°C<br>(Case Temperature)                                                                                                                                                                            |
| Storage Temperature               | -50°C to +105°C                                                                                                                                                                                                 |
| Thermal Shock                     | -40°C → +85°C<br>(5 Cycles / 10 hours)                                                                                                                                                                          |
| **Random Vibration                | MIL-STD-202G<br>Table 214-I, Test Condition Letter C<br>1.5 Hours Per Axis                                                                                                                                      |
| High Temperature Burn In          | Temperature +85°C for 72 Hours                                                                                                                                                                                  |
| Shock                             | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude                          | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)                                                                                             |
| Hermetically Sealed<br>(Optional) | MIL-STD-883 (For Hermetically Sealed Units)                                                                                                                                                                     |

\*\* For vibration testing details please see additional information section.

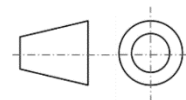
## Outline Drawing



| Truth Table                                      |                   |          |
|--------------------------------------------------|-------------------|----------|
| TTL Control Voltage                              | Low(0)=0~0.8V     |          |
| THRESHOLD                                        | High(1)=2.8~5V    |          |
| Control Input TTL                                | Signal Path State |          |
| C1                                               | C2                |          |
| 0                                                | 1                 | ALL OFF  |
| 0                                                | 0                 | J0-J1    |
| 1                                                | 0                 | J0-J2    |
| 1                                                | 1                 | Not Used |
| Control Pin Customization available upon request |                   |          |

### Notes:

1. Package Material: Copper
2. Finish: Nickel Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances  $\pm 0.1$  [0.004] unless otherwise specified(Excl Heat Sink).
5. Heatsink Required - Mandatory for High Power Operation .Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
6. Standard torque wrench must be used to secure RF connectors.



### Additional Information

#### Documentation

#### Webpage

ESD Policy

[https://rflambda.com/pdf/rflambda\\_esd\\_control.pdf](https://rflambda.com/pdf/rflambda_esd_control.pdf)

Heatsink Lookup Specifications

[https://rflambda.com/search\\_heatsink.jsp](https://rflambda.com/search_heatsink.jsp)

Connector Torque Specifications

[https://www.rflambda.com/pdf/Torque\\_Specifications.pdf](https://www.rflambda.com/pdf/Torque_Specifications.pdf)

Random Vibration Test Standard

[https://www.rflambda.com/pdf/rflambda\\_random\\_vibration\\_MIL-STD-202G.pdf](https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf)

Ordering Information

| Part Number     | Modification        | Description                         |
|-----------------|---------------------|-------------------------------------|
| RFSP2TR1M1G200W | Connectors N-Female | 0.001GHz-1GHz SP2T PIN Diode Switch |

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