

## Absorptive Coaxial SP8T Switch 0.02GHz-18GHz



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

### Features

- RS-422 compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 4.5dB
- Isolation 70dB
- 50 Ohm Matched

### Product Description

RFSP8TA0018GP-RS422 is an absorptive coaxial single pole eight throw switch with a frequency range of 0.02 to 18GHz.

The power input of this switch is 30dBm Max. The insertion loss is 4.5dB with a typical isolation of 70dB.

The product features of 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/-5V, TTL = 0 / +5V

| Parameter                              | Min                                    | Typ    | Max | Min | Typ         | Max | Min | Typ   | Max | Units  |
|----------------------------------------|----------------------------------------|--------|-----|-----|-------------|-----|-----|-------|-----|--------|
| Frequency Range                        |                                        | 0.02-6 |     |     | 6-12        |     |     | 12-18 |     | GHz    |
| Insertion Loss                         |                                        | 4.5    |     |     | 5.5         |     |     | 6.0   |     | dB     |
| Insertion Loss Temperature Coefficient |                                        | 0.003  |     |     | 0.003       |     |     | 0.003 |     | dB/ °C |
| Port to Port Phase Matching            |                                        |        |     |     | +/-15       |     |     |       |     | deg    |
| Isolation                              |                                        | 60     |     |     | 75          |     |     | 60    |     | dB     |
| Input VSWR                             |                                        | 1.8    |     |     | 1.8         |     |     | 2.0   |     | : 1    |
| Output VSWR                            |                                        | 1.8    |     |     | 1.8         |     |     | 2.0   |     | : 1    |
| RF Input Power                         |                                        |        | 30  |     |             | 30  |     |       | 30  | dBm    |
| DC Power Dissipation                   |                                        | 1.5    |     |     | 1.5         |     |     | 1.5   |     | W      |
| 0.1dB Compression Point (P0.1dB )      |                                        | 20     |     |     | 20          |     |     | 20    |     | dBm    |
| IIP3                                   |                                        | 40     |     |     | 40          |     |     | 40    |     | dBm    |
| Switching Speed                        |                                        |        |     |     | 250 Typ.    |     |     |       |     | ns     |
| Bias Current (+5V/-5V )                |                                        |        |     |     | 400/80 Max. |     |     |       |     | mA     |
| Weight                                 |                                        |        |     |     | 0.13 Max.   |     |     |       |     | lbs    |
| Impedance                              |                                        |        |     |     | 50          |     |     |       |     | Ω      |
| Input / Output Connectors              | SMA-Female(Input) – SMA-Female(Output) |        |     |     |             |     |     |       |     |        |
| Interface and Control Connector        | Micro-D9 (Female )                     |        |     |     |             |     |     |       |     |        |
| Package                                | Epoxy Sealed (Standard)                |        |     |     |             |     |     |       |     |        |
|                                        | Hermetically Sealed (Optional)         |        |     |     |             |     |     |       |     |        |

### Absolute Maximum Ratings

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

\*TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

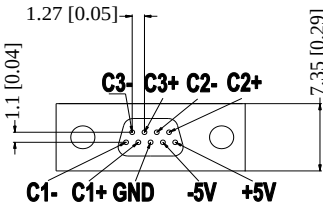
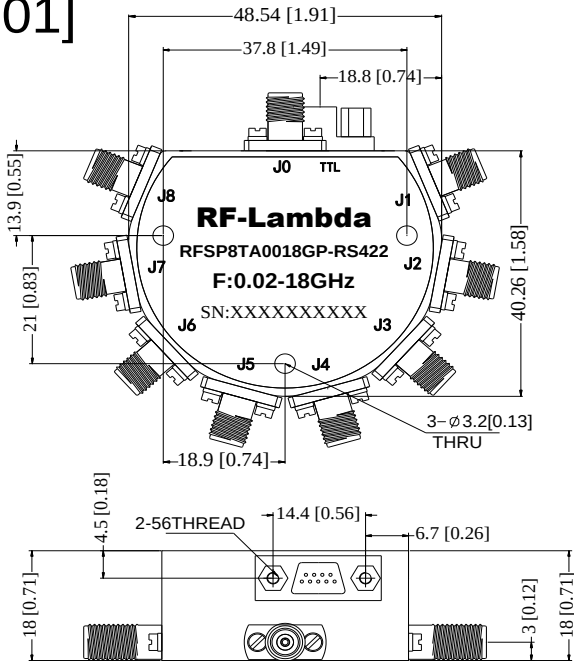
### Environmental Specifications and Test Standards

| 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

[X801]



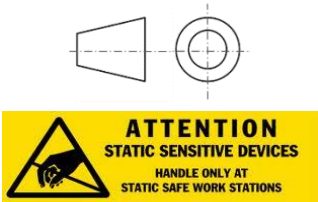
MICRO-D9(Female)

Truth Table

|                           |                                                   |
|---------------------------|---------------------------------------------------|
| Common-Mode Input Voltage | ±7V (MAX)                                         |
| High(1)                   | 2V (MIN)                                          |
| Low(0)                    | 0.8V (MAX)                                        |
| Control Voltage THRESHOLD | Low(0)=(C+)-(C-) ≤0.2V<br>High(1)=(C+)-(C-) ≥0.2V |
| Control Input RS-422      | Signal Path State                                 |
| C1+ C1- C2+ C2- C3+ C3-   | ALL OFF                                           |
| 0 1 0 1 0 1               | J0-J1                                             |
| 1 0 0 1 0 1               | J0-J2                                             |
| 0 1 1 0 0 1               | J0-J3                                             |
| 1 0 1 0 0 1               | J0-J4                                             |
| 0 1 0 1 1 0               | J0-J5                                             |
| 1 0 0 1 1 0               | J0-J6                                             |
| 0 1 1 0 1 0               | J0-J7                                             |
| 1 0 1 0 1 0               | J0-J8                                             |

Control instruction Customization available upon request

- Notes:
- 1. Package Material: Aluminum
  - 2. Finish: Gold Plated
  - 3. All dimensions are in millimeters [inches].
  - 4. Housing Tolerances ± 0.1 [0.004] unless otherwise specified.
  - 5. Standard torque wrench must be used to secure RF connectors.



Additional Information

|                                 |                                                                                                                                                               |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Documentation                   | Webpage                                                                                                                                                       |
| ESD Policy                      | <a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>                                             |
| Connector Torque Specifications | <a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>                                   |
| Random Vibration Test Standard  | <a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a> |

Ordering Information

| Part Number         | Modification | Description                         |
|---------------------|--------------|-------------------------------------|
| RFSP8TA0018GP-RS422 | Standard     | 0.02GHz-18GHz SP8T PIN Diode Switch |

Important Notice

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