

## Absorptive Coaxial SP3T Switch 6GHz-12GHz



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

### Features

- TTL compatible driver included
- Fast Switching Speed
- Low Power Cold Switching
- Insertion Loss 2.4dB
- Isolation 60dB Typical
- 50 Ohm Matched

### Product Description

RFSP3TA0612GP is an absorptive coaxial single pole three throw switch with a frequency range of 6 to 12GHz.

The maximum power input of this switch is 30dBm. The insertion loss is 2.4dB with a typical isolation of 60dB.

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 | Units  |
|----------------------------------------|-----|----------------------------------------|-----|--------|
| Frequency Range                        |     | 6-12                                   |     | GHz    |
| Insertion Loss                         |     | 2.4                                    |     | dB     |
| Insertion Loss Temperature Coefficient |     | 0.003                                  |     | dB/ °C |
| Isolation                              |     | 60                                     |     | dB     |
| Input VSWR                             |     | 1.5                                    |     | : 1    |
| Output VSWR                            |     | 1.5                                    |     | : 1    |
| RF Input Power                         |     |                                        | 30  | dBm    |
| DC Power Dissipation                   |     | 0.6                                    |     | W      |
| 0.1dB Compression Point (P0.1dB )      |     | 20                                     |     | dBm    |
| IIP3                                   |     | 40                                     |     | dBm    |
| Switching Speed                        |     | 100 Max.                               |     | ns     |
| Bias Current (+5V/-5V)                 |     | 120/50 Max.                            |     | mA     |
| Weight                                 |     | 0.066 Max.                             |     | lbs    |
| Impedance                              |     | 50                                     |     | Ω      |
| Input / Output Connectors              |     | SMA-Female(Input) – SMA-Female(Output) |     |        |
| 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.

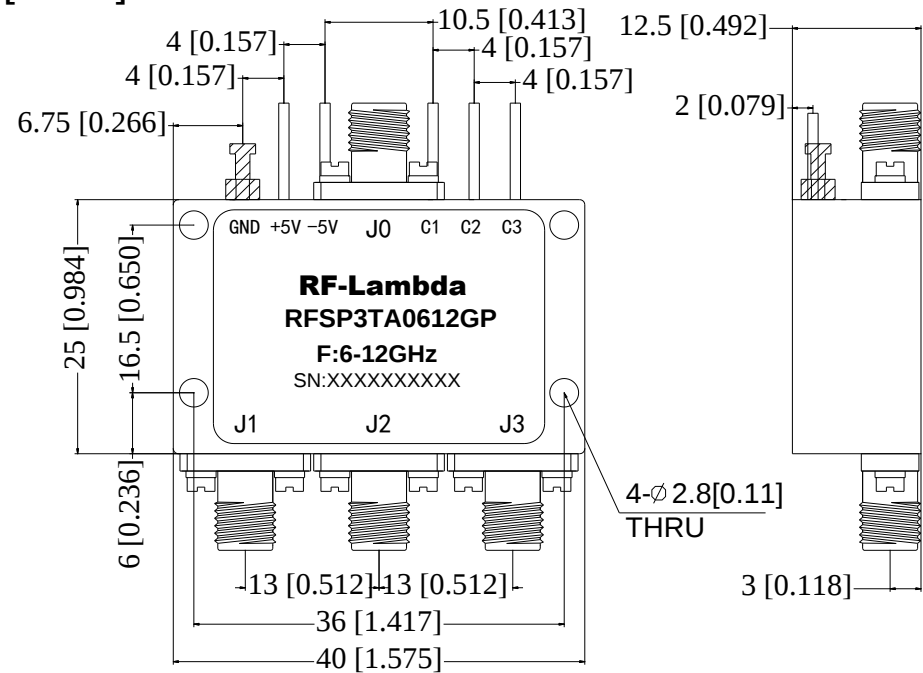
### Environmental Specifications and Test Standards

| 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

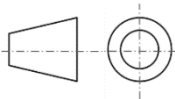
[X301]



| Truth Table                                      |    |                                 |                   |
|--------------------------------------------------|----|---------------------------------|-------------------|
| TTL Control Voltage THRESHOLD                    |    | Low(0)=0-0.8V<br>High(1)=2.8-5V |                   |
| Control Input TTL                                |    |                                 | Signal Path State |
| C3                                               | C2 | C1                              |                   |
| 0                                                | 0  | 0                               | Not Used          |
| 1                                                | 1  | 0                               | J0-J1             |
| 1                                                | 0  | 1                               | J0-J2             |
| 0                                                | 1  | 1                               | J0-J3             |
| 1                                                | 1  | 1                               | OFF               |
| Control Pin Customization available upon request |    |                                 |                   |

Notes:

1. Package Material: Aluminum.
2. Finish: Gold Plated.
3. All dimensions are in millimeters [inches].
4. Housing Tolerances  $\pm 0.1$  [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                      |
|---------------|--------------|----------------------------------|
| RFSP3TA0612GP | Standard     | 6GHz-12GHz SP3T PIN Diode Switch |

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