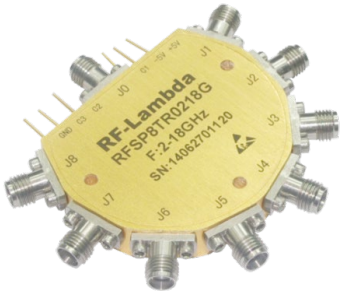
# Reflective Coaxial SP8T Switch
# 2 - 20GHz




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

## *Features*

- Wide Band Operation 2-20GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation

## *Typical Applications*

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement

*Electrical Specifications, TA = +25° C, Vdd = +5V/-5V, TTL = 0 / +5V*

| Description | PN: RFSP8TR0220G | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SP8T Reflection Switch | | | | | | | | | |
| | Low Power Cold Switching | | | | | | | | | |
| Parameter | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Units |
| Frequency Range | 2-6 | | | 6-12 | | | 12-20 | | | GHz |
| Insertion Loss | | 2.0 | 2.5 | | 2.5 | 3.0 | | 3.5 | 3.8 | dB |
| Insertion Loss Temperature Coefficient | | 0.003 | | | 0.003 | | | 0.003 | | dB/°C |
| Isolation (Adjacent channels) | 75 | 80 | | 70 | 75 | | 70 | 75 | | dB |
| Isolation (Between any channels) | | 80 | | | 75 | | | 75 | | dB |
| Input VSWR | | 1.6 | 2.0 | | 1.6 | 2.0 | | 1.8 | 2.0 | : 1 |
| Output VSWR | | 1.6 | 2.0 | | 1.6 | 2.0 | | 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) | | 30 | | | 30 | | | 30 | | dBm |
| IIP3 | | 45 | | | 43 | | | 40 | | dBm |
| Switching Speed | 100 Typ. | | | | | | | | | ns |
| Weight | 1.9Max. | | | | | | | | | ounces |
| Impedance | 50 | | | | | | | | | Ω |
| Bias Current (+5V/-5V) | 350/50 Max. | | | | | | | | | mA |
| Input / Output Connectors | SMA - Female | | | | | | | | | |
| Finish | Gold Plated | | | | | | | | | |
| Material | Aluminum | | | | | | | | | |
| Sealing | Hermetically Sealed (Optional) | | | | | | | | | |

Reflective Coaxial Single Pole Eight Throw Switch 2 - 20GHz

### *Absolute Maximum Ratings*

| | |
|---|---|
| Biasing Voltage | +5V±10%/-5V±10% |

Note: TTL pins cannot be connected to the negative voltage otherwise the internal driver will be damaged.

### *Ordering Information*

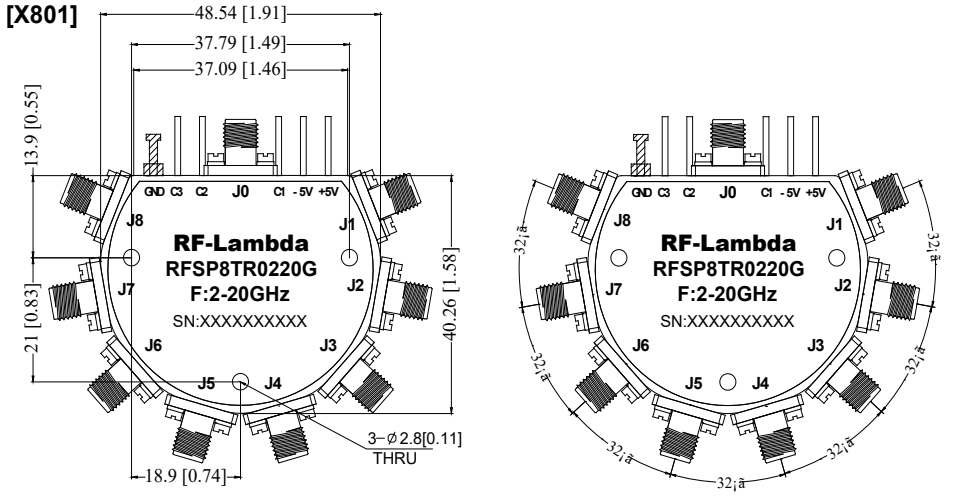
| Part No. | Description |
|---|---|
| RFSP8TR0220G | SP8T 2-20G PIN Diode Switch |

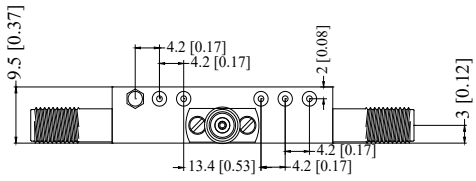
### *Environmental Specifications and Test Standards*

| Parameter | Description |
|---|---|
| Operational Temperature | -40℃~+85℃<br>(Case Temperature) |
| Storage Temperature | -50℃~+105℃ |
| Thermal Shock | -40℃ → +85℃<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℃ 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 (Optional) | MIL-STD-883 (For Hermetically Sealed Units) |

## Outline Drawing:

All Dimensions in mm [inches]
Housing Tolerances ± 0.1 [0.004]




### Truth Table

| TTL Control Voltage THRESHOLD | | | Low(0)=0~0.8V |
|---|---|---|---|
| | | | High(1)=2.8~5V |
| Control Input TTL | | | Signal Path State |
| C3 | C2 | C1 | |
| 0 | 0 | 0 | J0-J1 |
| 0 | 0 | 1 | J0-J2 |
| 0 | 1 | 0 | J0-J3 |
| 0 | 1 | 1 | J0-J4 |
| 1 | 0 | 0 | J0-J5 |
| 1 | 0 | 1 | J0-J6 |
| 1 | 1 | 0 | J0-J7 |
| 1 | 1 | 1 | J0-J8 |
| Control Pin Customization available upon request | | | |


Note: Standard torque wrench must be used to secure RF connectors.

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RF-LAMBDA USA www.rflambda.com
Sales: sales@rflambda.com Technical : support@rflambda.com