

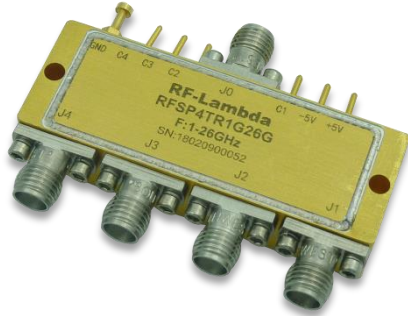


# RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

## RFSP4TR1G26G

### Reflective Coaxial SP4T Switch 1 – 26GHz



#### Features

- Ultra Wide Band Operation 1-26GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation
- Customization available upon request

Electrical Specifications,  $T_A = +25^\circ\text{C}$ ,  $V_{dd} = +5\text{V}/-5\text{V}$ ,  $TTL = 0 / +5\text{V}$

| Description                                   | PN: RFSP4TR1G26G         |       |      |       |       |      |       |       |      |        |
|-----------------------------------------------|--------------------------|-------|------|-------|-------|------|-------|-------|------|--------|
|                                               | SP4T Reflective Switch   |       |      |       |       |      |       |       |      |        |
|                                               | Low Power Cold Switching |       |      |       |       |      |       |       |      |        |
|                                               | Min.                     | Typ.  | Max. | Min.  | Typ.  | Max. | Min.  | Typ.  | Max. | Units  |
| Frequency Range                               | 1-10                     |       |      | 10-24 |       |      | 24-26 |       |      | GHz    |
| Insertion Loss                                |                          | 1.5   | 2.0  |       | 2.5   | 3.0  |       | 3.0   | 3.5  | dB     |
| Insertion Loss Temperature Coefficient        |                          | 0.003 |      |       | 0.003 |      |       | 0.003 |      | dB/°C  |
| Isolation                                     | 65                       | 70    |      | 50    | 55    |      | 46    | 52    |      | dB     |
| Output to Output Port Isolation               | 65                       | 80    |      | 50    | 55    |      | 50    | 55    |      | dB     |
| Input VSWR                                    |                          | 1.8   | 2.3  |       | 1.6   | 2.0  |       | 1.8   | 2.0  | :1     |
| Output VSWR                                   |                          | 1.8   | 2.3  |       | 1.6   | 2.0  |       | 1.8   | 2.0  | :1     |
| RF Input power (CW)                           |                          |       | 23   |       |       | 23   |       |       | 23   | dBm    |
| DC Power Dissipation                          |                          | 0.9   |      |       | 0.9   |      |       | 0.9   |      | W      |
| 0.1dB Compression Point (P <sub>0.1dB</sub> ) |                          | 23    |      |       | 23    |      |       | 23    |      | dBm    |
| IIP <sub>3</sub>                              |                          | 55    |      |       | 50    |      |       | 50    |      | dbm    |
| Switching Speed                               |                          |       | 100  |       |       | 100  |       |       | 100  | ns     |
| Weight                                        | 1.06                     |       |      |       |       |      |       |       |      | Ounces |
| Impedance                                     | 50                       |       |      |       |       |      |       |       |      | Ω      |
| Bias Current (+5V/-5V)                        | 160/50                   |       |      |       |       |      |       |       |      | mA     |
| Input / Output Connectors                     | 2.92mm-Female            |       |      |       |       |      |       |       |      |        |
| Finish                                        | Gold Plated              |       |      |       |       |      |       |       |      |        |
| Material                                      | Aluminum                 |       |      |       |       |      |       |       |      |        |

Reflective Coaxial Single Pole Four Throw Switch 1 - 26GHz



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### Absolute Maximum Ratings

|                     |                  |
|---------------------|------------------|
| Biasing             | +5V±10%/-28V±10% |
| TTL Control Voltage | 0~0.8V/2.8~5V    |

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

### Ordering Information

| Part No.     | ECCN  | Description                   |
|--------------|-------|-------------------------------|
| RFSP4TR1G26G | EAR99 | SP4T 1-26GHz PIN Diode Switch |

### Environmental Specifications and Test Standards

| Parameter                        | Standard      | Description                                                                                                                                                                                                     |
|----------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Temperature          | MIL-STD-39016 | -45°C~+85°C (Case Temperature)                                                                                                                                                                                  |
| Storage Temperature              |               | -50°C~+125°C                                                                                                                                                                                                    |
| Thermal Shock                    |               | 1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)                                                                                                                                                                       |
| Random Vibration                 |               | Acceleration Spectral Density 6 (m/s)<br>Total 92.6 RMS                                                                                                                                                         |
| Electrical & 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                         | MIL-STD-883   | 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)                                                                                                                                                                     |

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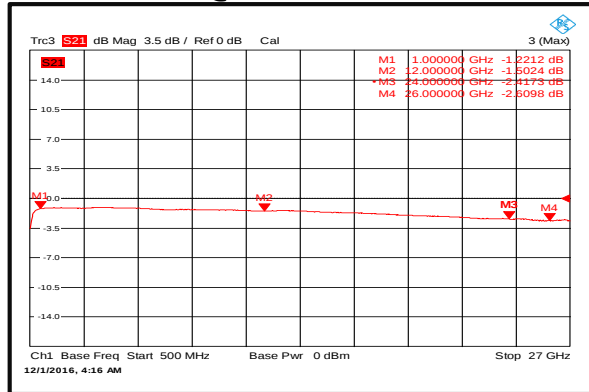
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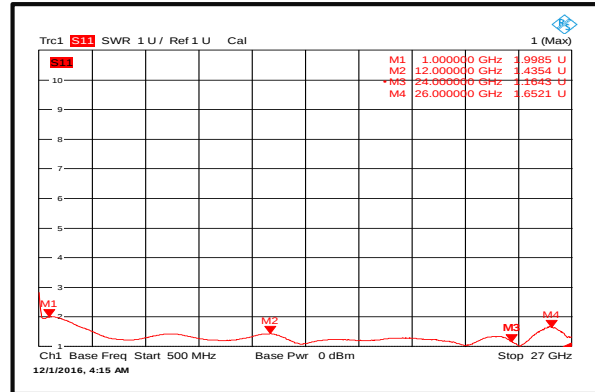
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### Typical Performance Plots

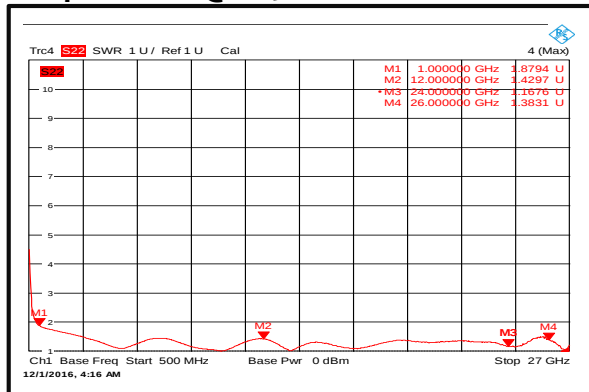
#### Insertion Loss@ +25°C



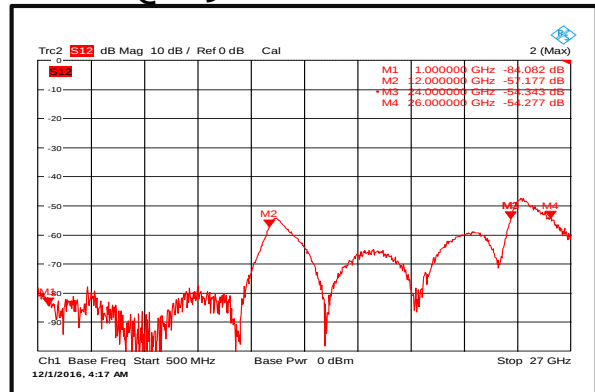
#### Input VSWR@ +25°C



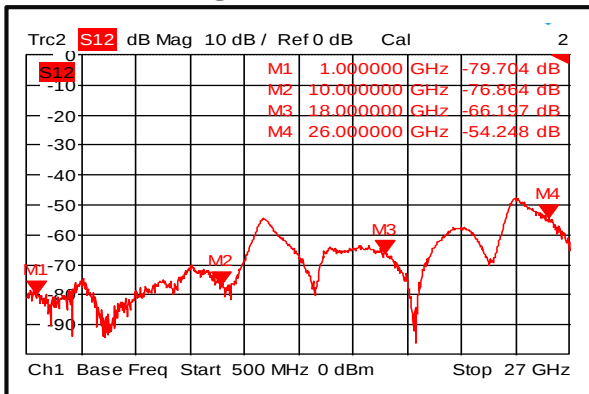
#### Output VSWR@ +25°C



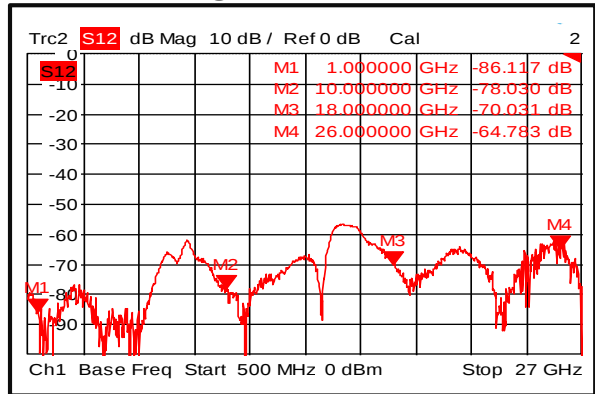
#### Isolation@ +25°C



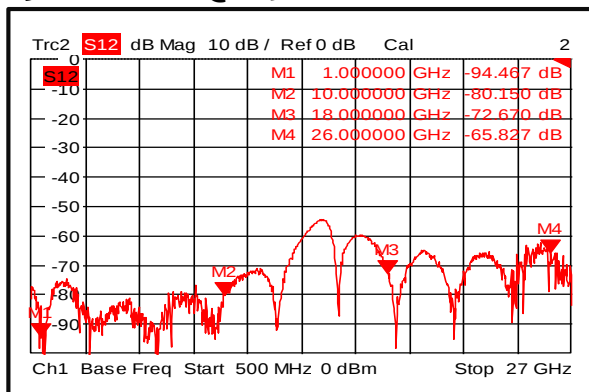
#### J1-J2 Isolation @ -45°C



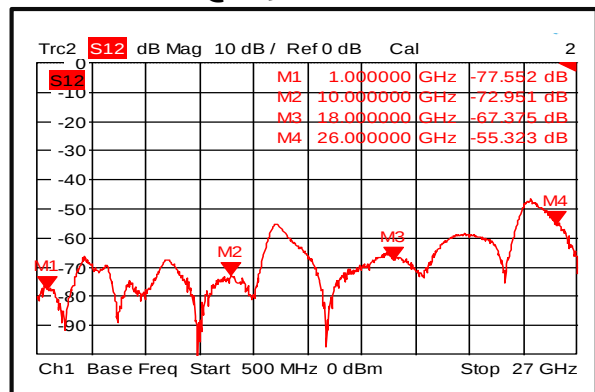
#### J2-J3 Isolation@ -45°C



#### J3-J4 Isolation@ -45°C



#### J1-J4 Isolation@ -45°C



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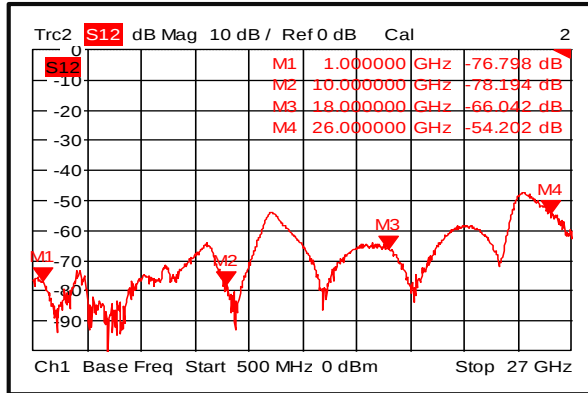


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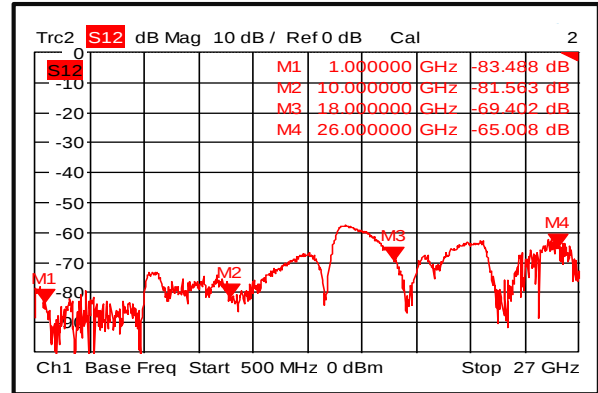
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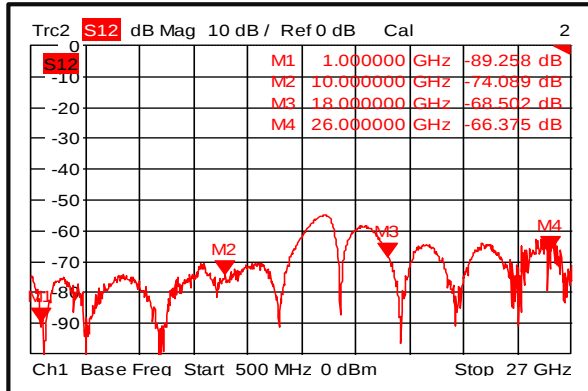
J1-J2 Isolation@ +85°C



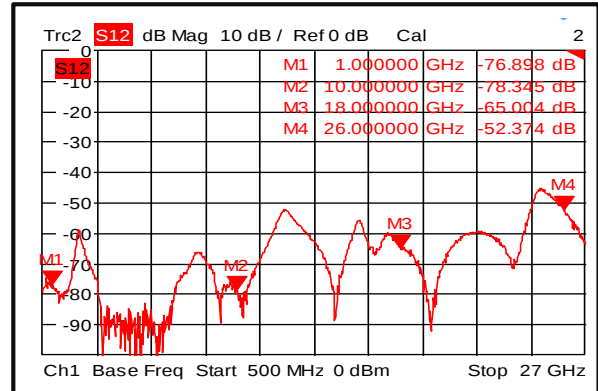
J2-J3 Isolation@ +85°C



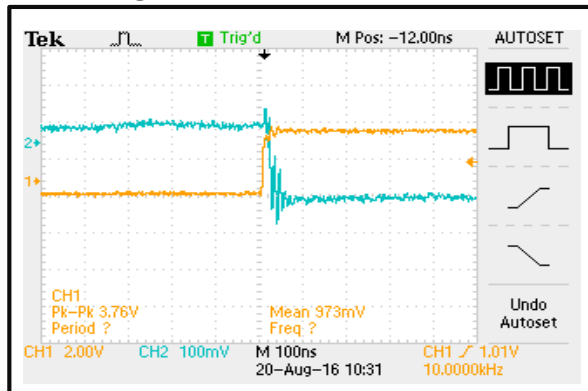
J3-J4 Isolation@ +85°C



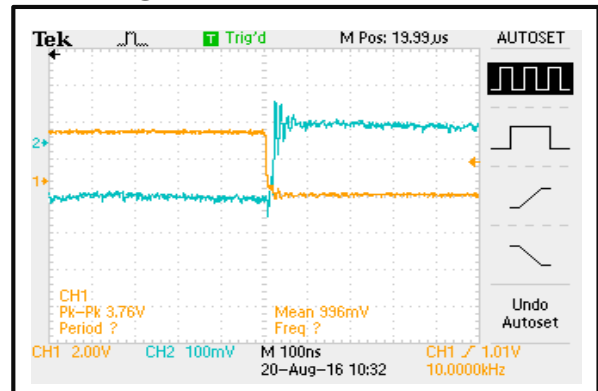
J1-J4 Isolation@ +85°C



Switching Speed



Switching Speed

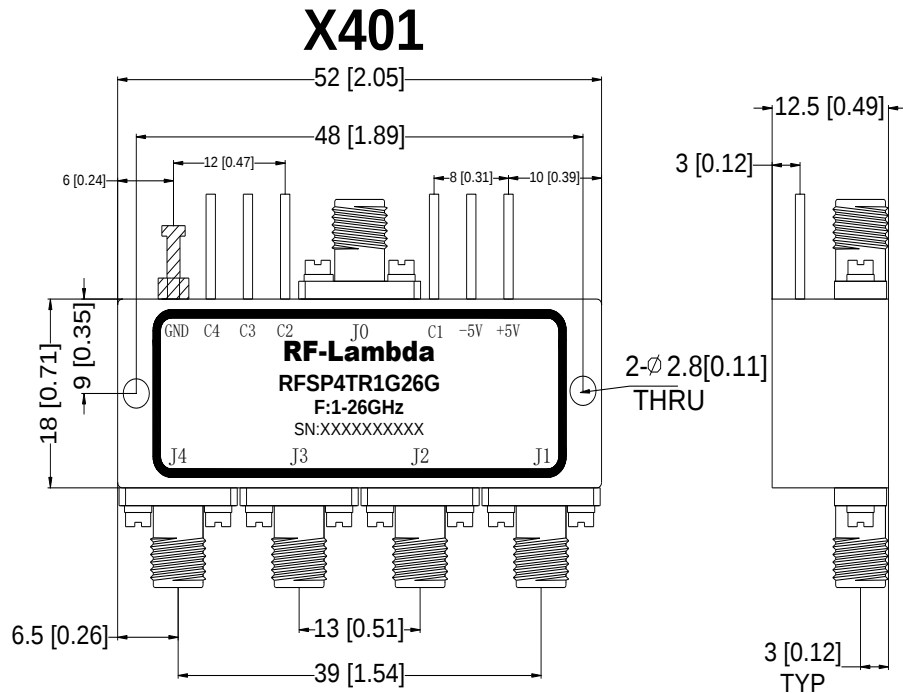


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**Outline Drawing:**

All Dimensions in mm [inches]



**Truth Table**

| Control Input TTL                                |    |    |    | Signal Path State |
|--------------------------------------------------|----|----|----|-------------------|
| c1                                               | c2 | c3 | c4 |                   |
| 1                                                | 1  | 1  | 1  | OFF               |
| 0                                                | 1  | 1  | 1  | Jo-J1             |
| 1                                                | 0  | 1  | 1  | Jo-J2             |
| 1                                                | 1  | 0  | 1  | Jo-J3             |
| 1                                                | 1  | 1  | 0  | Jo-J4             |
| 0                                                | 0  | 0  | 0  | Not used          |
| Control Pin Customization available upon request |    |    |    |                   |



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