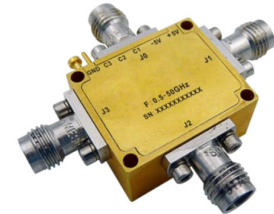




# Absorptive 0.5-50GHz Coaxial SP3T Switch

## Features

- Ultra Wide Band Operation 0.5-50GHz
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation



## Typical Applications

- Wireless Infrastructure
- 5G communication
- Test and measurement Instrument

RF Microwave & VSAT  
Fiber Optics

| Parameters                             | Min.                           | Typ.  | Max. | Min.    | Typ.  | Max. | Min.    | Typ.  | Max. | Units   |
|--|--------------------------------|-------|------|---------|-------|------|---------|-------|------|---------|
| Frequency Range                        | 0.5-30                         |       |      | 30-43.5 |       |      | 43.5-50 |       |      | GHz     |
| Insertion Loss                         |                                | 4.5   | 5.0  |         | 5     | 6.0  |         | 6.5   | 7.2  | dB      |
| Insertion Loss Temperature Coefficient |                                | 0.003 |      |         | 0.003 |      |         | 0.003 |      | dB/ ° C |
| Isolation                              | 50                             | 60    |      | 42      | 50    |      | 40      | 45    |      | dB      |
| Input VSWR                             |                                | 2.5   | 3    |         | 2.5   | 3    |         | 2.5   | 3    | : 1     |
| Output VSWR                            |                                | 2.5   | 3    |         | 2.5   | 3    |         | 2.5   | 3    | : 1     |
| RF Input Power                         |                                |       | 23   |         |       | 23   |         |       | 23   | dBm     |
| DC Power Dissipation                   |                                | 0.6   |      |         | 0.6   |      |         | 0.6   |      | W       |
| 0.1dB Compression Point ( P0.1dB )     |                                | 23    |      |         | 23    |      |         | 23    |      | dBm     |
| IIP3                                   |                                | 43    |      |         | 38    |      |         | 33    |      | dBm     |
| Switching Speed                        | 100 Max.                       |       |      |         |       |      |         |       |      | ns      |
| Weight                                 | 0.75 Max.                      |       |      |         |       |      |         |       |      | Ounces  |
| Impedance                              | 50                             |       |      |         |       |      |         |       |      | Ω       |
| Bias Current ( +5V / -5V )             | 120/50 Max.                    |       |      |         |       |      |         |       |      | mA      |
| Input / Output Connectors              | 2.4mm-Female                   |       |      |         |       |      |         |       |      |         |
| Finish                                 | Gold Plated                    |       |      |         |       |      |         |       |      |         |
| Material                               | Aluminum                       |       |      |         |       |      |         |       |      |         |
| Sealing                                | Hermetically Sealed (Optional) |       |      |         |       |      |         |       |      |         |



### Absolute Maximum Ratings

|          |                       |
|----------|-----------------------|
| Biassing | +5V±10%/-5V±10% @25°C |
|----------|-----------------------|

### Environmental Specifications

|                         |   |
|-------------------------|---|
| Operational Temperature | -40°C~+85°C (Case Temperature)  |
| Storage Temperature     | -50°C~+105°C  |
| Altitude                | 30,000 ft. (Epoxy Sealed Controlled environment)                                |
|                         | 60,000 ft. 1.0psi min (Hermetically Sealed Uncontrolled environment) (Optional) |
| Vibration               | 25g RMS (15 degrees 2KHz) endurance, 1 hour per axis                            |
| Humidity                | 100% RH at 35°C, 95%RH at 40°C  |
| Shock                   | 20G for 11msec half sine wave,3 axis both directions                            |

### Ordering Information

| Part No.        | Description                     |
|-----------------|---------------------------------|
| DBSA0300505000A | SP3T 0.5-50GHz PIN Diode Switch |

### Outline Drawing:

All Dimensions in mm (inches)

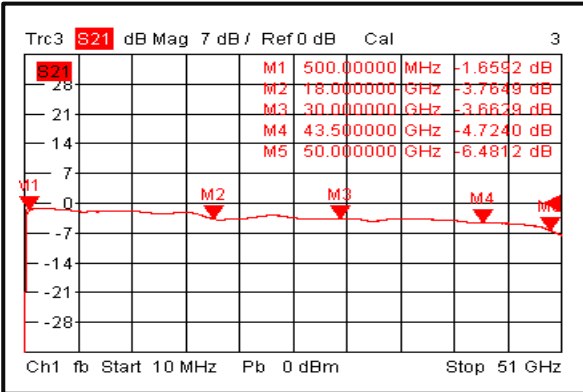
The drawing shows a top and side view of the switch. Key dimensions include: top width 24 [0.94] mm, top width 21 [0.83] mm, left side height 20 [0.79] mm, left side height 17 [0.67] mm, right side height 8.5 [0.33] mm, bottom width 12 [0.47] mm, and various pin spacings like 3.3 [0.13] mm and 6.55 [0.26] mm. Pin labels include GND, C3, C2, C1, -5V, +5V, J0, J1, J2, and J3. A note indicates 4-Ø 2.2 [0.09] THRU holes.

| TTL Control Voltage THRESHOLD |    |    | Low(0)=0~0.8V     |
|-------------------------------|----|----|-------------------|
|                               |    |    | High(1)=2.8~5V    |
| Control Input TTL             |    |    | Signal Path State |
| C3                            | C2 | C1 |                   |
| 1                             | 1  | 0  | J0-J1             |
| 1                             | 0  | 1  | J0-J2             |
| 0                             | 1  | 1  | J0-J3             |
| 0                             | 0  | 0  | Not used          |
| 1                             | 1  | 1  | All OFF           |

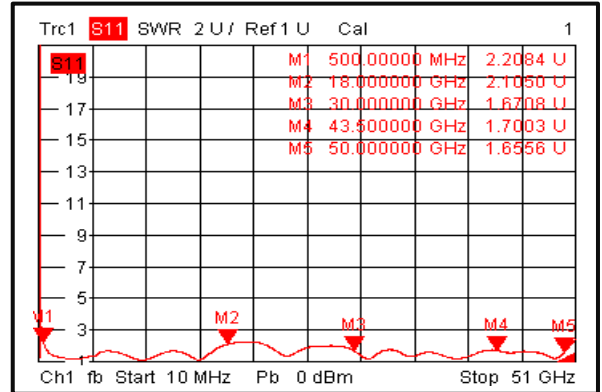
Control Pin Customization available upon request



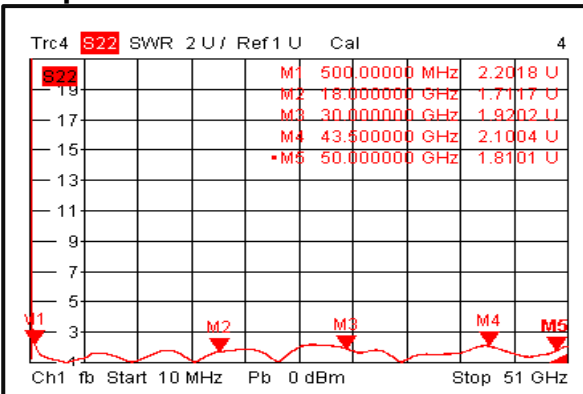
### Insertion Loss @+25°C



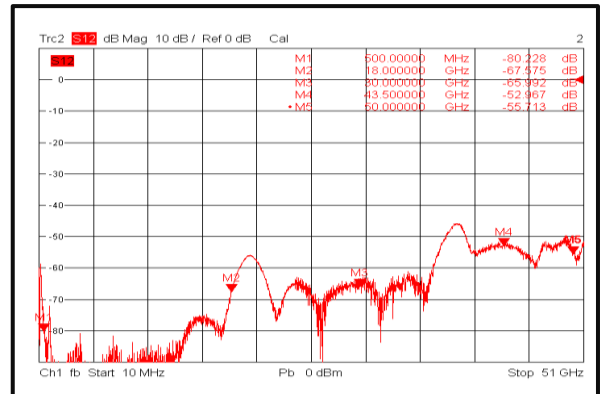
### Input VSWR @+25°C



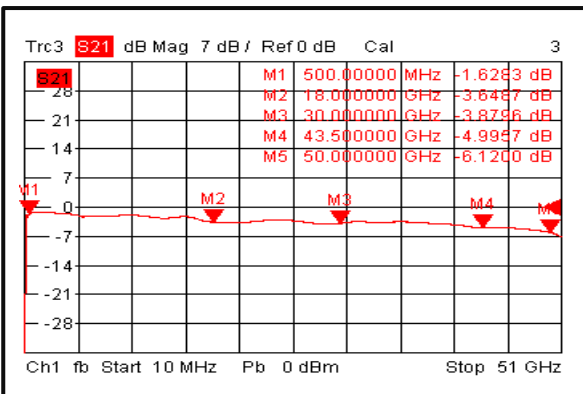
### Output VSWR @+25°C



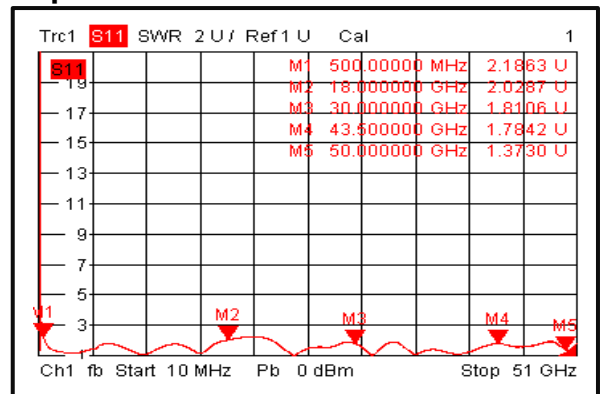
### Isolation @+25°C



### Insertion Loss @-40°C

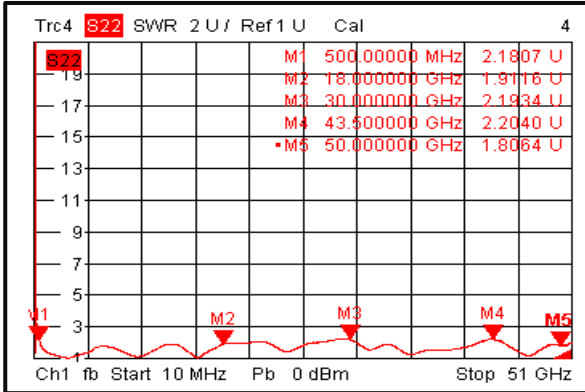


### Input VSWR @-40°C

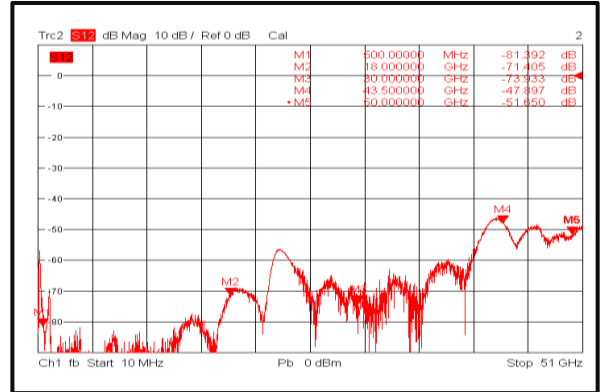




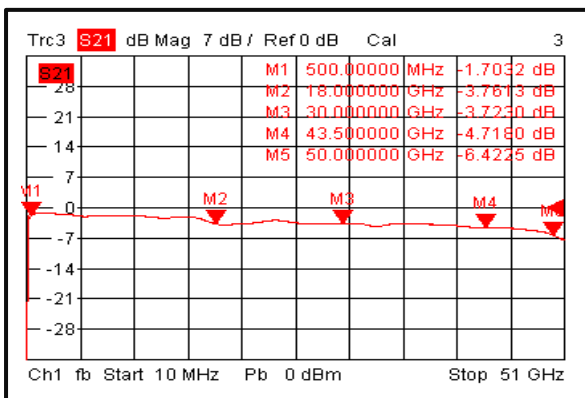
### Output VSWR @-40°C



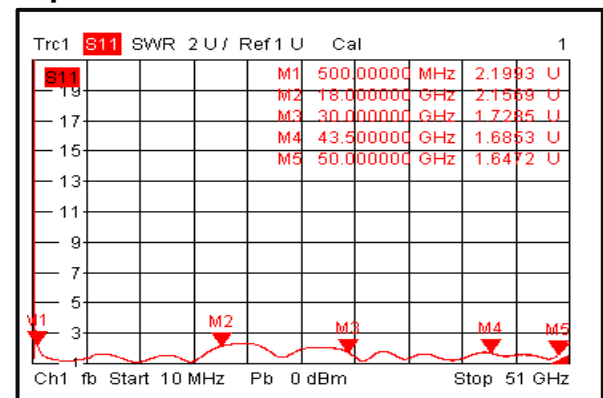
### Isolation @-40°C



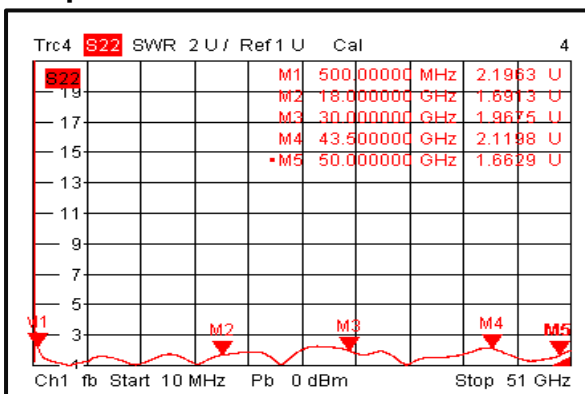
### Insertion Loss @+85°C



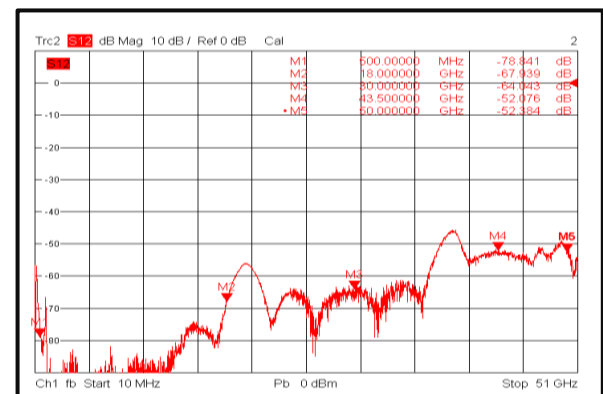
### Input VSWR @+85°C



### Output VSWR @+85°C

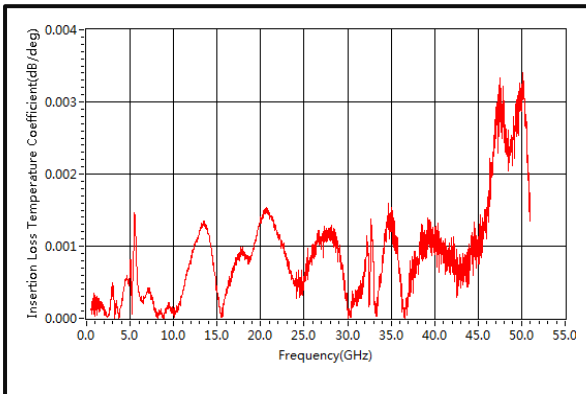


### Isolation @+85°C

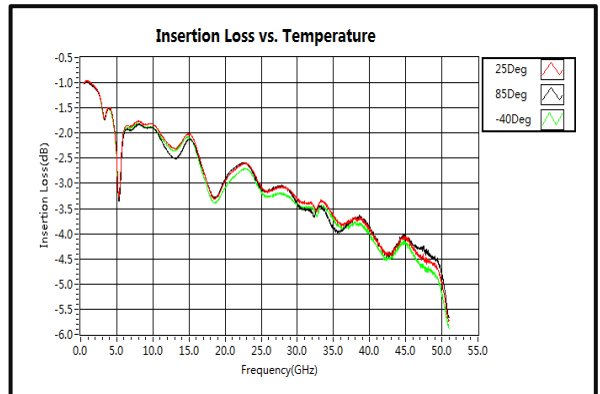




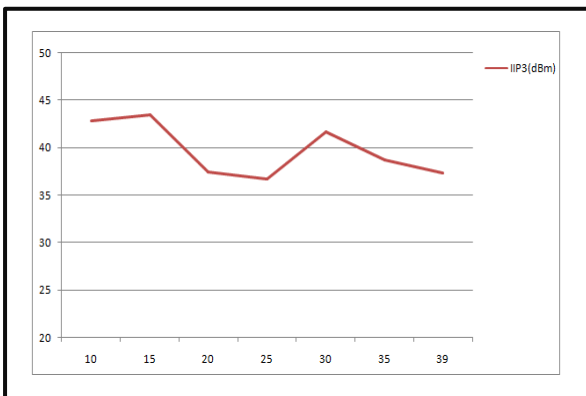
### Insertion Loss Temperature Coefficient



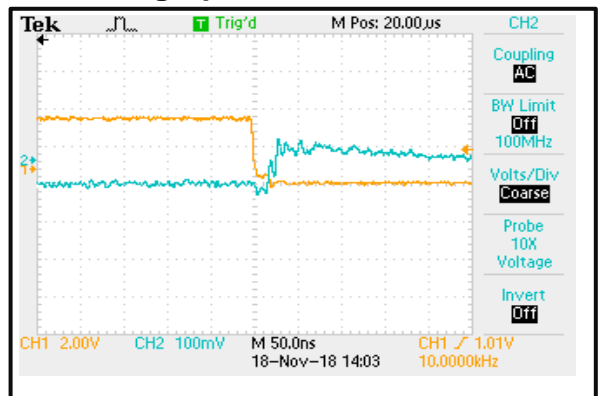
### Insertion Loss vs. Temperature



### IIP3



### Switching Speed



### Switching Speed

