



### THE BIG DEAL

- Fast-switching, absorptive solid-state SP8T
- 100 ns switching time with no control delays
- TTL for simple control integration
- Low insertion loss

### APPLICATIONS

- RF signal routing / switch matrices
- 5G FR1, WiFi 6E, UWB, Bluetooth
- Military radio, radar & electronic warfare
- Microwave radio / cellular infrastructure
- Test & measurement systems



Generic photo used for illustration purposes only

### PRODUCT OVERVIEW

Mini-Circuits' TTL-1SP8T-183 is a fast switching SP8T featuring low loss and high isolation over a wide bandwidth. The switch has an absorptive configuration with internal terminations on ports J1 to J8.

Simple control via TTL logic levels allows integration with a wide range of microcontroller, embedded or custom systems, without the communication delays associated with USB or Ethernet control. This complete package enables exceptionally fast switching times down to 100 ns typically.

The switch is supplied in a low profile package (7.00" x 1.50" x 0.70") with 9 precision SMA (F) RF connectors and a D-Sub 9 pin port for power and control.

### KEY FEATURES

| Feature                     | Advantages                                                                                                                                                                                                                |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excellent RF performance    | Low loss, high isolation and exceptional switching speeds support applications requiring rapid signal transitions and minimal interference such as semi-conductor and telecoms testing.                                   |
| Solid-state design          | Long-term reliability in the most demanding automated test applications                                                                                                                                                   |
| Optimized for hot switching | +30 dBm power rating applies even when hot switching or terminating inactive ports internally. Ideal for radio test applications where the signal can't be removed during switching.                                      |
| TTL control                 | Simple control via TTL logic levels allows integration with a wide range of microcontroller, embedded or custom systems; and extremely fast switching times without the communication delays inherent to USB or Ethernet. |

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## Solid-State Switch

TTL-1SP8T-183

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50Ω 0.1 to 18 GHz SP8T SMA female

## ELECTRICAL SPECIFICATIONS AT -10 TO 60°C

| Parameter                     | Ports                                                     | Condition (GHz) | Min. | Typ. | Max. | Unit |
|-------------------------------|-----------------------------------------------------------|-----------------|------|------|------|------|
| Frequency Range               | –                                                         | –               | 0.1  | –    | 18   | GHz  |
| Insertion Loss                | COM to any active port                                    | 0.1 - 0.5       | –    | 2.0  | 3.0  | dB   |
|                               |                                                           | 0.5 - 10        | –    | 3.5  | 4.3  |      |
|                               |                                                           | 10 - 14         | –    | 4.0  | 5.0  |      |
|                               |                                                           | 14 - 18         | –    | 5.7  | 6.9  |      |
| Isolation                     | Between ports J1 to J8                                    | 0.1 - 0.5       | 60   | 80   | –    | dB   |
|                               |                                                           | 0.5 - 10        | 50   | 70   | –    |      |
|                               |                                                           | 10 - 14         | 50   | 70   | –    |      |
|                               |                                                           | 14 - 18         | 50   | 60   | –    |      |
|                               | COM to any terminated port (including Disconnected state) | 0.1 - 0.5       | 60   | 80   | –    | dB   |
|                               |                                                           | 0.5 - 10        | 53   | 70   | –    |      |
|                               |                                                           | 10 - 14         | 53   | 65   | –    |      |
|                               |                                                           | 14 - 18         | 50   | 60   | –    |      |
| Return Loss                   | COM port (in all active states)                           | 0.1 - 10        | –    | 15   | –    | dB   |
|                               |                                                           | 10 - 18         | –    | 13   | –    |      |
|                               | Any port connected to COM                                 | 0.1 - 0.5       | –    | 13   | –    | dB   |
|                               |                                                           | 0.5 - 10        | –    | 14   | –    |      |
|                               |                                                           | 10 - 14         | –    | 15   | –    |      |
|                               |                                                           | 14 - 18         | –    | 13   | –    |      |
|                               | Any terminated port                                       | 0.1 - 0.5       | –    | 23   | –    | dB   |
|                               |                                                           | 0.5 - 10        | –    | 16   | –    |      |
|                               |                                                           | 10 - 14         | –    | 12   | –    |      |
|                               |                                                           | 14 - 18         | –    | 10   | –    |      |
| Power Input @1 dB Compression | COM to any active port                                    | 0.1 - 4         | –    | +20  | –    | dBm  |
|                               |                                                           | 4 - 18          | –    | +30  | –    |      |
| IP3 <sup>1</sup>              | COM to any active port                                    | 0.5 - 18        | –    | +40  | –    | dBm  |
| Transition Time <sup>2</sup>  | –                                                         | –               | –    | 50   | –    | ns   |
| Switching Time <sup>3</sup>   | –                                                         | –               | –    | 100  | –    | ns   |
| Operating RF Input Power      | Between COM & active port                                 | Hot switching   | –    | –    | +30  | dBm  |
|                               | Between COM & active port                                 | Cold switching  | –    | –    | +30  |      |
|                               | Into any termination                                      | –               | –    | –    | +30  |      |

1. IP3 degrades below 500 MHz. Tested with 1 MHz span between signals, 0 dBm per tone

2. Transition Time spec represents the time that the RF signal paths are interrupted during switching (from steady state to steady state) and thus is specified without communication delays.

3. Switching time is the time from 50% control to 90 / 10% of RF signal.



## DC ELECTRICAL SPECIFICATIONS

| Parameter               |         | Min.  | Typ. | Max.  | Units           |
|-------------------------|---------|-------|------|-------|-----------------|
| Positive Supply         | Voltage | 4.75  | 5    | 5.25  | V <sub>DC</sub> |
|                         | Current | -     | 170  | 200   | mA              |
| Negative Supply         | Voltage | -5.25 | -5   | -4.75 | V <sub>DC</sub> |
|                         | Current | -25   | -20  | -     | mA              |
| Control Current per bit |         | -     | -    | 100   | μA              |

ABSOLUTE MAXIMUM RATINGS <sup>4</sup>

|                                             |               |
|---------------------------------------------|---------------|
| Operating Temperature                       | -10°C to 60°C |
| Storage Temperature                         | -20°C to 85°C |
| DC Supply Voltage @ positive supply (Pin#6) | 0 to 6 V      |
| DC Supply Voltage @ negative supply (Pin#6) | -5.3 to 0 V   |
| Voltage at TTL control pins                 | 5.5V          |
| DC Voltage @ RF Ports                       | 5.5V          |

4. Permanent damage may occur if any of these limits are exceeded. Operating in the range between operating power limits and absolute maximum ratings for extended periods of time may result in reduced life and reliability.



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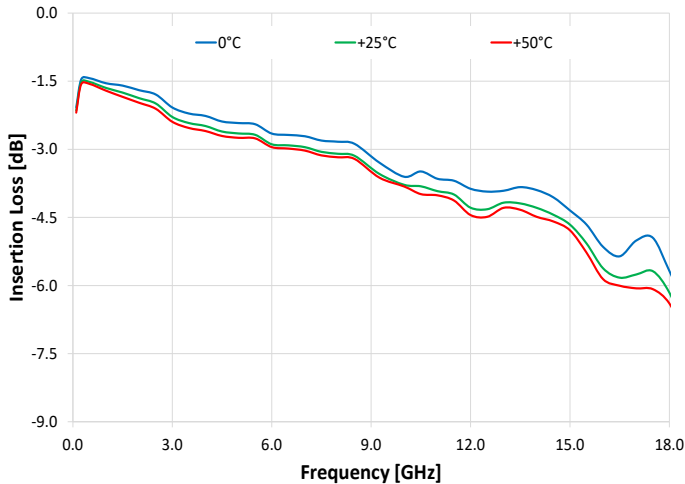
# Solid-State Switch

**TTL-1SP8T-183**

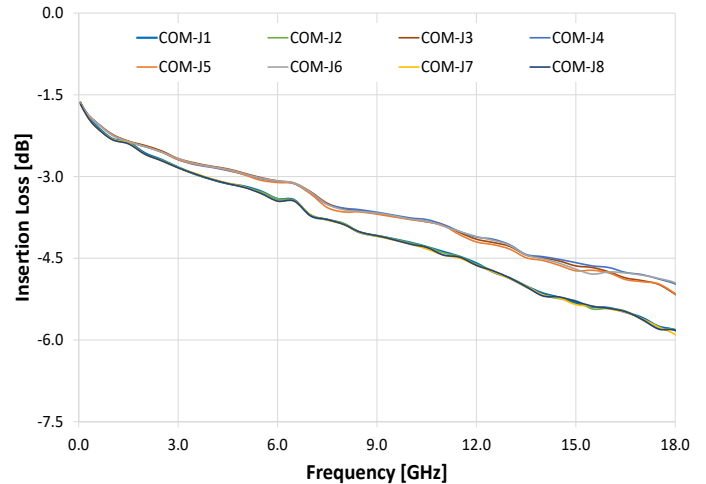
50Ω 0.1 to 18 GHz SP8T SMA female

## TYPICAL PERFORMANCE GRAPHS

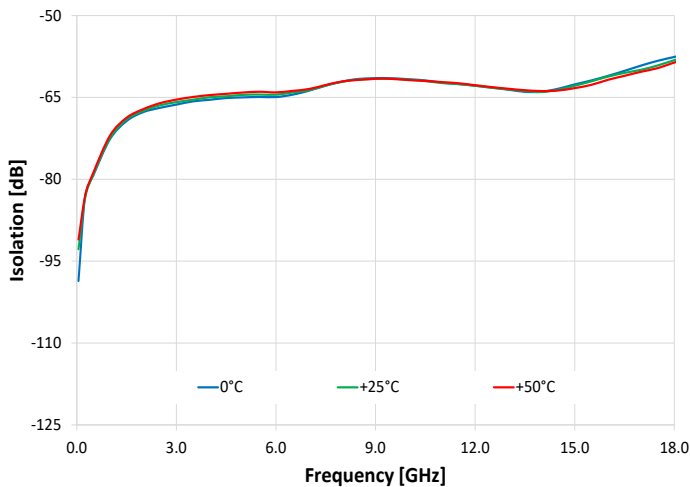
Insertion Loss over Temperature (J1 Active)



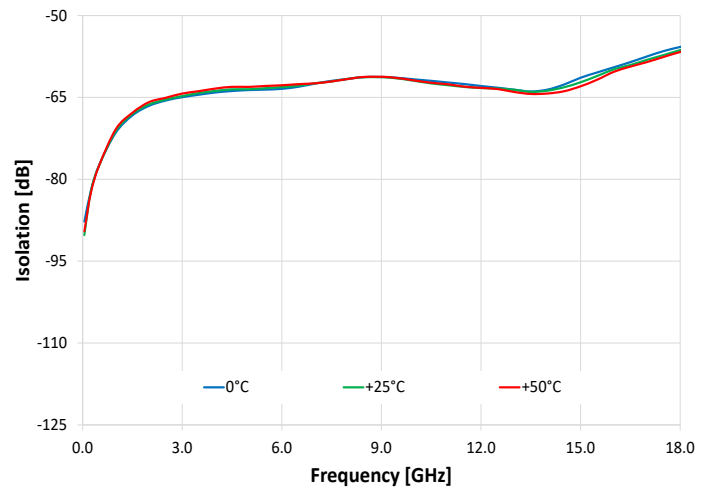
Insertion Loss J1 - J8 Active



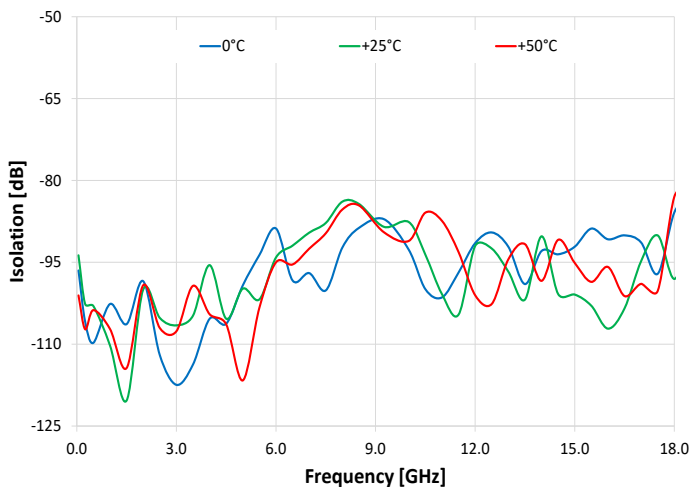
Isolation Com to J1 (J2 Active)



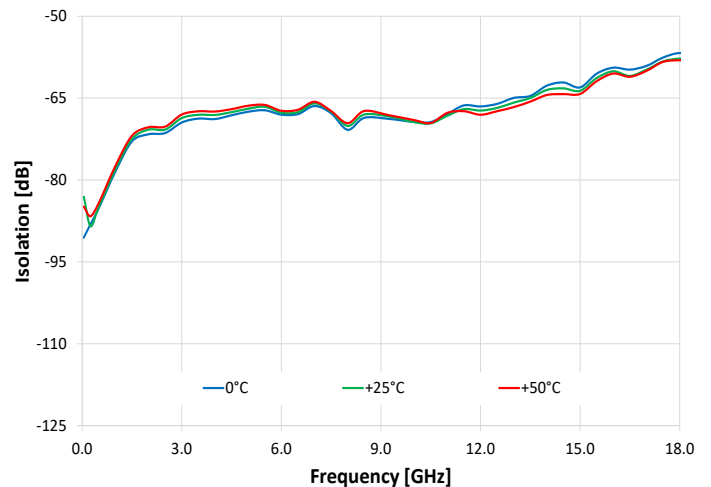
Isolation Com to J3 (J4 Active)



Isolation J2 to J3 (J2 Active)



Isolation J7 to J8 (J7 Active)





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# Solid-State Switch

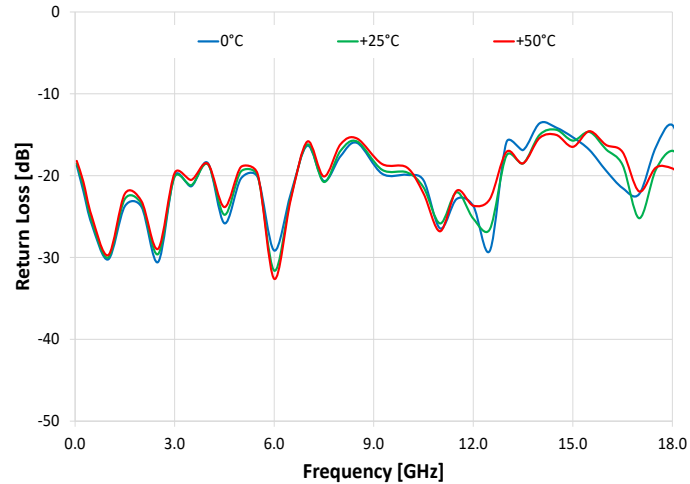
**TTL-1SP8T-183**

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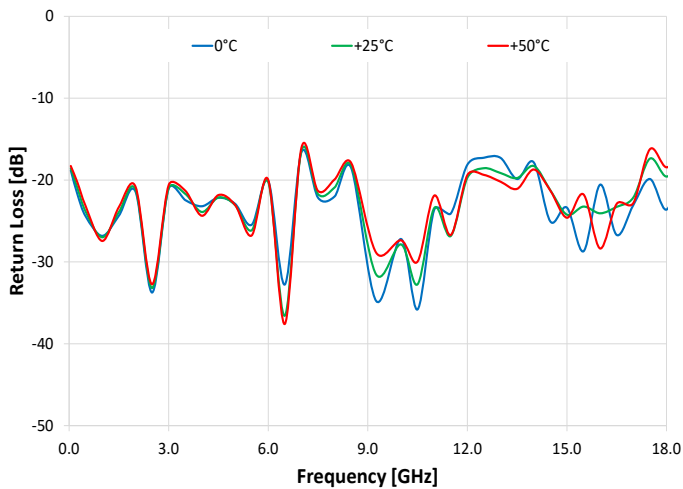
50Ω 0.1 to 18 GHz SP8T SMA female

## TYPICAL PERFORMANCE GRAPHS (CONTINUED)

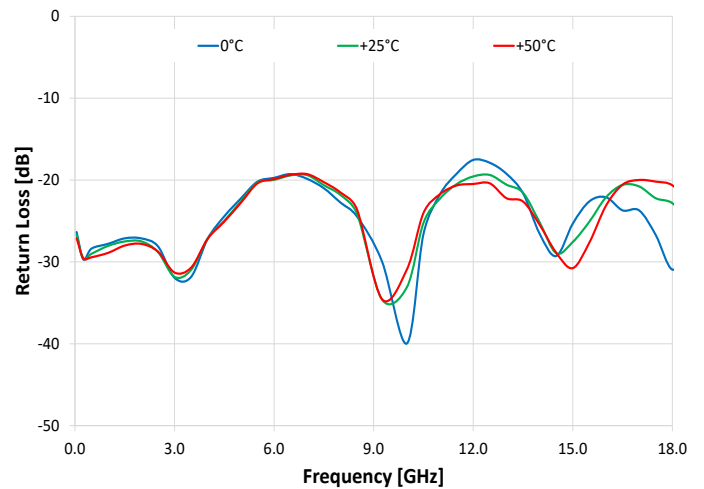
Return Loss @ COM over Temperature (J1 Active)



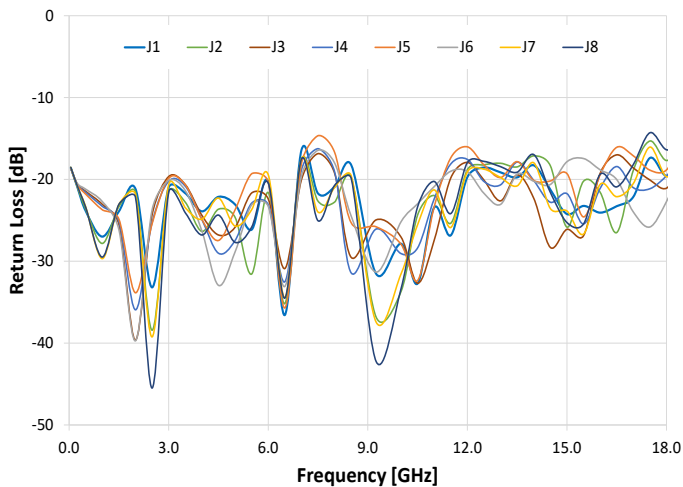
Return Loss @ J1 over Temperature (J1 Active)



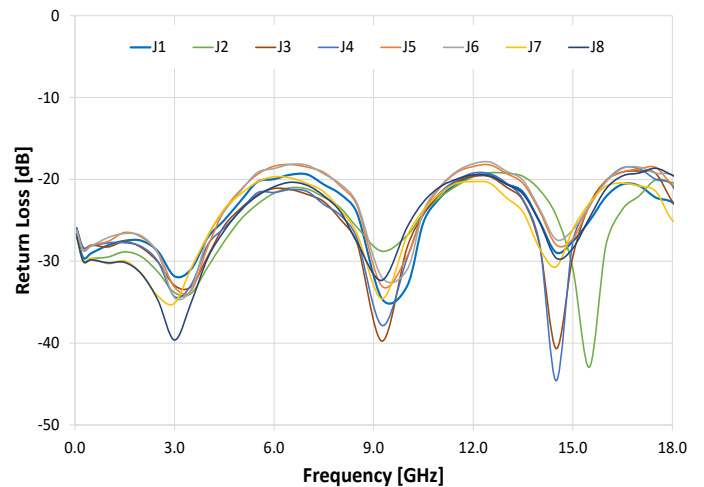
Return Loss @ J1 over Temperature (J1 Terminated)



Return Loss @ Active ports (J1 - J8 Active)



Return Loss @ Terminated ports (J1 - J8 Terminated)





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## Solid-State Switch

TTL-1SP8T-183

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50Ω 0.1 to 18 GHz SP8T SMA female

## TTL CONTROL LOGIC

| Parameter      | Conditions         |       | Min. | Typ. | Max. | Units |
|----------------|--------------------|-------|------|------|------|-------|
| Voltage Levels | Logic Low Voltage  | Input | 0    | -    | 0.8  | V     |
|                | Logic High Voltage | Input | 3.5  | -    | 5.0  |       |

The switch's TTL control interface consists of 4 parallel control bits that select the desired switch state, as shown in the truth table below. The parallel control does not have any latch and thus will respond immediately to any change.

The TTL inputs have internal 100kΩ pull-down (inputs D1, D2, & D3) and pull-up (input D4) resistors to set the switch to the disconnected state (all ports including COM internally terminated) when no control signal is applied.

The DC voltage supplies to the switch are provided via the D-sub port.

| Switch State | Control Bits |            |            |            |
|--------------|--------------|------------|------------|------------|
|              | D1           | D2         | D3         | D4         |
| Disconnected | Don't Care   | Don't Care | Don't Care | Logic High |
| COM -> J8    | Logic Low    | Logic Low  | Logic Low  | Logic Low  |
| COM -> J7    | Logic High   | Logic Low  | Logic Low  | Logic Low  |
| COM -> J6    | Logic Low    | Logic High | Logic Low  | Logic Low  |
| COM -> J5    | Logic High   | Logic High | Logic Low  | Logic Low  |
| COM -> J4    | Logic Low    | Logic Low  | Logic High | Logic Low  |
| COM -> J3    | Logic High   | Logic Low  | Logic High | Logic Low  |
| COM -> J2    | Logic Low    | Logic High | Logic High | Logic Low  |
| COM -> J1    | Logic High   | Logic High | Logic High | Logic Low  |

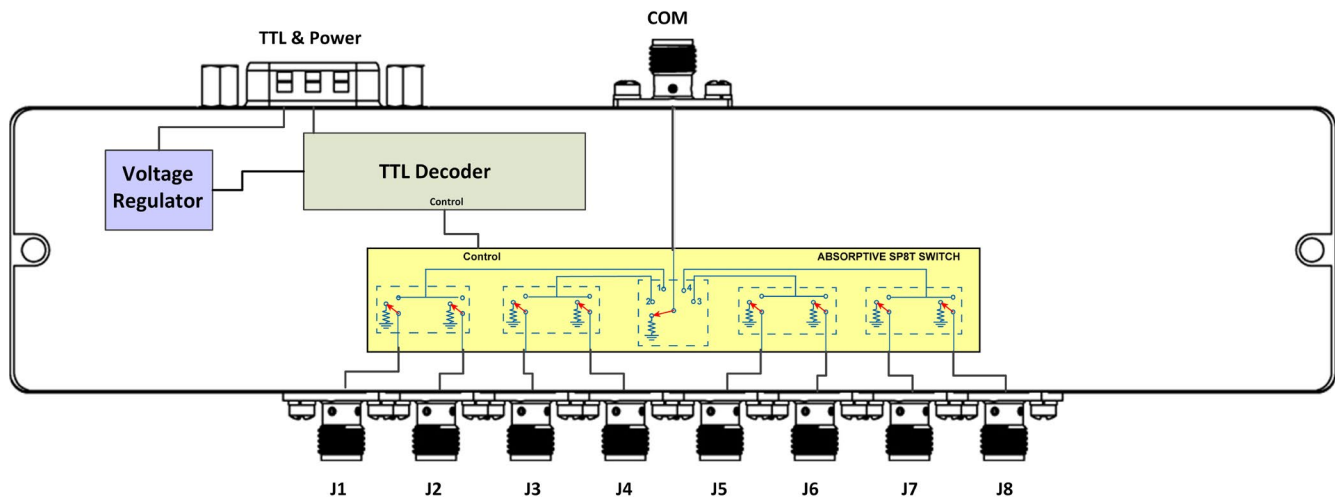
## D-SUB PIN CONNECTIONS

| Pin | Function      |
|-----|---------------|
| 1   | D1            |
| 2   | D2            |
| 3   | D3            |
| 4   | D4            |
| 5   | Not connected |
| 6   | Supply +5V    |
| 7,9 | GND           |
| 8   | Supply -5V    |





### BLOCK DIAGRAM



Switch functional diagram shown in disconnected state

### CONNECTIONS

| Port Name                | Connector Type   |
|--------------------------|------------------|
| RF Ports (COM, J1 to J8) | SMA Female       |
| TTL                      | 9-pin D-Sub Male |



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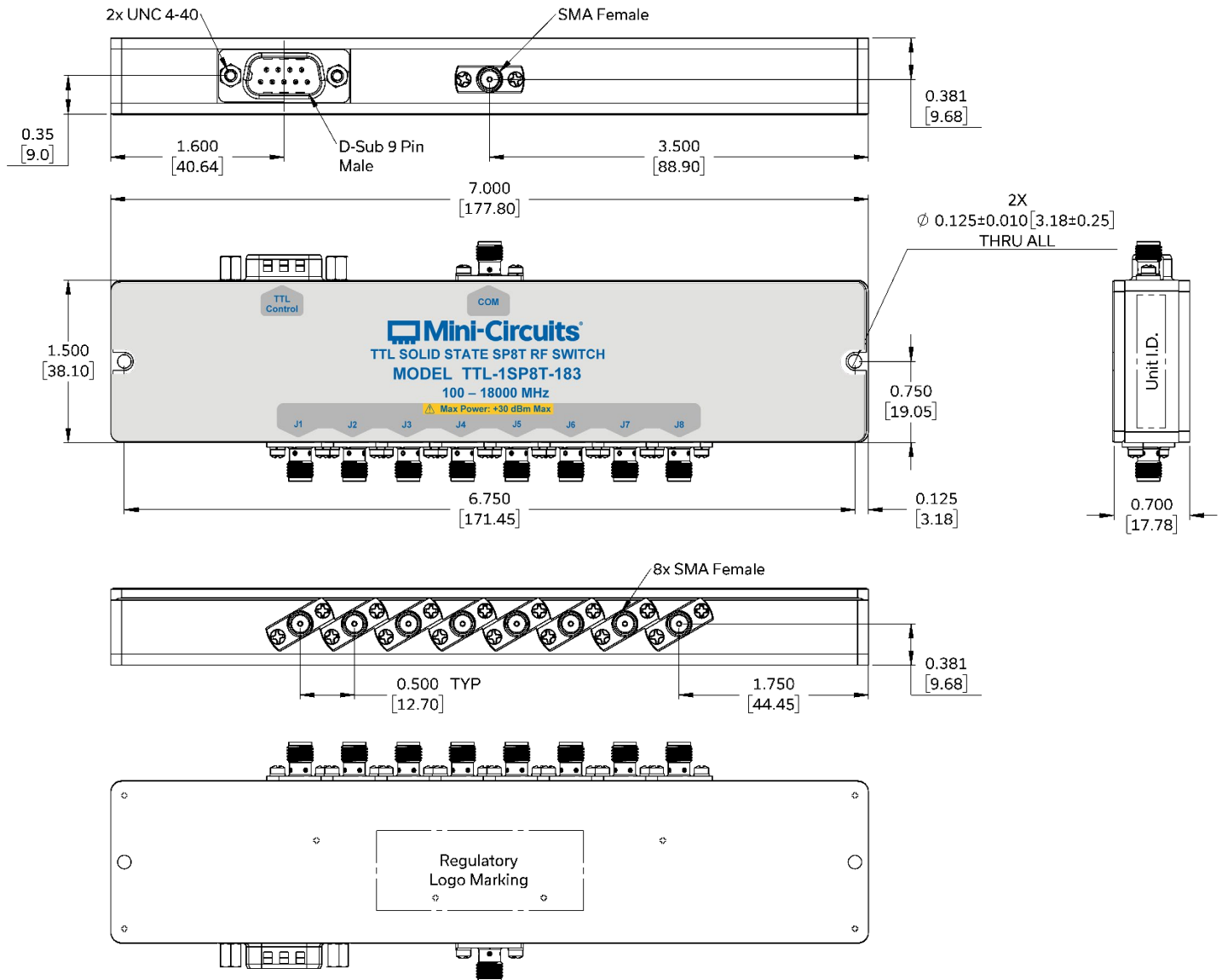
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# Solid-State Switch

**TTL-1SP8T-183**

50Ω 0.1 to 18 GHz SP8T SMA female

## CASE STYLE DRAWING (RB3408)



### NOTES:

1. Case material: Aluminum alloy.
2. Case Finish: Nickel Plate.
3. Dimensions: Inches [mm].  
Tolerances 2 Pl. ±.03 inch; 3 Pl. ±.015 inch.
4. Weight: 400 grams
5. Marking may contain other features or characters for internal lot control.

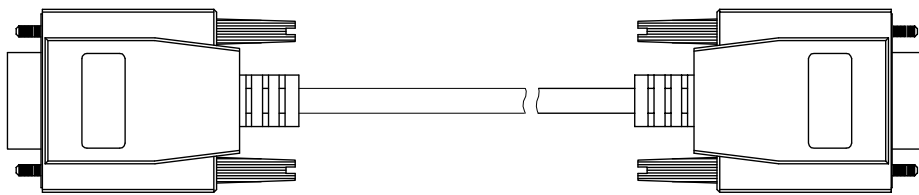
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### RECOMMENDED ACCESSORIES

TTL-1SP8T-183 is controlled via a standard 9 pin D-Sub connector and is supplied with a male-female D-Sub 9 cable. The cable is 6 feet (1.8 meter) long and uses 28 AWG wires.

#### CONTROL CABLE D-SUB9-MF-6+



| Pin Number (Male) | Function      | Description               | Pin Number (Female) |
|-------------------|---------------|---------------------------|---------------------|
| 1                 | D1            | Control bit 1             | 1                   |
| 2                 | D2            | Control bit 2             | 2                   |
| 3                 | D3            | Control bit 3             | 3                   |
| 4                 | D4            | Control bit 4             | 4                   |
| 5                 | Not Connected | Not Connected             | 5                   |
| 6                 | Supply +5V    | Supply Voltage (Positive) | 6                   |
| 7                 | GND           | Ground connection         | 7                   |
| 8                 | Supply -5V    | Supply Voltage (Negative) | 8                   |
| 9                 | GND           | Ground connection         | 9                   |



## DETAILED MODEL INFORMATION IS AVAILABLE ON OUR WEBSITE

[CLICK HERE](#)

|                           |                                                                                                                                                                                                                                                           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance Data & Graphs | Data Graphs                                                                                                                                                                                                                                               |
| Case Style                | RB3408                                                                                                                                                                                                                                                    |
| Environmental Rating      | ENV55T2                                                                                                                                                                                                                                                   |
| User Guide                | <a href="https://www.minicircuits.com/softwaredownload/solidstate.html">https://www.minicircuits.com/softwaredownload/solidstate.html</a>                                                                                                                 |
| Regulatory Compliance     | <div>Refer to user guide for compliance information<br/></div> <a href="https://www.minicircuits.com/app/AN49-012.pdf">https://www.minicircuits.com/app/AN49-012.pdf</a> |
| Support                   | <a href="mailto:testsolutions@minicircuits.com">testsolutions@minicircuits.com</a>                                                                                                                                                                        |

## INCLUDED ACCESSORIES

|                       | Part No.     | Description                                                            |
|-----------------------|--------------|------------------------------------------------------------------------|
| See drawing on page 9 | D-SUB9-MF-6+ | 6.0 ft (1.8 m) D-Sub cable: 9 pin D-sub (Male) to 9 pin D-sub (Female) |

## NOTES:

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at <https://www.minicircuits.com/terms/viewterm.html>

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## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Insertion Loss<br>(dB) |        |        |        |        |        |        |        |
|----------------|------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | COM-J1                 | COM-J2 | COM-J3 | COM-J4 | COM-J5 | COM-J6 | COM-J7 | COM-J8 |
| 0.10           | -2.08                  | -2.07  | -2.07  | -2.08  | -2.07  | -2.06  | -2.09  | -2.10  |
| 0.25           | -1.46                  | -1.45  | -1.44  | -1.46  | -1.45  | -1.44  | -1.45  | -1.47  |
| 0.50           | -1.43                  | -1.42  | -1.41  | -1.44  | -1.44  | -1.41  | -1.43  | -1.45  |
| 1.00           | -1.54                  | -1.53  | -1.52  | -1.55  | -1.55  | -1.53  | -1.55  | -1.56  |
| 1.50           | -1.60                  | -1.59  | -1.58  | -1.61  | -1.60  | -1.59  | -1.61  | -1.61  |
| 2.00           | -1.70                  | -1.73  | -1.71  | -1.71  | -1.70  | -1.72  | -1.75  | -1.72  |
| 2.50           | -1.79                  | -1.82  | -1.81  | -1.79  | -1.79  | -1.81  | -1.84  | -1.81  |
| 3.00           | -2.08                  | -1.96  | -1.93  | -2.07  | -2.08  | -1.96  | -1.98  | -2.10  |
| 3.50           | -2.21                  | -2.13  | -2.10  | -2.22  | -2.21  | -2.12  | -2.16  | -2.23  |
| 4.00           | -2.26                  | -2.22  | -2.20  | -2.28  | -2.28  | -2.22  | -2.27  | -2.29  |
| 4.50           | -2.39                  | -2.27  | -2.25  | -2.42  | -2.40  | -2.26  | -2.30  | -2.43  |
| 5.00           | -2.42                  | -2.43  | -2.39  | -2.44  | -2.42  | -2.45  | -2.50  | -2.46  |
| 5.50           | -2.45                  | -2.58  | -2.58  | -2.46  | -2.43  | -2.62  | -2.73  | -2.47  |
| 6.00           | -2.65                  | -2.63  | -2.61  | -2.64  | -2.67  | -2.65  | -2.71  | -2.70  |
| 6.50           | -2.68                  | -2.63  | -2.62  | -2.70  | -2.70  | -2.65  | -2.69  | -2.69  |
| 7.00           | -2.71                  | -2.74  | -2.71  | -2.70  | -2.75  | -2.74  | -2.80  | -2.70  |
| 7.50           | -2.81                  | -2.82  | -2.78  | -2.84  | -2.85  | -2.82  | -2.86  | -2.81  |
| 8.00           | -2.83                  | -2.79  | -2.76  | -2.83  | -2.89  | -2.76  | -2.81  | -2.86  |
| 8.50           | -2.88                  | -2.82  | -2.80  | -2.88  | -2.88  | -2.82  | -2.88  | -2.90  |
| 9.25           | -3.29                  | -3.07  | -3.03  | -3.21  | -3.29  | -3.06  | -3.09  | -3.26  |
| 10.00          | -3.60                  | -3.07  | -3.06  | -3.54  | -3.64  | -3.10  | -3.13  | -3.53  |
| 10.50          | -3.49                  | -3.09  | -3.09  | -3.44  | -3.49  | -3.13  | -3.15  | -3.47  |
| 11.00          | -3.65                  | -3.35  | -3.27  | -3.67  | -3.69  | -3.33  | -3.35  | -3.68  |
| 11.50          | -3.69                  | -3.20  | -3.22  | -3.66  | -3.70  | -3.25  | -3.28  | -3.71  |
| 12.00          | -3.87                  | -3.41  | -3.35  | -3.87  | -3.95  | -3.39  | -3.51  | -3.94  |
| 12.50          | -3.93                  | -3.65  | -3.63  | -3.89  | -3.91  | -3.66  | -3.76  | -3.89  |
| 13.00          | -3.91                  | -3.93  | -3.89  | -3.76  | -3.87  | -3.89  | -3.92  | -3.75  |
| 13.50          | -3.83                  | -4.10  | -4.09  | -3.78  | -3.79  | -4.02  | -3.98  | -3.76  |
| 14.00          | -3.90                  | -4.07  | -4.02  | -3.84  | -3.85  | -4.02  | -3.89  | -3.83  |
| 14.50          | -4.06                  | -4.13  | -4.09  | -3.98  | -4.00  | -4.18  | -4.02  | -4.01  |
| 15.00          | -4.35                  | -4.64  | -4.53  | -4.29  | -4.31  | -4.66  | -4.47  | -4.34  |
| 15.50          | -4.66                  | -5.27  | -5.22  | -4.61  | -4.64  | -5.18  | -5.09  | -4.71  |
| 16.00          | -5.15                  | -5.42  | -5.48  | -5.05  | -4.97  | -5.24  | -5.24  | -4.98  |
| 16.50          | -5.36                  | -4.94  | -4.90  | -5.22  | -5.19  | -4.84  | -4.89  | -5.15  |
| 17.00          | -5.01                  | -4.57  | -4.54  | -4.93  | -4.92  | -4.54  | -4.64  | -4.89  |
| 17.50          | -4.95                  | -4.85  | -4.83  | -4.80  | -4.83  | -4.83  | -4.97  | -4.86  |
| 18.00          | -5.68                  | -5.19  | -5.35  | -5.36  | -5.49  | -5.17  | -5.54  | -5.67  |
| 18.50          | -6.45                  | -5.52  | -6.12  | -6.45  | -6.28  | -5.30  | -6.21  | -6.73  |
| 19.00          | -6.73                  | -5.05  | -6.80  | -6.99  | -6.41  | -4.92  | -5.57  | -7.07  |
| 19.50          | -6.32                  | -5.85  | -5.68  | -6.34  | -6.02  | -5.73  | -5.41  | -6.16  |
| 20.00          | -6.42                  | -7.07  | -6.75  | -5.69  | -5.65  | -7.32  | -6.72  | -5.35  |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Active ports<br>(dB) |        |        |        |        |        |        |        |        |
|----------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                | COM                               | J1     | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -9.94                             | -8.42  | -8.34  | -8.34  | -8.34  | -8.43  | -8.38  | -8.36  | -8.33  |
| 0.25           | -16.93                            | -14.76 | -14.78 | -14.72 | -14.75 | -14.95 | -14.82 | -14.79 | -14.72 |
| 0.50           | -22.77                            | -18.41 | -17.98 | -18.04 | -18.26 | -18.44 | -18.19 | -17.97 | -18.05 |
| 1.00           | -25.76                            | -24.61 | -22.91 | -22.72 | -24.70 | -25.15 | -22.98 | -22.11 | -24.15 |
| 1.50           | -22.68                            | -30.88 | -24.65 | -25.13 | -30.53 | -31.76 | -25.52 | -23.98 | -28.71 |
| 2.00           | -26.40                            | -35.89 | -22.09 | -22.65 | -35.37 | -36.87 | -22.65 | -21.03 | -30.02 |
| 2.50           | -23.26                            | -23.50 | -26.96 | -26.20 | -25.15 | -23.99 | -27.51 | -23.56 | -24.23 |
| 3.00           | -15.97                            | -16.49 | -23.85 | -25.84 | -16.66 | -16.36 | -23.98 | -22.37 | -16.29 |
| 3.50           | -16.95                            | -16.98 | -17.57 | -18.23 | -16.62 | -16.93 | -18.29 | -16.85 | -16.85 |
| 4.00           | -37.01                            | -18.21 | -18.51 | -18.75 | -17.53 | -17.15 | -18.94 | -16.75 | -17.07 |
| 4.50           | -19.84                            | -16.19 | -17.85 | -18.12 | -15.19 | -15.36 | -18.05 | -16.53 | -14.74 |
| 5.00           | -21.76                            | -19.59 | -14.13 | -14.11 | -18.15 | -19.79 | -13.62 | -12.83 | -17.67 |
| 5.50           | -24.70                            | -20.30 | -13.54 | -13.05 | -20.99 | -22.86 | -12.78 | -11.98 | -20.34 |
| 6.00           | -15.32                            | -15.27 | -15.95 | -15.32 | -15.19 | -15.13 | -15.44 | -13.87 | -15.06 |
| 6.50           | -15.53                            | -16.75 | -16.27 | -15.61 | -16.17 | -15.30 | -16.23 | -14.81 | -15.93 |
| 7.00           | -24.58                            | -18.72 | -14.69 | -14.84 | -16.88 | -16.06 | -15.01 | -14.18 | -17.38 |
| 7.50           | -20.19                            | -16.80 | -15.93 | -16.41 | -15.39 | -14.96 | -16.49 | -15.58 | -16.04 |
| 8.00           | -20.21                            | -19.64 | -20.70 | -20.98 | -18.61 | -19.19 | -22.36 | -20.56 | -19.74 |
| 8.50           | -28.57                            | -20.69 | -22.77 | -23.55 | -21.07 | -20.63 | -24.07 | -23.23 | -22.70 |
| 9.25           | -16.17                            | -13.30 | -19.41 | -20.42 | -14.01 | -12.91 | -18.95 | -18.70 | -13.50 |
| 10.00          | -12.21                            | -12.14 | -24.04 | -23.33 | -12.34 | -11.46 | -24.26 | -21.12 | -11.88 |
| 10.50          | -18.66                            | -16.69 | -26.29 | -26.90 | -16.21 | -16.35 | -25.81 | -29.71 | -16.86 |
| 11.00          | -16.09                            | -18.95 | -22.85 | -22.87 | -17.90 | -18.86 | -24.02 | -24.49 | -19.55 |
| 11.50          | -14.30                            | -15.04 | -25.83 | -28.36 | -14.66 | -14.65 | -26.42 | -25.57 | -14.74 |
| 12.00          | -13.75                            | -12.87 | -20.21 | -21.95 | -12.87 | -11.55 | -20.36 | -18.15 | -12.39 |
| 12.50          | -13.97                            | -13.31 | -16.28 | -16.61 | -13.25 | -13.12 | -15.53 | -13.88 | -13.35 |
| 13.00          | -14.76                            | -14.42 | -13.01 | -12.50 | -16.95 | -15.07 | -12.43 | -11.97 | -16.82 |
| 13.50          | -22.09                            | -23.90 | -12.07 | -11.71 | -23.16 | -20.96 | -12.66 | -13.32 | -28.83 |
| 14.00          | -38.44                            | -22.63 | -14.89 | -14.63 | -34.76 | -26.68 | -14.82 | -17.59 | -26.27 |
| 14.50          | -33.05                            | -26.68 | -16.15 | -17.27 | -27.81 | -26.93 | -14.54 | -18.02 | -27.72 |
| 15.00          | -40.90                            | -29.38 | -12.78 | -13.80 | -30.14 | -24.14 | -11.90 | -14.25 | -23.31 |
| 15.50          | -26.43                            | -22.07 | -10.23 | -9.76  | -19.36 | -16.85 | -10.26 | -11.15 | -18.15 |
| 16.00          | -14.10                            | -11.70 | -10.06 | -9.21  | -11.65 | -14.11 | -11.18 | -10.99 | -13.03 |
| 16.50          | -10.21                            | -10.61 | -14.12 | -13.69 | -11.27 | -10.96 | -15.16 | -14.78 | -11.76 |
| 17.00          | -12.47                            | -15.36 | -19.26 | -19.67 | -14.73 | -13.42 | -18.28 | -18.11 | -15.78 |
| 17.50          | -17.03                            | -14.82 | -13.46 | -12.91 | -15.83 | -12.18 | -11.59 | -11.53 | -13.96 |
| 18.00          | -14.02                            | -9.71  | -10.54 | -9.24  | -10.13 | -9.10  | -9.57  | -8.39  | -8.30  |
| 18.50          | -10.73                            | -8.61  | -10.52 | -8.30  | -7.12  | -7.46  | -10.27 | -7.98  | -6.31  |
| 19.00          | -7.53                             | -10.79 | -15.58 | -9.68  | -6.14  | -8.03  | -15.72 | -10.47 | -6.72  |
| 19.50          | -8.34                             | -13.31 | -13.59 | -17.79 | -10.16 | -16.04 | -10.83 | -14.04 | -12.95 |
| 20.00          | -8.91                             | -16.28 | -9.32  | -8.84  | -16.94 | -13.15 | -8.16  | -7.44  | -21.70 |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Internally terminated ports<br>(dB) |        |        |        |        |        |        |        |
|----------------|--------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | J1                                               | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -21.55                                           | -21.57 | -21.64 | -21.70 | -21.95 | -21.96 | -21.96 | -21.77 |
| 0.25           | -21.80                                           | -21.78 | -21.85 | -21.91 | -22.18 | -22.19 | -22.15 | -21.88 |
| 0.50           | -21.91                                           | -21.81 | -22.04 | -21.95 | -22.20 | -22.37 | -22.45 | -22.09 |
| 1.00           | -22.29                                           | -22.28 | -22.15 | -22.15 | -22.44 | -23.24 | -23.08 | -22.63 |
| 1.50           | -22.33                                           | -22.18 | -22.24 | -21.71 | -22.26 | -23.50 | -23.28 | -21.87 |
| 2.00           | -21.38                                           | -21.11 | -21.14 | -20.91 | -21.34 | -22.60 | -22.72 | -20.77 |
| 2.50           | -18.93                                           | -19.83 | -19.88 | -19.56 | -19.50 | -20.62 | -20.21 | -19.01 |
| 3.00           | -16.71                                           | -17.31 | -17.35 | -16.77 | -17.19 | -17.19 | -17.00 | -16.52 |
| 3.50           | -14.07                                           | -14.64 | -14.78 | -14.45 | -15.10 | -14.61 | -14.48 | -14.08 |
| 4.00           | -12.56                                           | -12.78 | -12.66 | -12.42 | -13.13 | -12.25 | -12.42 | -12.36 |
| 4.50           | -11.15                                           | -11.20 | -11.01 | -11.01 | -11.47 | -10.51 | -11.02 | -11.19 |
| 5.00           | -10.28                                           | -10.21 | -9.81  | -10.29 | -10.28 | -9.40  | -9.95  | -10.21 |
| 5.50           | -9.63                                            | -9.40  | -9.10  | -9.58  | -9.50  | -8.76  | -9.35  | -9.67  |
| 6.00           | -9.21                                            | -9.04  | -8.76  | -8.82  | -9.25  | -8.32  | -9.10  | -9.20  |
| 6.50           | -9.07                                            | -8.84  | -8.65  | -8.39  | -9.12  | -8.34  | -8.86  | -9.00  |
| 7.00           | -9.03                                            | -9.20  | -8.69  | -8.58  | -9.29  | -8.68  | -9.11  | -9.25  |
| 7.50           | -9.30                                            | -9.67  | -9.32  | -9.17  | -9.63  | -9.20  | -9.64  | -9.54  |
| 8.00           | -9.82                                            | -9.98  | -9.91  | -9.80  | -10.13 | -9.72  | -10.19 | -9.98  |
| 8.50           | -10.56                                           | -10.39 | -10.69 | -10.46 | -11.01 | -10.34 | -10.68 | -10.00 |
| 9.25           | -11.88                                           | -11.61 | -11.69 | -11.45 | -12.66 | -11.71 | -12.20 | -11.29 |
| 10.00          | -14.07                                           | -13.59 | -13.27 | -14.34 | -15.12 | -13.94 | -14.70 | -13.92 |
| 10.50          | -13.97                                           | -13.77 | -13.21 | -14.61 | -14.86 | -13.67 | -14.03 | -14.60 |
| 11.00          | -12.33                                           | -12.12 | -12.11 | -12.59 | -13.19 | -11.97 | -11.61 | -12.83 |
| 11.50          | -10.99                                           | -11.37 | -10.96 | -11.04 | -12.35 | -10.97 | -10.56 | -11.58 |
| 12.00          | -11.03                                           | -11.16 | -10.79 | -10.12 | -11.93 | -10.20 | -10.29 | -11.20 |
| 12.50          | -11.45                                           | -11.57 | -10.96 | -10.98 | -11.93 | -9.94  | -10.88 | -11.62 |
| 13.00          | -11.80                                           | -11.52 | -11.54 | -11.59 | -11.89 | -10.04 | -11.26 | -11.12 |
| 13.50          | -11.13                                           | -10.71 | -11.77 | -11.16 | -11.69 | -10.00 | -10.82 | -10.53 |
| 14.00          | -11.05                                           | -10.53 | -12.01 | -10.58 | -11.99 | -10.67 | -10.69 | -10.19 |
| 14.50          | -11.36                                           | -11.10 | -11.38 | -10.09 | -11.99 | -11.28 | -11.05 | -11.10 |
| 15.00          | -11.23                                           | -11.89 | -10.49 | -10.53 | -11.41 | -11.51 | -11.52 | -12.08 |
| 15.50          | -11.05                                           | -11.07 | -10.10 | -11.82 | -10.90 | -11.03 | -11.54 | -11.76 |
| 16.00          | -10.65                                           | -9.78  | -9.77  | -12.39 | -10.67 | -10.43 | -10.51 | -10.32 |
| 16.50          | -10.58                                           | -9.32  | -10.01 | -11.29 | -11.38 | -10.56 | -10.21 | -9.82  |
| 17.00          | -11.37                                           | -10.47 | -10.81 | -11.64 | -13.13 | -12.09 | -11.52 | -11.72 |
| 17.50          | -12.78                                           | -12.55 | -12.31 | -12.62 | -14.44 | -13.95 | -13.40 | -13.54 |
| 18.00          | -12.39                                           | -11.85 | -12.38 | -11.44 | -11.93 | -11.66 | -11.41 | -12.14 |
| 18.50          | -10.05                                           | -9.41  | -10.68 | -10.04 | -9.13  | -9.09  | -8.48  | -9.16  |
| 19.00          | -8.56                                            | -8.20  | -8.39  | -7.64  | -7.55  | -7.47  | -7.08  | -8.64  |
| 19.50          | -7.91                                            | -8.08  | -6.84  | -6.71  | -6.78  | -6.88  | -6.73  | -9.42  |
| 20.00          | -7.61                                            | -7.69  | -6.01  | -6.41  | -6.38  | -6.37  | -6.67  | -10.13 |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Active states<br>(dB) |        |        |         |        |         |        |        |
|----------------|----------------------------------|--------|--------|---------|--------|---------|--------|--------|
|                | COM-1                            | COM-3  | COM-5  | COM-7   | J2-J3  | J4-J5   | J6-J7  | J7-J8  |
| 0.10           | -95.25                           | -91.19 | -96.49 | -96.81  | -94.26 | -98.64  | -88.28 | -98.22 |
| 0.25           | -95.12                           | -85.38 | -97.36 | -106.33 | -96.18 | -94.36  | -97.03 | -91.41 |
| 0.50           | -89.68                           | -83.09 | -83.54 | -87.48  | -86.39 | -95.03  | -90.80 | -83.33 |
| 1.00           | -83.15                           | -92.50 | -83.87 | -81.73  | -83.12 | -100.51 | -93.58 | -81.44 |
| 1.50           | -85.69                           | -76.91 | -76.48 | -82.67  | -83.00 | -99.87  | -84.76 | -80.48 |
| 2.00           | -85.39                           | -89.58 | -90.91 | -80.26  | -78.60 | -116.33 | -77.62 | -78.95 |
| 2.50           | -77.22                           | -87.35 | -87.64 | -73.58  | -77.96 | -93.61  | -73.47 | -72.65 |
| 3.00           | -71.01                           | -79.78 | -72.40 | -77.71  | -83.15 | -94.79  | -81.10 | -75.43 |
| 3.50           | -76.98                           | -67.94 | -68.59 | -69.91  | -75.69 | -86.96  | -75.13 | -67.00 |
| 4.00           | -72.59                           | -69.33 | -66.63 | -74.26  | -67.02 | -108.31 | -82.21 | -71.47 |
| 4.50           | -72.10                           | -72.87 | -70.44 | -81.31  | -64.97 | -94.92  | -64.83 | -79.23 |
| 5.00           | -65.56                           | -70.67 | -60.22 | -79.55  | -65.32 | -92.77  | -67.10 | -79.15 |
| 5.50           | -70.62                           | -75.72 | -68.68 | -73.92  | -73.31 | -89.01  | -59.79 | -69.64 |
| 6.00           | -75.03                           | -66.59 | -69.28 | -66.83  | -72.36 | -92.60  | -64.96 | -62.94 |
| 6.50           | -61.53                           | -64.73 | -60.74 | -68.31  | -61.38 | -87.45  | -71.86 | -63.98 |
| 7.00           | -59.41                           | -72.28 | -65.75 | -65.63  | -60.39 | -100.17 | -62.69 | -63.39 |
| 7.50           | -62.65                           | -65.38 | -70.98 | -69.33  | -70.99 | -104.26 | -56.68 | -72.29 |
| 8.00           | -59.39                           | -65.80 | -66.49 | -63.63  | -64.47 | -99.64  | -56.09 | -62.55 |
| 8.50           | -64.81                           | -57.29 | -54.54 | -66.22  | -75.98 | -85.16  | -65.81 | -63.87 |
| 9.25           | -69.70                           | -62.17 | -62.94 | -74.18  | -68.38 | -94.10  | -70.42 | -71.72 |
| 10.00          | -60.71                           | -72.83 | -59.94 | -67.44  | -66.38 | -94.47  | -69.70 | -65.33 |
| 10.50          | -70.03                           | -62.77 | -64.05 | -75.07  | -64.42 | -87.94  | -79.26 | -74.98 |
| 11.00          | -71.22                           | -70.93 | -63.81 | -66.05  | -65.80 | -86.64  | -71.06 | -64.87 |
| 11.50          | -64.58                           | -67.97 | -69.99 | -70.90  | -65.56 | -84.56  | -65.06 | -71.03 |
| 12.00          | -65.43                           | -80.67 | -65.69 | -63.11  | -71.90 | -91.62  | -71.88 | -66.18 |
| 12.50          | -63.09                           | -71.59 | -65.89 | -66.05  | -67.47 | -95.50  | -72.45 | -66.21 |
| 13.00          | -59.77                           | -66.51 | -60.85 | -71.38  | -59.33 | -109.53 | -68.84 | -69.29 |
| 13.50          | -62.33                           | -68.99 | -65.59 | -61.81  | -60.85 | -94.82  | -69.80 | -57.65 |
| 14.00          | -64.75                           | -65.81 | -68.20 | -62.01  | -55.30 | -86.63  | -60.89 | -59.88 |
| 14.50          | -57.90                           | -73.17 | -68.83 | -62.33  | -68.96 | -88.20  | -62.01 | -64.47 |
| 15.00          | -84.69                           | -65.86 | -69.03 | -60.54  | -60.32 | -82.82  | -72.15 | -57.71 |
| 15.50          | -68.87                           | -69.27 | -62.43 | -59.51  | -54.05 | -82.62  | -71.83 | -53.50 |
| 16.00          | -61.33                           | -68.65 | -61.53 | -64.22  | -57.82 | -83.32  | -66.66 | -58.65 |
| 16.50          | -66.46                           | -67.93 | -69.07 | -70.13  | -65.22 | -85.12  | -64.09 | -63.66 |
| 17.00          | -66.01                           | -66.21 | -64.09 | -60.70  | -63.97 | -86.98  | -68.98 | -57.39 |
| 17.50          | -64.68                           | -65.91 | -65.05 | -64.11  | -59.53 | -90.00  | -61.41 | -60.86 |
| 18.00          | -68.09                           | -59.45 | -67.58 | -55.08  | -62.42 | -82.48  | -58.11 | -56.30 |
| 18.50          | -67.07                           | -49.62 | -68.21 | -51.35  | -63.68 | -75.56  | -68.43 | -52.21 |
| 19.00          | -58.75                           | -54.31 | -72.86 | -67.52  | -51.03 | -75.17  | -68.84 | -64.30 |
| 19.50          | -52.09                           | -64.96 | -72.96 | -71.03  | -56.18 | -75.69  | -66.80 | -68.55 |
| 20.00          | -49.64                           | -66.27 | -68.97 | -65.89  | -52.39 | -73.60  | -65.86 | -71.52 |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Disconnected states<br>(dB) |         |         |         |         |         |         |         |
|----------------|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
|                | COM-1                                  | COM-2   | COM-3   | COM-4   | COM-5   | COM-6   | COM-7   | COM-8   |
| 0.10           | -88.95                                 | -92.22  | -96.64  | -93.03  | -97.87  | -91.84  | -92.77  | -98.21  |
| 0.25           | -94.69                                 | -96.89  | -95.66  | -96.34  | -100.96 | -99.22  | -90.47  | -92.92  |
| 0.50           | -99.45                                 | -95.09  | -99.82  | -98.41  | -90.16  | -92.09  | -104.82 | -99.95  |
| 1.00           | -104.30                                | -90.50  | -96.43  | -90.44  | -93.11  | -96.33  | -96.47  | -93.14  |
| 1.50           | -103.86                                | -96.22  | -91.03  | -98.97  | -99.18  | -92.13  | -124.10 | -100.77 |
| 2.00           | -101.24                                | -93.76  | -93.30  | -92.79  | -104.23 | -89.02  | -108.59 | -95.28  |
| 2.50           | -92.60                                 | -115.65 | -95.42  | -100.71 | -94.90  | -95.48  | -94.00  | -95.33  |
| 3.00           | -95.25                                 | -99.14  | -92.01  | -90.24  | -85.41  | -89.30  | -87.71  | -89.61  |
| 3.50           | -87.82                                 | -91.65  | -88.54  | -88.11  | -94.14  | -93.65  | -99.89  | -101.79 |
| 4.00           | -86.91                                 | -90.21  | -92.99  | -89.23  | -94.05  | -101.19 | -99.27  | -89.31  |
| 4.50           | -101.20                                | -94.25  | -106.49 | -101.41 | -92.25  | -94.61  | -97.07  | -94.55  |
| 5.00           | -89.96                                 | -107.59 | -97.71  | -90.25  | -89.96  | -92.02  | -95.74  | -97.84  |
| 5.50           | -87.11                                 | -91.99  | -94.16  | -91.99  | -101.77 | -110.83 | -101.22 | -89.66  |
| 6.00           | -90.01                                 | -99.20  | -95.99  | -94.96  | -87.47  | -97.46  | -100.25 | -87.37  |
| 6.50           | -91.65                                 | -87.93  | -96.55  | -90.70  | -93.14  | -91.79  | -95.06  | -94.37  |
| 7.00           | -92.67                                 | -98.73  | -90.07  | -89.68  | -87.94  | -93.88  | -87.68  | -99.86  |
| 7.50           | -90.69                                 | -88.19  | -89.35  | -88.61  | -103.10 | -88.30  | -88.97  | -106.39 |
| 8.00           | -94.82                                 | -96.90  | -91.36  | -87.07  | -92.00  | -86.86  | -107.67 | -93.44  |
| 8.50           | -87.68                                 | -90.25  | -95.18  | -105.70 | -88.27  | -85.50  | -92.56  | -87.03  |
| 9.25           | -104.08                                | -87.17  | -91.09  | -91.71  | -103.28 | -96.83  | -86.34  | -92.33  |
| 10.00          | -92.74                                 | -89.59  | -94.30  | -85.12  | -82.81  | -94.86  | -95.72  | -99.27  |
| 10.50          | -98.80                                 | -92.56  | -97.87  | -86.66  | -91.76  | -86.52  | -88.29  | -90.36  |
| 11.00          | -89.75                                 | -93.13  | -90.54  | -90.44  | -87.12  | -105.74 | -83.39  | -91.93  |
| 11.50          | -89.45                                 | -94.53  | -88.96  | -88.89  | -92.49  | -99.66  | -83.36  | -88.98  |
| 12.00          | -87.10                                 | -98.44  | -91.14  | -82.64  | -86.67  | -93.84  | -89.40  | -96.53  |
| 12.50          | -94.74                                 | -89.78  | -92.60  | -94.55  | -93.52  | -100.26 | -104.34 | -85.88  |
| 13.00          | -93.10                                 | -92.92  | -85.21  | -82.59  | -86.32  | -94.48  | -89.30  | -94.04  |
| 13.50          | -91.50                                 | -89.24  | -92.79  | -104.75 | -89.81  | -87.20  | -95.40  | -85.89  |
| 14.00          | -95.07                                 | -83.94  | -86.97  | -95.39  | -94.89  | -99.30  | -83.84  | -83.35  |
| 14.50          | -100.34                                | -93.35  | -92.39  | -95.48  | -88.68  | -80.77  | -79.23  | -88.07  |
| 15.00          | -86.37                                 | -87.97  | -84.09  | -81.51  | -79.90  | -78.19  | -74.93  | -87.70  |
| 15.50          | -95.67                                 | -106.53 | -102.52 | -79.62  | -80.34  | -82.00  | -79.14  | -90.75  |
| 16.00          | -83.78                                 | -94.87  | -93.91  | -81.24  | -78.79  | -78.07  | -77.05  | -80.08  |
| 16.50          | -91.29                                 | -94.41  | -87.02  | -74.97  | -89.44  | -74.29  | -77.34  | -86.93  |
| 17.00          | -86.25                                 | -102.29 | -80.03  | -69.73  | -70.33  | -73.44  | -67.12  | -85.69  |
| 17.50          | -85.45                                 | -80.26  | -87.96  | -66.26  | -66.74  | -69.88  | -68.52  | -90.83  |
| 18.00          | -83.95                                 | -73.11  | -81.01  | -67.40  | -56.58  | -69.90  | -88.98  | -75.81  |
| 18.50          | -79.36                                 | -74.52  | -71.07  | -68.59  | -58.09  | -66.94  | -60.35  | -72.36  |
| 19.00          | -78.24                                 | -76.09  | -77.75  | -65.42  | -69.48  | -65.16  | -59.74  | -87.23  |
| 19.50          | -79.46                                 | -77.18  | -94.13  | -72.75  | -71.85  | -72.37  | -69.32  | -77.79  |
| 20.00          | -89.36                                 | -85.09  | -88.03  | -74.52  | -75.60  | -71.50  | -82.43  | -76.96  |

TTL

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Insertion Loss<br>(dB) |        |        |        |        |        |        |        |
|----------------|------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | COM-J1                 | COM-J2 | COM-J3 | COM-J4 | COM-J5 | COM-J6 | COM-J7 | COM-J8 |
| 0.10           | -2.15                  | -2.14  | -2.13  | -2.14  | -2.14  | -2.13  | -2.15  | -2.16  |
| 0.25           | -1.53                  | -1.51  | -1.49  | -1.51  | -1.51  | -1.49  | -1.51  | -1.52  |
| 0.50           | -1.52                  | -1.48  | -1.47  | -1.50  | -1.50  | -1.47  | -1.49  | -1.51  |
| 1.00           | -1.65                  | -1.62  | -1.61  | -1.64  | -1.64  | -1.60  | -1.63  | -1.64  |
| 1.50           | -1.75                  | -1.74  | -1.72  | -1.74  | -1.73  | -1.71  | -1.74  | -1.74  |
| 2.00           | -1.87                  | -1.90  | -1.87  | -1.86  | -1.85  | -1.87  | -1.90  | -1.87  |
| 2.50           | -1.99                  | -2.00  | -1.98  | -1.96  | -1.97  | -1.97  | -2.01  | -1.98  |
| 3.00           | -2.29                  | -2.15  | -2.12  | -2.25  | -2.27  | -2.13  | -2.17  | -2.28  |
| 3.50           | -2.42                  | -2.32  | -2.27  | -2.40  | -2.40  | -2.29  | -2.35  | -2.41  |
| 4.00           | -2.49                  | -2.42  | -2.38  | -2.47  | -2.47  | -2.39  | -2.46  | -2.48  |
| 4.50           | -2.61                  | -2.48  | -2.44  | -2.60  | -2.60  | -2.44  | -2.50  | -2.61  |
| 5.00           | -2.65                  | -2.63  | -2.59  | -2.62  | -2.62  | -2.62  | -2.70  | -2.64  |
| 5.50           | -2.68                  | -2.80  | -2.78  | -2.65  | -2.64  | -2.81  | -2.92  | -2.66  |
| 6.00           | -2.89                  | -2.85  | -2.81  | -2.84  | -2.88  | -2.83  | -2.91  | -2.89  |
| 6.50           | -2.91                  | -2.84  | -2.81  | -2.87  | -2.89  | -2.83  | -2.88  | -2.87  |
| 7.00           | -2.95                  | -2.95  | -2.91  | -2.89  | -2.95  | -2.92  | -2.98  | -2.88  |
| 7.50           | -3.06                  | -3.04  | -2.99  | -3.02  | -3.06  | -3.00  | -3.05  | -3.00  |
| 8.00           | -3.10                  | -3.02  | -2.98  | -3.04  | -3.10  | -2.95  | -3.03  | -3.07  |
| 8.50           | -3.14                  | -3.05  | -3.01  | -3.08  | -3.11  | -3.02  | -3.09  | -3.12  |
| 9.25           | -3.54                  | -3.29  | -3.23  | -3.41  | -3.50  | -3.24  | -3.30  | -3.45  |
| 10.00          | -3.78                  | -3.26  | -3.23  | -3.64  | -3.77  | -3.25  | -3.28  | -3.63  |
| 10.50          | -3.81                  | -3.34  | -3.30  | -3.68  | -3.76  | -3.32  | -3.36  | -3.73  |
| 11.00          | -3.92                  | -3.61  | -3.52  | -3.86  | -3.90  | -3.55  | -3.58  | -3.89  |
| 11.50          | -4.00                  | -3.50  | -3.49  | -3.92  | -3.95  | -3.48  | -3.53  | -3.94  |
| 12.00          | -4.29                  | -3.79  | -3.69  | -4.20  | -4.31  | -3.71  | -3.83  | -4.25  |
| 12.50          | -4.32                  | -4.00  | -3.95  | -4.14  | -4.20  | -3.95  | -4.05  | -4.20  |
| 13.00          | -4.17                  | -4.12  | -4.08  | -3.98  | -4.09  | -4.05  | -4.13  | -3.99  |
| 13.50          | -4.19                  | -4.31  | -4.26  | -4.06  | -4.11  | -4.21  | -4.22  | -4.04  |
| 14.00          | -4.29                  | -4.47  | -4.35  | -4.17  | -4.19  | -4.33  | -4.21  | -4.18  |
| 14.50          | -4.44                  | -4.49  | -4.42  | -4.27  | -4.32  | -4.45  | -4.31  | -4.31  |
| 15.00          | -4.66                  | -4.99  | -4.85  | -4.53  | -4.58  | -4.92  | -4.75  | -4.56  |
| 15.50          | -5.07                  | -5.50  | -5.45  | -4.88  | -4.99  | -5.38  | -5.32  | -5.03  |
| 16.00          | -5.62                  | -5.59  | -5.56  | -5.46  | -5.38  | -5.39  | -5.43  | -5.45  |
| 16.50          | -5.83                  | -5.38  | -5.30  | -5.71  | -5.61  | -5.22  | -5.30  | -5.54  |
| 17.00          | -5.76                  | -5.19  | -5.15  | -5.53  | -5.58  | -5.11  | -5.22  | -5.55  |
| 17.50          | -5.68                  | -5.40  | -5.39  | -5.39  | -5.44  | -5.32  | -5.46  | -5.54  |
| 18.00          | -6.16                  | -5.78  | -5.91  | -5.85  | -5.89  | -5.65  | -6.10  | -6.10  |
| 18.50          | -7.01                  | -6.07  | -6.72  | -7.05  | -6.84  | -5.74  | -6.65  | -7.18  |
| 19.00          | -7.14                  | -5.59  | -6.92  | -7.42  | -6.79  | -5.32  | -5.94  | -7.39  |
| 19.50          | -6.59                  | -6.39  | -6.18  | -6.65  | -6.22  | -6.15  | -5.92  | -6.55  |
| 20.00          | -6.86                  | -7.61  | -7.28  | -6.21  | -6.10  | -7.74  | -7.19  | -5.81  |

TTL

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Active ports<br>(dB) |        |        |        |        |        |        |        |        |
|----------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                | COM                               | J1     | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -10.12                            | -8.51  | -8.39  | -8.38  | -8.40  | -8.50  | -8.43  | -8.40  | -8.38  |
| 0.25           | -17.04                            | -14.81 | -14.83 | -14.80 | -14.73 | -14.93 | -14.85 | -14.81 | -14.75 |
| 0.50           | -22.49                            | -18.22 | -17.99 | -17.99 | -18.20 | -18.44 | -18.13 | -17.93 | -18.00 |
| 1.00           | -25.88                            | -24.82 | -22.71 | -22.76 | -24.50 | -25.10 | -22.82 | -22.13 | -24.00 |
| 1.50           | -22.42                            | -29.37 | -24.18 | -24.73 | -30.12 | -31.23 | -25.02 | -23.59 | -27.83 |
| 2.00           | -25.79                            | -35.93 | -22.69 | -22.37 | -35.49 | -38.06 | -22.76 | -21.09 | -30.95 |
| 2.50           | -23.46                            | -22.69 | -28.28 | -27.50 | -24.11 | -23.38 | -28.14 | -24.22 | -23.53 |
| 3.00           | -16.25                            | -16.57 | -23.62 | -25.20 | -16.77 | -16.45 | -23.84 | -22.10 | -16.46 |
| 3.50           | -17.09                            | -17.21 | -17.88 | -18.62 | -16.66 | -16.86 | -18.47 | -16.98 | -16.76 |
| 4.00           | -33.47                            | -18.04 | -18.45 | -18.65 | -17.33 | -17.09 | -18.76 | -16.59 | -16.77 |
| 4.50           | -20.36                            | -16.30 | -17.63 | -17.66 | -15.35 | -15.42 | -17.74 | -16.19 | -14.79 |
| 5.00           | -21.76                            | -19.36 | -14.17 | -13.95 | -17.81 | -19.38 | -13.64 | -12.81 | -17.42 |
| 5.50           | -24.97                            | -20.06 | -13.45 | -12.98 | -20.58 | -22.11 | -12.66 | -11.95 | -19.86 |
| 6.00           | -15.36                            | -15.45 | -15.99 | -15.55 | -14.82 | -15.09 | -15.37 | -14.01 | -15.01 |
| 6.50           | -15.93                            | -17.16 | -16.33 | -15.84 | -16.11 | -15.62 | -16.16 | -15.01 | -16.29 |
| 7.00           | -24.86                            | -18.52 | -15.01 | -14.94 | -16.80 | -16.18 | -15.19 | -14.48 | -17.42 |
| 7.50           | -20.39                            | -16.59 | -16.13 | -16.18 | -15.59 | -15.04 | -16.63 | -15.64 | -15.89 |
| 8.00           | -19.93                            | -19.06 | -20.58 | -20.74 | -18.29 | -18.39 | -22.28 | -19.97 | -18.70 |
| 8.50           | -35.96                            | -21.49 | -23.33 | -24.80 | -21.31 | -20.52 | -24.26 | -23.21 | -22.28 |
| 9.25           | -15.84                            | -14.30 | -21.39 | -22.94 | -14.31 | -13.47 | -20.75 | -20.06 | -14.12 |
| 10.00          | -13.25                            | -13.09 | -27.18 | -26.80 | -13.34 | -12.41 | -27.22 | -24.68 | -13.21 |
| 10.50          | -16.39                            | -15.51 | -36.27 | -41.74 | -15.57 | -15.59 | -35.34 | -51.13 | -15.57 |
| 11.00          | -18.31                            | -19.67 | -23.54 | -23.79 | -18.26 | -19.51 | -24.63 | -25.76 | -19.04 |
| 11.50          | -14.93                            | -17.00 | -32.02 | -29.33 | -15.18 | -15.90 | -32.20 | -33.36 | -16.24 |
| 12.00          | -13.34                            | -12.93 | -20.05 | -22.35 | -13.03 | -11.65 | -20.35 | -18.90 | -12.98 |
| 12.50          | -14.55                            | -12.80 | -15.01 | -14.96 | -13.45 | -12.92 | -14.49 | -13.31 | -12.55 |
| 13.00          | -17.90                            | -16.23 | -14.49 | -13.29 | -17.73 | -16.70 | -13.21 | -12.42 | -16.93 |
| 13.50          | -21.48                            | -26.44 | -13.91 | -13.71 | -24.24 | -20.86 | -14.01 | -13.94 | -38.51 |
| 14.00          | -27.89                            | -33.54 | -14.24 | -14.67 | -27.70 | -32.63 | -14.62 | -17.57 | -24.23 |
| 14.50          | -37.58                            | -24.82 | -15.08 | -15.70 | -29.27 | -25.22 | -14.14 | -18.00 | -43.28 |
| 15.00          | -27.71                            | -39.46 | -11.92 | -11.93 | -29.02 | -24.69 | -11.08 | -13.32 | -35.58 |
| 15.50          | -18.37                            | -16.64 | -10.84 | -10.10 | -18.01 | -15.00 | -10.48 | -11.34 | -15.30 |
| 16.00          | -13.39                            | -12.57 | -11.76 | -11.13 | -11.50 | -14.36 | -12.77 | -12.24 | -12.19 |
| 16.50          | -11.34                            | -12.10 | -14.52 | -14.07 | -11.42 | -11.68 | -15.12 | -14.78 | -14.04 |
| 17.00          | -11.39                            | -13.32 | -16.67 | -16.01 | -14.34 | -12.31 | -15.59 | -16.01 | -13.41 |
| 17.50          | -15.35                            | -13.87 | -14.02 | -12.88 | -15.80 | -12.70 | -12.06 | -12.43 | -12.31 |
| 18.00          | -17.18                            | -12.01 | -11.85 | -10.37 | -10.87 | -10.09 | -10.59 | -9.36  | -9.53  |
| 18.50          | -9.95                             | -9.80  | -11.60 | -9.51  | -7.28  | -8.14  | -11.74 | -8.75  | -7.39  |
| 19.00          | -7.94                             | -10.61 | -15.31 | -10.13 | -6.58  | -8.36  | -15.46 | -10.71 | -7.18  |
| 19.50          | -10.84                            | -16.96 | -12.64 | -13.39 | -10.56 | -21.18 | -10.60 | -11.75 | -11.97 |
| 20.00          | -10.42                            | -17.54 | -9.33  | -8.12  | -15.37 | -11.83 | -7.86  | -7.25  | -17.77 |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Internally terminated ports<br>(dB) |        |        |        |        |        |        |        |
|----------------|--------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | J1                                               | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -21.65                                           | -21.63 | -21.66 | -21.73 | -21.98 | -22.03 | -21.99 | -21.79 |
| 0.25           | -21.99                                           | -21.93 | -22.08 | -22.05 | -22.29 | -22.36 | -22.23 | -22.12 |
| 0.50           | -22.02                                           | -21.99 | -22.22 | -22.05 | -22.38 | -22.50 | -22.67 | -22.35 |
| 1.00           | -22.65                                           | -22.43 | -22.56 | -22.40 | -22.75 | -23.41 | -23.38 | -22.94 |
| 1.50           | -22.65                                           | -22.42 | -22.36 | -21.89 | -22.52 | -23.80 | -23.77 | -22.53 |
| 2.00           | -21.12                                           | -21.63 | -21.72 | -21.28 | -21.51 | -22.87 | -22.86 | -21.25 |
| 2.50           | -18.97                                           | -19.74 | -19.78 | -19.58 | -19.63 | -20.47 | -20.17 | -18.92 |
| 3.00           | -16.83                                           | -17.24 | -17.26 | -16.89 | -17.28 | -17.26 | -17.09 | -16.62 |
| 3.50           | -14.31                                           | -14.89 | -14.93 | -14.49 | -15.17 | -14.65 | -14.63 | -14.36 |
| 4.00           | -12.74                                           | -13.00 | -12.83 | -12.65 | -13.24 | -12.30 | -12.49 | -12.52 |
| 4.50           | -11.29                                           | -11.23 | -11.17 | -11.11 | -11.55 | -10.56 | -11.05 | -11.27 |
| 5.00           | -10.35                                           | -10.15 | -9.85  | -10.27 | -10.31 | -9.40  | -9.94  | -10.27 |
| 5.50           | -9.67                                            | -9.40  | -9.10  | -9.57  | -9.48  | -8.78  | -9.33  | -9.73  |
| 6.00           | -9.32                                            | -9.22  | -8.73  | -8.93  | -9.26  | -8.43  | -9.23  | -9.42  |
| 6.50           | -9.28                                            | -9.08  | -8.75  | -8.64  | -9.22  | -8.56  | -9.11  | -9.29  |
| 7.00           | -9.32                                            | -9.37  | -8.96  | -8.80  | -9.49  | -8.94  | -9.30  | -9.42  |
| 7.50           | -9.59                                            | -9.75  | -9.60  | -9.36  | -9.81  | -9.37  | -9.69  | -9.68  |
| 8.00           | -10.13                                           | -10.30 | -10.22 | -9.98  | -10.42 | -9.88  | -10.38 | -10.34 |
| 8.50           | -11.18                                           | -11.11 | -11.16 | -10.98 | -11.58 | -10.85 | -11.39 | -10.80 |
| 9.25           | -12.82                                           | -12.49 | -12.31 | -12.35 | -13.52 | -12.70 | -13.10 | -12.05 |
| 10.00          | -13.71                                           | -13.00 | -13.15 | -14.07 | -14.55 | -13.45 | -13.71 | -13.53 |
| 10.50          | -13.60                                           | -13.35 | -13.02 | -14.39 | -14.46 | -13.17 | -13.64 | -14.51 |
| 11.00          | -13.22                                           | -12.98 | -12.59 | -13.20 | -14.00 | -12.67 | -12.70 | -14.02 |
| 11.50          | -12.07                                           | -12.57 | -11.64 | -11.94 | -13.41 | -11.95 | -11.77 | -12.77 |
| 12.00          | -11.43                                           | -11.62 | -11.31 | -10.51 | -12.34 | -10.72 | -10.72 | -11.49 |
| 12.50          | -10.99                                           | -10.96 | -11.08 | -10.73 | -11.54 | -9.79  | -10.23 | -11.11 |
| 13.00          | -11.43                                           | -10.86 | -11.42 | -11.67 | -11.41 | -9.83  | -10.51 | -10.88 |
| 13.50          | -12.05                                           | -11.46 | -11.86 | -11.71 | -12.02 | -10.27 | -11.29 | -11.55 |
| 14.00          | -12.57                                           | -12.24 | -12.30 | -11.38 | -13.10 | -11.39 | -12.31 | -11.78 |
| 14.50          | -11.80                                           | -11.75 | -11.71 | -10.50 | -12.47 | -11.85 | -11.93 | -11.56 |
| 15.00          | -10.72                                           | -10.76 | -10.85 | -10.33 | -10.93 | -11.19 | -10.57 | -11.09 |
| 15.50          | -10.51                                           | -10.12 | -10.27 | -11.39 | -10.29 | -10.75 | -10.21 | -10.86 |
| 16.00          | -11.17                                           | -10.38 | -9.91  | -13.01 | -10.87 | -10.86 | -10.92 | -11.55 |
| 16.50          | -11.84                                           | -10.94 | -10.17 | -12.50 | -12.62 | -11.59 | -12.05 | -11.53 |
| 17.00          | -12.55                                           | -11.56 | -11.07 | -11.76 | -14.30 | -12.84 | -12.82 | -12.75 |
| 17.50          | -12.20                                           | -11.49 | -12.37 | -12.43 | -13.09 | -12.99 | -11.71 | -12.04 |
| 18.00          | -11.82                                           | -11.06 | -12.88 | -11.57 | -11.24 | -11.63 | -10.64 | -11.82 |
| 18.50          | -11.34                                           | -10.80 | -11.14 | -10.80 | -10.15 | -10.06 | -9.63  | -10.63 |
| 19.00          | -9.45                                            | -9.50  | -8.45  | -8.15  | -8.59  | -8.21  | -8.13  | -9.64  |
| 19.50          | -7.94                                            | -7.96  | -6.65  | -6.45  | -6.88  | -6.75  | -6.73  | -9.03  |
| 20.00          | -7.25                                            | -6.97  | -5.73  | -5.88  | -5.79  | -6.03  | -5.89  | -8.86  |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Active states<br>(dB) |         |         |         |         |         |         |         |
|----------------|----------------------------------|---------|---------|---------|---------|---------|---------|---------|
|                | COM-2                            | COM-3   | COM-5   | COM-7   | J1-J2   | J3-J4   | J5-J6   | J7-J8   |
| 0.10           | -95.22                           | -94.44  | -91.26  | -96.87  | -98.80  | -92.16  | -102.82 | -94.10  |
| 0.25           | -102.01                          | -83.85  | -106.08 | -103.00 | -102.33 | -99.40  | -93.92  | -96.19  |
| 0.50           | -94.22                           | -81.14  | -83.50  | -90.73  | -90.31  | -95.61  | -101.50 | -100.02 |
| 1.00           | -83.14                           | -84.14  | -86.60  | -85.56  | -83.50  | -101.00 | -94.46  | -84.96  |
| 1.50           | -88.78                           | -77.82  | -79.72  | -84.49  | -84.20  | -93.34  | -84.75  | -83.64  |
| 2.00           | -89.48                           | -102.17 | -86.68  | -90.17  | -79.48  | -101.91 | -76.99  | -82.26  |
| 2.50           | -77.78                           | -82.27  | -86.57  | -75.37  | -79.05  | -99.41  | -74.05  | -73.50  |
| 3.00           | -70.61                           | -82.31  | -73.92  | -78.72  | -83.70  | -94.84  | -80.56  | -78.36  |
| 3.50           | -76.87                           | -68.42  | -69.65  | -68.98  | -76.50  | -93.77  | -78.93  | -66.71  |
| 4.00           | -74.47                           | -69.11  | -67.46  | -75.79  | -68.54  | -93.06  | -79.36  | -73.47  |
| 4.50           | -74.86                           | -73.87  | -70.75  | -78.67  | -65.38  | -91.98  | -66.65  | -78.08  |
| 5.00           | -67.18                           | -74.78  | -60.17  | -86.30  | -65.86  | -88.10  | -67.67  | -81.88  |
| 5.50           | -69.56                           | -74.44  | -71.75  | -72.42  | -74.36  | -87.18  | -60.94  | -69.88  |
| 6.00           | -73.43                           | -67.83  | -66.77  | -67.77  | -74.41  | -90.00  | -66.96  | -63.08  |
| 6.50           | -61.58                           | -66.71  | -62.55  | -69.06  | -62.34  | -89.04  | -73.21  | -65.16  |
| 7.00           | -61.15                           | -72.32  | -66.97  | -67.23  | -61.61  | -98.04  | -63.64  | -65.27  |
| 7.50           | -63.61                           | -66.01  | -70.81  | -69.41  | -74.70  | -93.70  | -56.51  | -73.49  |
| 8.00           | -59.55                           | -64.28  | -64.32  | -64.93  | -65.11  | -108.31 | -58.31  | -63.50  |
| 8.50           | -66.92                           | -61.04  | -55.32  | -66.86  | -74.66  | -92.78  | -67.19  | -64.04  |
| 9.25           | -67.88                           | -64.49  | -66.86  | -75.68  | -68.12  | -93.84  | -69.03  | -71.43  |
| 10.00          | -63.86                           | -69.65  | -60.57  | -68.99  | -64.97  | -94.42  | -71.24  | -67.65  |
| 10.50          | -71.45                           | -66.58  | -68.37  | -74.45  | -63.66  | -88.68  | -82.50  | -76.28  |
| 11.00          | -73.39                           | -69.57  | -65.00  | -69.07  | -66.95  | -89.56  | -70.90  | -65.99  |
| 11.50          | -66.73                           | -69.94  | -71.54  | -70.94  | -69.07  | -86.08  | -67.19  | -74.03  |
| 12.00          | -66.71                           | -81.49  | -67.62  | -64.00  | -74.44  | -102.87 | -74.22  | -67.33  |
| 12.50          | -63.10                           | -73.56  | -66.87  | -67.54  | -69.09  | -97.98  | -72.77  | -69.19  |
| 13.00          | -61.82                           | -68.17  | -62.60  | -71.10  | -62.80  | -89.62  | -70.21  | -68.63  |
| 13.50          | -64.52                           | -68.83  | -70.28  | -62.39  | -61.82  | -96.01  | -69.92  | -58.76  |
| 14.00          | -63.31                           | -66.86  | -69.30  | -62.92  | -57.33  | -92.10  | -59.83  | -61.90  |
| 14.50          | -61.18                           | -80.90  | -69.76  | -63.22  | -70.92  | -80.70  | -64.25  | -65.48  |
| 15.00          | -82.28                           | -66.57  | -66.52  | -61.20  | -58.51  | -89.25  | -68.03  | -58.80  |
| 15.50          | -67.71                           | -67.08  | -65.21  | -61.68  | -56.87  | -87.92  | -74.37  | -55.06  |
| 16.00          | -62.13                           | -69.30  | -62.63  | -67.47  | -59.16  | -89.89  | -66.95  | -61.19  |
| 16.50          | -67.24                           | -70.22  | -78.40  | -69.98  | -69.17  | -83.59  | -66.73  | -62.75  |
| 17.00          | -67.55                           | -68.20  | -65.14  | -63.60  | -66.80  | -86.36  | -73.26  | -59.98  |
| 17.50          | -65.94                           | -69.81  | -68.76  | -63.48  | -62.24  | -86.28  | -61.15  | -61.52  |
| 18.00          | -74.82                           | -57.97  | -67.55  | -55.24  | -61.64  | -85.09  | -60.34  | -55.91  |
| 18.50          | -65.51                           | -52.27  | -70.34  | -55.11  | -64.94  | -74.89  | -71.31  | -55.43  |
| 19.00          | -59.35                           | -56.91  | -72.52  | -72.36  | -52.55  | -76.77  | -69.03  | -67.04  |
| 19.50          | -53.47                           | -67.76  | -72.95  | -69.01  | -56.11  | -77.96  | -71.32  | -71.20  |
| 20.00          | -50.80                           | -67.56  | -70.28  | -67.80  | -52.23  | -74.00  | -68.02  | -73.19  |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Disconnected states<br>(dB) |         |         |         |         |         |         |         |
|----------------|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
|                | COM-1                                  | COM-2   | COM-3   | COM-4   | COM-5   | COM-6   | COM-7   | COM-8   |
| 0.10           | -94.76                                 | -95.70  | -94.24  | -94.93  | -98.20  | -90.62  | -100.79 | -96.74  |
| 0.25           | -96.45                                 | -90.85  | -101.95 | -95.74  | -88.76  | -96.83  | -89.67  | -91.58  |
| 0.50           | -91.93                                 | -96.64  | -96.04  | -94.51  | -94.67  | -94.71  | -98.14  | -92.55  |
| 1.00           | -88.41                                 | -101.07 | -89.98  | -108.02 | -103.55 | -93.45  | -102.59 | -94.00  |
| 1.50           | -105.48                                | -96.25  | -89.33  | -88.34  | -91.99  | -100.16 | -112.15 | -130.74 |
| 2.00           | -93.50                                 | -92.48  | -93.47  | -98.29  | -88.96  | -108.98 | -94.47  | -96.59  |
| 2.50           | -94.58                                 | -94.42  | -96.21  | -92.76  | -94.62  | -97.76  | -88.57  | -97.21  |
| 3.00           | -86.79                                 | -102.47 | -86.54  | -85.50  | -89.24  | -87.45  | -87.93  | -92.90  |
| 3.50           | -89.86                                 | -91.78  | -89.44  | -89.57  | -88.90  | -89.23  | -92.13  | -93.12  |
| 4.00           | -86.97                                 | -93.68  | -89.50  | -94.01  | -104.51 | -94.93  | -94.05  | -100.96 |
| 4.50           | -97.95                                 | -103.15 | -95.67  | -86.86  | -91.41  | -94.66  | -87.19  | -88.55  |
| 5.00           | -95.10                                 | -89.73  | -95.02  | -84.36  | -97.68  | -103.47 | -112.27 | -105.05 |
| 5.50           | -105.67                                | -100.66 | -89.19  | -89.00  | -88.66  | -93.09  | -103.70 | -83.58  |
| 6.00           | -87.07                                 | -87.53  | -89.87  | -91.70  | -99.23  | -89.80  | -87.95  | -98.86  |
| 6.50           | -96.08                                 | -92.81  | -90.06  | -97.73  | -85.90  | -91.12  | -88.30  | -86.47  |
| 7.00           | -89.48                                 | -101.99 | -91.34  | -90.02  | -88.08  | -90.79  | -103.93 | -93.16  |
| 7.50           | -123.49                                | -96.73  | -93.26  | -87.38  | -93.91  | -93.23  | -101.11 | -94.26  |
| 8.00           | -87.48                                 | -92.83  | -90.13  | -88.40  | -94.49  | -95.72  | -89.36  | -95.63  |
| 8.50           | -90.08                                 | -83.20  | -100.23 | -101.11 | -87.18  | -89.62  | -91.05  | -83.87  |
| 9.25           | -96.34                                 | -92.23  | -87.12  | -84.59  | -89.89  | -85.23  | -91.00  | -93.65  |
| 10.00          | -90.70                                 | -99.93  | -99.59  | -95.17  | -86.15  | -95.21  | -88.82  | -107.73 |
| 10.50          | -91.10                                 | -93.00  | -85.53  | -84.80  | -83.62  | -99.63  | -86.05  | -92.56  |
| 11.00          | -89.43                                 | -95.32  | -90.72  | -98.18  | -87.09  | -99.63  | -86.91  | -88.82  |
| 11.50          | -88.67                                 | -86.71  | -86.89  | -100.44 | -84.82  | -85.96  | -90.65  | -87.18  |
| 12.00          | -87.10                                 | -90.14  | -89.13  | -96.34  | -95.12  | -93.83  | -88.89  | -103.53 |
| 12.50          | -93.26                                 | -102.09 | -85.92  | -94.89  | -87.00  | -86.52  | -86.14  | -95.49  |
| 13.00          | -93.25                                 | -89.65  | -105.14 | -89.57  | -88.38  | -89.77  | -93.13  | -97.19  |
| 13.50          | -84.40                                 | -87.07  | -92.15  | -88.33  | -100.27 | -90.64  | -89.11  | -93.40  |
| 14.00          | -85.83                                 | -95.56  | -92.61  | -93.14  | -86.63  | -95.93  | -86.96  | -105.98 |
| 14.50          | -92.26                                 | -92.02  | -93.58  | -81.90  | -89.54  | -90.37  | -86.40  | -87.02  |
| 15.00          | -101.52                                | -90.37  | -85.91  | -84.20  | -86.37  | -78.35  | -76.17  | -91.43  |
| 15.50          | -92.11                                 | -90.90  | -101.35 | -85.53  | -79.83  | -80.57  | -82.80  | -86.38  |
| 16.00          | -85.88                                 | -87.08  | -87.87  | -78.06  | -82.54  | -76.58  | -82.50  | -84.29  |
| 16.50          | -92.68                                 | -90.20  | -93.58  | -81.43  | -90.49  | -73.46  | -77.39  | -84.94  |
| 17.00          | -100.52                                | -108.36 | -96.43  | -72.40  | -75.48  | -76.19  | -69.84  | -94.36  |
| 17.50          | -83.06                                 | -93.95  | -88.95  | -68.15  | -66.73  | -74.41  | -70.41  | -84.43  |
| 18.00          | -87.90                                 | -87.62  | -77.50  | -73.14  | -58.74  | -75.01  | -74.01  | -83.13  |
| 18.50          | -77.14                                 | -74.13  | -72.56  | -69.12  | -63.19  | -66.26  | -63.49  | -72.58  |
| 19.00          | -80.22                                 | -76.27  | -83.84  | -70.98  | -72.75  | -69.62  | -63.81  | -85.71  |
| 19.50          | -88.03                                 | -80.62  | -90.64  | -78.70  | -81.52  | -74.18  | -75.50  | -86.77  |
| 20.00          | -83.26                                 | -88.30  | -81.54  | -77.19  | -77.48  | -72.49  | -76.44  | -83.26  |

## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Insertion Loss<br>(dB) |        |        |        |        |        |        |        |
|----------------|------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | COM-J1                 | COM-J2 | COM-J3 | COM-J4 | COM-J5 | COM-J6 | COM-J7 | COM-J8 |
| 0.10           | -2.19                  | -2.21  | -2.20  | -2.20  | -2.20  | -2.19  | -2.21  | -2.23  |
| 0.25           | -1.57                  | -1.56  | -1.55  | -1.58  | -1.57  | -1.55  | -1.57  | -1.59  |
| 0.50           | -1.56                  | -1.54  | -1.54  | -1.57  | -1.57  | -1.54  | -1.55  | -1.58  |
| 1.00           | -1.71                  | -1.70  | -1.70  | -1.73  | -1.73  | -1.70  | -1.72  | -1.74  |
| 1.50           | -1.84                  | -1.86  | -1.85  | -1.87  | -1.86  | -1.86  | -1.87  | -1.88  |
| 2.00           | -1.98                  | -2.02  | -2.02  | -2.00  | -1.99  | -2.02  | -2.04  | -2.02  |
| 2.50           | -2.11                  | -2.13  | -2.13  | -2.12  | -2.12  | -2.14  | -2.16  | -2.15  |
| 3.00           | -2.39                  | -2.29  | -2.27  | -2.41  | -2.41  | -2.30  | -2.31  | -2.44  |
| 3.50           | -2.53                  | -2.44  | -2.42  | -2.56  | -2.55  | -2.45  | -2.48  | -2.58  |
| 4.00           | -2.60                  | -2.54  | -2.53  | -2.62  | -2.62  | -2.56  | -2.60  | -2.64  |
| 4.50           | -2.71                  | -2.60  | -2.59  | -2.73  | -2.74  | -2.61  | -2.64  | -2.76  |
| 5.00           | -2.75                  | -2.75  | -2.74  | -2.76  | -2.76  | -2.77  | -2.82  | -2.79  |
| 5.50           | -2.76                  | -2.91  | -2.91  | -2.76  | -2.75  | -2.96  | -3.02  | -2.78  |
| 6.00           | -2.95                  | -2.95  | -2.93  | -2.95  | -2.97  | -2.98  | -3.01  | -3.00  |
| 6.50           | -2.98                  | -2.92  | -2.92  | -2.99  | -2.99  | -2.96  | -2.97  | -3.00  |
| 7.00           | -3.03                  | -3.04  | -3.04  | -3.02  | -3.04  | -3.06  | -3.08  | -3.02  |
| 7.50           | -3.13                  | -3.14  | -3.12  | -3.14  | -3.16  | -3.15  | -3.16  | -3.14  |
| 8.00           | -3.18                  | -3.12  | -3.11  | -3.17  | -3.22  | -3.10  | -3.13  | -3.21  |
| 8.50           | -3.21                  | -3.13  | -3.12  | -3.20  | -3.22  | -3.15  | -3.19  | -3.26  |
| 9.25           | -3.62                  | -3.41  | -3.37  | -3.55  | -3.65  | -3.41  | -3.44  | -3.60  |
| 10.00          | -3.82                  | -3.37  | -3.37  | -3.74  | -3.82  | -3.42  | -3.40  | -3.74  |
| 10.50          | -3.99                  | -3.52  | -3.50  | -3.92  | -3.99  | -3.54  | -3.55  | -3.99  |
| 11.00          | -4.01                  | -3.72  | -3.68  | -4.00  | -4.05  | -3.73  | -3.72  | -4.06  |
| 11.50          | -4.13                  | -3.69  | -3.71  | -4.13  | -4.13  | -3.72  | -3.73  | -4.17  |
| 12.00          | -4.45                  | -3.96  | -3.90  | -4.46  | -4.48  | -3.95  | -4.02  | -4.50  |
| 12.50          | -4.49                  | -4.21  | -4.20  | -4.37  | -4.44  | -4.20  | -4.27  | -4.46  |
| 13.00          | -4.29                  | -4.25  | -4.27  | -4.17  | -4.27  | -4.24  | -4.29  | -4.23  |
| 13.50          | -4.33                  | -4.43  | -4.42  | -4.29  | -4.30  | -4.44  | -4.40  | -4.29  |
| 14.00          | -4.49                  | -4.69  | -4.61  | -4.46  | -4.46  | -4.66  | -4.45  | -4.49  |
| 14.50          | -4.59                  | -4.69  | -4.68  | -4.51  | -4.53  | -4.72  | -4.53  | -4.58  |
| 15.00          | -4.78                  | -5.18  | -5.11  | -4.75  | -4.76  | -5.15  | -4.94  | -4.79  |
| 15.50          | -5.28                  | -5.75  | -5.79  | -5.17  | -5.25  | -5.70  | -5.57  | -5.32  |
| 16.00          | -5.86                  | -5.78  | -5.80  | -5.78  | -5.79  | -5.74  | -5.70  | -5.85  |
| 16.50          | -6.00                  | -5.62  | -5.61  | -6.07  | -5.89  | -5.56  | -5.59  | -5.86  |
| 17.00          | -6.06                  | -5.53  | -5.57  | -5.94  | -5.94  | -5.53  | -5.57  | -5.96  |
| 17.50          | -6.08                  | -5.75  | -5.86  | -5.86  | -5.98  | -5.71  | -5.83  | -6.10  |
| 18.00          | -6.40                  | -6.15  | -6.46  | -6.25  | -6.34  | -6.05  | -6.49  | -6.53  |
| 18.50          | -7.15                  | -6.40  | -7.30  | -7.51  | -7.25  | -6.21  | -6.98  | -7.58  |
| 19.00          | -7.26                  | -5.89  | -7.01  | -7.94  | -7.22  | -5.78  | -6.26  | -7.78  |
| 19.50          | -6.67                  | -6.70  | -6.70  | -7.10  | -6.58  | -6.77  | -6.38  | -6.96  |
| 20.00          | -6.76                  | -7.80  | -7.77  | -6.76  | -6.37  | -8.05  | -7.58  | -6.27  |

## NOTES:

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at <https://www.minicircuits.com/terms/viewterm.html>



## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Active ports<br>(dB) |        |        |        |        |        |        |        |        |
|----------------|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|                | COM                               | J1     | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -10.34                            | -8.52  | -8.43  | -8.44  | -8.49  | -8.57  | -8.54  | -8.47  | -8.48  |
| 0.25           | -17.12                            | -14.75 | -14.77 | -14.82 | -14.70 | -14.91 | -14.83 | -14.77 | -14.73 |
| 0.50           | -22.29                            | -18.10 | -17.96 | -17.89 | -18.05 | -18.28 | -17.94 | -17.82 | -17.91 |
| 1.00           | -26.23                            | -24.77 | -22.49 | -22.65 | -24.68 | -25.18 | -22.86 | -22.14 | -24.10 |
| 1.50           | -22.09                            | -29.03 | -23.51 | -23.95 | -29.90 | -30.79 | -24.49 | -22.93 | -27.79 |
| 2.00           | -25.16                            | -37.33 | -22.98 | -22.83 | -38.45 | -41.62 | -23.37 | -21.37 | -32.38 |
| 2.50           | -23.22                            | -22.12 | -28.97 | -28.35 | -23.33 | -22.34 | -28.84 | -24.51 | -22.71 |
| 3.00           | -16.66                            | -16.62 | -23.30 | -25.06 | -16.73 | -16.56 | -23.67 | -21.79 | -16.44 |
| 3.50           | -17.20                            | -16.89 | -18.04 | -18.80 | -16.32 | -16.73 | -18.36 | -16.92 | -16.40 |
| 4.00           | -30.52                            | -17.62 | -18.04 | -18.26 | -16.93 | -16.86 | -18.21 | -16.26 | -16.45 |
| 4.50           | -20.95                            | -16.35 | -17.09 | -17.13 | -15.55 | -15.22 | -17.20 | -15.65 | -14.86 |
| 5.00           | -21.67                            | -18.89 | -14.10 | -13.80 | -17.58 | -18.26 | -13.82 | -12.84 | -17.11 |
| 5.50           | -25.78                            | -19.95 | -13.17 | -12.86 | -20.45 | -20.80 | -12.66 | -11.83 | -19.69 |
| 6.00           | -15.37                            | -15.27 | -15.70 | -15.35 | -14.48 | -14.66 | -15.01 | -13.73 | -14.92 |
| 6.50           | -15.91                            | -16.79 | -16.21 | -15.96 | -15.46 | -15.71 | -15.96 | -14.97 | -15.95 |
| 7.00           | -25.10                            | -18.01 | -15.02 | -14.80 | -16.27 | -16.61 | -15.01 | -14.34 | -17.08 |
| 7.50           | -20.36                            | -16.22 | -16.06 | -15.96 | -15.29 | -15.20 | -16.67 | -15.52 | -15.63 |
| 8.00           | -19.81                            | -18.62 | -20.49 | -20.55 | -18.03 | -17.43 | -22.50 | -19.81 | -18.19 |
| 8.50           | -44.32                            | -21.53 | -23.32 | -24.69 | -21.50 | -19.81 | -24.32 | -23.29 | -22.14 |
| 9.25           | -15.30                            | -14.64 | -22.38 | -24.08 | -14.57 | -13.30 | -21.96 | -20.83 | -14.32 |
| 10.00          | -14.22                            | -13.78 | -30.12 | -32.12 | -14.04 | -13.70 | -28.72 | -27.18 | -14.30 |
| 10.50          | -15.27                            | -14.59 | -39.64 | -36.63 | -14.94 | -15.06 | -46.17 | -35.02 | -14.97 |
| 11.00          | -19.77                            | -19.08 | -24.36 | -25.22 | -18.63 | -18.34 | -24.39 | -26.49 | -18.71 |
| 11.50          | -15.44                            | -18.22 | -28.88 | -24.63 | -16.06 | -16.68 | -27.80 | -30.38 | -17.22 |
| 12.00          | -12.90                            | -12.86 | -20.33 | -23.58 | -12.81 | -12.36 | -20.30 | -19.51 | -13.25 |
| 12.50          | -14.72                            | -12.24 | -14.24 | -14.15 | -13.37 | -12.14 | -14.35 | -13.00 | -12.19 |
| 13.00          | -21.49                            | -16.24 | -14.77 | -13.39 | -18.84 | -16.25 | -14.28 | -12.74 | -16.33 |
| 13.50          | -22.92                            | -30.01 | -15.21 | -15.14 | -24.03 | -24.24 | -14.77 | -14.21 | -43.89 |
| 14.00          | -23.09                            | -30.58 | -14.12 | -15.08 | -26.91 | -28.72 | -14.01 | -17.17 | -21.89 |
| 14.50          | -31.10                            | -24.26 | -14.84 | -15.02 | -28.88 | -31.72 | -14.21 | -18.08 | -48.70 |
| 15.00          | -24.83                            | -28.40 | -11.51 | -11.23 | -29.15 | -41.57 | -11.50 | -13.32 | -37.41 |
| 15.50          | -16.00                            | -14.87 | -10.57 | -9.86  | -17.74 | -14.88 | -10.81 | -11.31 | -15.04 |
| 16.00          | -12.36                            | -12.05 | -12.34 | -12.09 | -11.68 | -12.49 | -12.86 | -12.43 | -11.67 |
| 16.50          | -12.14                            | -12.96 | -14.65 | -14.26 | -11.44 | -13.00 | -14.95 | -14.53 | -15.05 |
| 17.00          | -11.36                            | -12.50 | -15.63 | -14.61 | -14.04 | -12.43 | -15.21 | -15.16 | -13.28 |
| 17.50          | -14.10                            | -12.17 | -13.63 | -12.43 | -15.82 | -11.74 | -12.93 | -12.84 | -11.50 |
| 18.00          | -19.91                            | -11.78 | -11.91 | -10.73 | -11.64 | -9.74  | -11.44 | -10.05 | -9.97  |
| 18.50          | -9.84                             | -9.87  | -12.08 | -10.46 | -7.56  | -8.94  | -12.16 | -9.24  | -8.11  |
| 19.00          | -7.93                             | -10.31 | -15.86 | -11.23 | -6.71  | -9.03  | -15.63 | -11.15 | -7.71  |
| 19.50          | -11.95                            | -18.90 | -12.02 | -12.55 | -10.67 | -20.42 | -10.34 | -11.00 | -12.03 |
| 20.00          | -12.78                            | -15.72 | -8.97  | -8.00  | -14.44 | -12.47 | -8.35  | -7.35  | -17.00 |

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## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Return Loss, Internally terminated ports<br>(dB) |        |        |        |        |        |        |        |
|----------------|--------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
|                | J1                                               | J2     | J3     | J4     | J5     | J6     | J7     | J8     |
| 0.10           | -21.73                                           | -21.73 | -21.72 | -21.79 | -21.98 | -22.09 | -21.98 | -21.89 |
| 0.25           | -22.32                                           | -22.11 | -22.33 | -22.32 | -22.55 | -22.76 | -22.58 | -22.43 |
| 0.50           | -22.26                                           | -22.42 | -22.69 | -22.49 | -22.87 | -22.90 | -23.08 | -22.77 |
| 1.00           | -23.06                                           | -22.84 | -22.97 | -22.70 | -23.08 | -23.78 | -23.95 | -23.33 |
| 1.50           | -22.91                                           | -22.74 | -22.49 | -22.19 | -22.61 | -24.11 | -23.94 | -22.72 |
| 2.00           | -21.12                                           | -21.62 | -21.71 | -21.18 | -21.49 | -22.99 | -22.84 | -21.15 |
| 2.50           | -18.96                                           | -19.80 | -19.81 | -19.34 | -19.77 | -20.46 | -20.15 | -18.95 |
| 3.00           | -16.64                                           | -17.28 | -17.29 | -16.91 | -17.44 | -17.21 | -17.15 | -16.53 |
| 3.50           | -14.39                                           | -14.90 | -14.80 | -14.65 | -15.07 | -14.52 | -14.60 | -14.33 |
| 4.00           | -12.70                                           | -12.99 | -12.76 | -12.83 | -13.14 | -12.23 | -12.53 | -12.47 |
| 4.50           | -11.24                                           | -11.23 | -11.19 | -11.12 | -11.53 | -10.50 | -11.02 | -11.21 |
| 5.00           | -10.24                                           | -10.01 | -9.90  | -10.00 | -10.39 | -9.37  | -9.90  | -10.16 |
| 5.50           | -9.52                                            | -9.34  | -9.07  | -9.28  | -9.56  | -8.74  | -9.31  | -9.62  |
| 6.00           | -9.25                                            | -9.25  | -8.62  | -8.84  | -9.27  | -8.41  | -9.28  | -9.38  |
| 6.50           | -9.22                                            | -9.16  | -8.66  | -8.85  | -9.19  | -8.56  | -9.17  | -9.22  |
| 7.00           | -9.37                                            | -9.39  | -9.00  | -9.07  | -9.51  | -8.95  | -9.37  | -9.34  |
| 7.50           | -9.64                                            | -9.79  | -9.74  | -9.49  | -9.94  | -9.43  | -9.81  | -9.70  |
| 8.00           | -10.27                                           | -10.53 | -10.56 | -9.88  | -10.79 | -10.08 | -10.64 | -10.49 |
| 8.50           | -11.46                                           | -11.58 | -11.65 | -11.10 | -12.17 | -11.32 | -11.94 | -11.23 |
| 9.25           | -13.36                                           | -13.19 | -12.76 | -13.46 | -14.06 | -13.33 | -13.76 | -12.51 |
| 10.00          | -13.60                                           | -12.85 | -13.14 | -13.96 | -14.56 | -13.35 | -13.51 | -13.31 |
| 10.50          | -13.20                                           | -13.03 | -13.11 | -13.69 | -14.59 | -13.01 | -13.47 | -14.18 |
| 11.00          | -13.46                                           | -13.35 | -13.05 | -13.27 | -14.55 | -12.97 | -13.21 | -14.55 |
| 11.50          | -12.61                                           | -13.31 | -12.04 | -12.98 | -13.78 | -12.33 | -12.50 | -13.47 |
| 12.00          | -11.60                                           | -11.94 | -11.38 | -11.31 | -12.35 | -10.90 | -11.01 | -11.55 |
| 12.50          | -10.75                                           | -10.66 | -11.08 | -10.47 | -11.56 | -9.74  | -10.05 | -10.70 |
| 13.00          | -11.03                                           | -10.39 | -11.58 | -10.78 | -11.70 | -9.78  | -10.24 | -10.39 |
| 13.50          | -12.07                                           | -11.56 | -12.29 | -11.16 | -12.65 | -10.45 | -11.44 | -11.61 |
| 14.00          | -13.21                                           | -13.36 | -12.50 | -11.99 | -13.53 | -11.76 | -13.05 | -12.57 |
| 14.50          | -12.25                                           | -12.45 | -11.78 | -11.96 | -12.50 | -12.17 | -12.64 | -11.86 |
| 15.00          | -10.60                                           | -10.45 | -11.12 | -10.84 | -11.10 | -11.25 | -10.65 | -10.62 |
| 15.50          | -10.23                                           | -9.64  | -10.72 | -10.60 | -10.70 | -10.83 | -10.05 | -10.17 |
| 16.00          | -10.98                                           | -10.44 | -10.35 | -11.83 | -11.53 | -11.23 | -11.02 | -11.58 |
| 16.50          | -12.45                                           | -11.99 | -10.45 | -13.25 | -13.39 | -12.23 | -12.94 | -12.54 |
| 17.00          | -13.39                                           | -12.52 | -11.14 | -13.28 | -14.56 | -13.19 | -13.89 | -13.59 |
| 17.50          | -12.23                                           | -11.26 | -12.44 | -12.88 | -13.18 | -12.74 | -11.60 | -11.71 |
| 18.00          | -11.43                                           | -10.62 | -13.64 | -11.00 | -11.59 | -11.67 | -10.44 | -11.11 |
| 18.50          | -11.15                                           | -11.27 | -11.74 | -10.34 | -10.74 | -10.60 | -10.08 | -10.58 |
| 19.00          | -9.70                                            | -10.66 | -8.66  | -8.97  | -8.99  | -8.65  | -8.79  | -9.34  |
| 19.50          | -7.95                                            | -8.45  | -6.68  | -6.88  | -7.07  | -6.86  | -7.06  | -7.92  |
| 20.00          | -6.83                                            | -7.00  | -5.71  | -5.62  | -5.97  | -6.09  | -5.94  | -7.09  |

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## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Active states<br>(dB) |         |        |         |        |         |        |        |
|----------------|----------------------------------|---------|--------|---------|--------|---------|--------|--------|
|                | COM-2                            | COM-3   | COM-5  | COM-7   | J1-J2  | J3-J4   | J5-J6  | J7-J8  |
| 0.10           | -97.21                           | -96.17  | -96.28 | -91.52  | -89.14 | -91.35  | -92.51 | -99.33 |
| 0.25           | -93.92                           | -89.08  | -99.77 | -101.33 | -99.35 | -92.79  | -89.19 | -95.57 |
| 0.50           | -95.73                           | -84.18  | -84.18 | -89.19  | -89.76 | -89.77  | -89.77 | -86.54 |
| 1.00           | -84.89                           | -86.67  | -87.00 | -84.78  | -86.36 | -92.94  | -88.03 | -84.41 |
| 1.50           | -86.71                           | -77.63  | -78.91 | -83.81  | -82.52 | -88.94  | -87.01 | -81.65 |
| 2.00           | -87.69                           | -100.57 | -85.45 | -85.31  | -78.52 | -104.93 | -79.22 | -87.86 |
| 2.50           | -79.33                           | -85.50  | -84.68 | -75.28  | -80.92 | -101.07 | -73.68 | -75.42 |
| 3.00           | -71.17                           | -87.75  | -75.42 | -79.39  | -83.23 | -94.26  | -83.88 | -80.43 |
| 3.50           | -76.74                           | -68.98  | -69.61 | -69.56  | -78.51 | -98.50  | -75.03 | -67.01 |
| 4.00           | -74.14                           | -71.41  | -67.98 | -77.48  | -69.45 | -88.28  | -79.58 | -75.51 |
| 4.50           | -73.56                           | -71.97  | -71.16 | -80.05  | -66.04 | -97.12  | -68.22 | -80.04 |
| 5.00           | -67.71                           | -78.73  | -60.57 | -83.96  | -65.98 | -93.57  | -69.69 | -79.25 |
| 5.50           | -71.38                           | -73.37  | -71.53 | -72.72  | -73.60 | -90.45  | -61.76 | -68.69 |
| 6.00           | -73.96                           | -68.64  | -63.23 | -67.43  | -74.97 | -98.76  | -69.36 | -63.41 |
| 6.50           | -62.35                           | -68.80  | -64.35 | -69.61  | -63.30 | -104.84 | -74.55 | -65.76 |
| 7.00           | -62.68                           | -72.35  | -67.31 | -69.66  | -61.97 | -94.62  | -64.34 | -67.97 |
| 7.50           | -64.16                           | -66.56  | -69.93 | -69.45  | -80.65 | -87.93  | -56.89 | -75.01 |
| 8.00           | -59.85                           | -63.34  | -62.53 | -65.84  | -66.87 | -90.65  | -60.18 | -64.62 |
| 8.50           | -68.65                           | -65.44  | -56.61 | -67.08  | -73.32 | -91.46  | -68.72 | -65.30 |
| 9.25           | -66.97                           | -68.15  | -68.77 | -74.19  | -67.41 | -87.82  | -68.17 | -69.90 |
| 10.00          | -66.71                           | -66.47  | -61.40 | -73.20  | -64.52 | -88.26  | -72.28 | -71.27 |
| 10.50          | -72.37                           | -70.42  | -76.58 | -74.61  | -63.93 | -91.91  | -87.86 | -74.43 |
| 11.00          | -73.61                           | -70.06  | -66.46 | -70.96  | -68.66 | -89.02  | -71.48 | -69.38 |
| 11.50          | -67.22                           | -72.04  | -71.42 | -70.86  | -73.79 | -88.23  | -69.10 | -79.01 |
| 12.00          | -67.32                           | -78.12  | -72.31 | -65.87  | -77.38 | -95.22  | -76.55 | -67.88 |
| 12.50          | -63.60                           | -75.52  | -67.45 | -69.00  | -69.29 | -91.23  | -71.38 | -69.60 |
| 13.00          | -63.94                           | -70.98  | -65.37 | -71.93  | -65.89 | -90.02  | -72.83 | -67.50 |
| 13.50          | -67.35                           | -67.89  | -72.01 | -64.53  | -62.22 | -88.15  | -72.84 | -60.23 |
| 14.00          | -63.58                           | -69.09  | -73.33 | -64.75  | -60.52 | -91.39  | -61.20 | -64.11 |
| 14.50          | -64.56                           | -69.95  | -72.90 | -64.42  | -70.13 | -89.36  | -69.94 | -66.29 |
| 15.00          | -82.27                           | -67.47  | -65.01 | -61.62  | -58.65 | -86.51  | -69.25 | -58.72 |
| 15.50          | -67.75                           | -67.85  | -65.56 | -64.14  | -59.14 | -87.13  | -72.32 | -57.53 |
| 16.00          | -65.76                           | -70.86  | -64.79 | -71.52  | -62.02 | -115.47 | -66.56 | -62.98 |
| 16.50          | -69.95                           | -69.04  | -71.37 | -68.56  | -73.96 | -86.95  | -68.23 | -62.78 |
| 17.00          | -67.06                           | -69.14  | -67.35 | -66.87  | -67.86 | -85.84  | -72.85 | -62.15 |
| 17.50          | -67.64                           | -69.44  | -71.12 | -62.90  | -68.70 | -81.08  | -62.55 | -61.30 |
| 18.00          | -72.11                           | -56.54  | -68.36 | -55.57  | -62.48 | -83.09  | -64.29 | -55.68 |
| 18.50          | -67.76                           | -55.59  | -70.37 | -59.15  | -60.79 | -78.71  | -67.78 | -58.74 |
| 19.00          | -62.94                           | -61.19  | -74.97 | -78.09  | -55.79 | -76.48  | -68.34 | -68.93 |
| 19.50          | -60.54                           | -69.39  | -74.22 | -69.11  | -58.95 | -76.38  | -69.30 | -73.98 |
| 20.00          | -58.01                           | -66.34  | -70.98 | -67.74  | -53.90 | -73.41  | -73.70 | -72.39 |

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## Solid State SP8T Switch

TTL-1SP8T-183

## Typical Performance Data

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.

| Freq.<br>(GHz) | Isolation, Disconnected states<br>(dB) |         |         |         |         |         |         |         |
|----------------|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
|                | COM-1                                  | COM-2   | COM-3   | COM-4   | COM-5   | COM-6   | COM-7   | COM-8   |
| 0.10           | -100.81                                | -94.44  | -98.33  | -99.94  | -94.00  | -97.38  | -89.15  | -87.75  |
| 0.25           | -94.15                                 | -108.39 | -94.17  | -92.95  | -90.91  | -89.61  | -93.14  | -90.98  |
| 0.50           | -101.28                                | -94.08  | -91.06  | -92.80  | -93.28  | -87.07  | -92.95  | -93.52  |
| 1.00           | -99.92                                 | -107.01 | -93.52  | -94.04  | -88.91  | -87.96  | -91.67  | -97.97  |
| 1.50           | -100.54                                | -104.22 | -92.88  | -102.92 | -100.21 | -106.43 | -90.31  | -90.26  |
| 2.00           | -97.04                                 | -111.33 | -90.81  | -93.71  | -90.91  | -95.19  | -106.76 | -91.31  |
| 2.50           | -85.63                                 | -97.71  | -90.71  | -99.12  | -90.27  | -90.01  | -93.17  | -87.27  |
| 3.00           | -103.64                                | -91.98  | -98.20  | -88.12  | -82.13  | -87.16  | -87.02  | -99.37  |
| 3.50           | -98.52                                 | -90.53  | -95.55  | -92.21  | -88.71  | -90.47  | -87.99  | -90.48  |
| 4.00           | -97.53                                 | -89.27  | -89.41  | -85.62  | -87.28  | -98.10  | -95.18  | -89.83  |
| 4.50           | -86.57                                 | -94.27  | -95.87  | -105.17 | -91.84  | -89.03  | -96.38  | -96.67  |
| 5.00           | -94.93                                 | -91.09  | -91.49  | -86.66  | -95.94  | -97.98  | -90.53  | -91.37  |
| 5.50           | -90.70                                 | -104.86 | -98.70  | -103.44 | -96.52  | -90.23  | -94.73  | -90.85  |
| 6.00           | -87.64                                 | -86.25  | -94.92  | -89.95  | -85.74  | -89.00  | -96.96  | -89.20  |
| 6.50           | -92.30                                 | -92.99  | -93.04  | -86.27  | -85.07  | -101.40 | -95.87  | -92.86  |
| 7.00           | -98.42                                 | -103.54 | -95.56  | -88.68  | -86.71  | -92.21  | -90.32  | -86.84  |
| 7.50           | -95.99                                 | -93.86  | -92.67  | -90.20  | -93.04  | -97.40  | -94.67  | -96.69  |
| 8.00           | -88.56                                 | -98.19  | -107.64 | -93.25  | -87.62  | -84.72  | -97.14  | -95.29  |
| 8.50           | -89.25                                 | -89.02  | -99.53  | -92.57  | -84.06  | -92.43  | -90.44  | -92.45  |
| 9.25           | -93.14                                 | -89.69  | -94.26  | -92.02  | -87.58  | -90.96  | -101.48 | -90.98  |
| 10.00          | -93.18                                 | -88.18  | -98.28  | -86.93  | -84.95  | -95.60  | -92.16  | -89.15  |
| 10.50          | -92.41                                 | -88.49  | -87.72  | -98.92  | -93.69  | -87.81  | -93.40  | -88.11  |
| 11.00          | -94.36                                 | -97.41  | -89.71  | -94.81  | -84.40  | -90.73  | -95.70  | -90.19  |
| 11.50          | -94.62                                 | -99.33  | -99.66  | -84.49  | -98.62  | -96.06  | -85.43  | -90.55  |
| 12.00          | -92.89                                 | -85.98  | -92.09  | -88.70  | -99.14  | -95.07  | -94.26  | -94.91  |
| 12.50          | -90.48                                 | -92.64  | -89.80  | -90.57  | -92.80  | -100.04 | -89.94  | -91.44  |
| 13.00          | -85.63                                 | -88.54  | -92.76  | -95.13  | -89.76  | -94.85  | -99.70  | -102.31 |
| 13.50          | -94.88                                 | -90.87  | -92.13  | -89.34  | -87.20  | -91.21  | -83.45  | -93.91  |
| 14.00          | -84.32                                 | -94.64  | -87.96  | -92.72  | -91.32  | -93.68  | -85.39  | -85.86  |
| 14.50          | -86.98                                 | -93.16  | -87.63  | -84.01  | -88.71  | -100.45 | -85.93  | -86.73  |
| 15.00          | -83.23                                 | -87.01  | -86.64  | -90.95  | -82.01  | -79.93  | -81.77  | -81.20  |
| 15.50          | -86.47                                 | -89.29  | -81.43  | -85.08  | -81.35  | -80.03  | -83.05  | -82.87  |
| 16.00          | -90.42                                 | -87.13  | -89.71  | -81.80  | -89.12  | -79.81  | -83.94  | -92.75  |
| 16.50          | -91.63                                 | -89.02  | -85.29  | -83.68  | -84.57  | -79.47  | -78.03  | -86.68  |
| 17.00          | -88.40                                 | -87.77  | -82.24  | -73.95  | -79.58  | -79.01  | -75.45  | -90.92  |
| 17.50          | -88.87                                 | -87.16  | -93.50  | -74.19  | -68.62  | -81.22  | -76.40  | -91.95  |
| 18.00          | -92.02                                 | -85.15  | -82.52  | -86.17  | -61.76  | -79.36  | -71.20  | -97.20  |
| 18.50          | -81.03                                 | -79.29  | -82.60  | -68.17  | -69.62  | -69.05  | -66.11  | -79.17  |
| 19.00          | -84.56                                 | -80.62  | -88.06  | -75.45  | -73.92  | -74.73  | -71.12  | -85.22  |
| 19.50          | -84.69                                 | -96.16  | -86.21  | -84.30  | -91.28  | -77.77  | -83.34  | -91.29  |
| 20.00          | -87.33                                 | -91.58  | -81.95  | -76.46  | -82.92  | -74.26  | -91.12  | -83.04  |

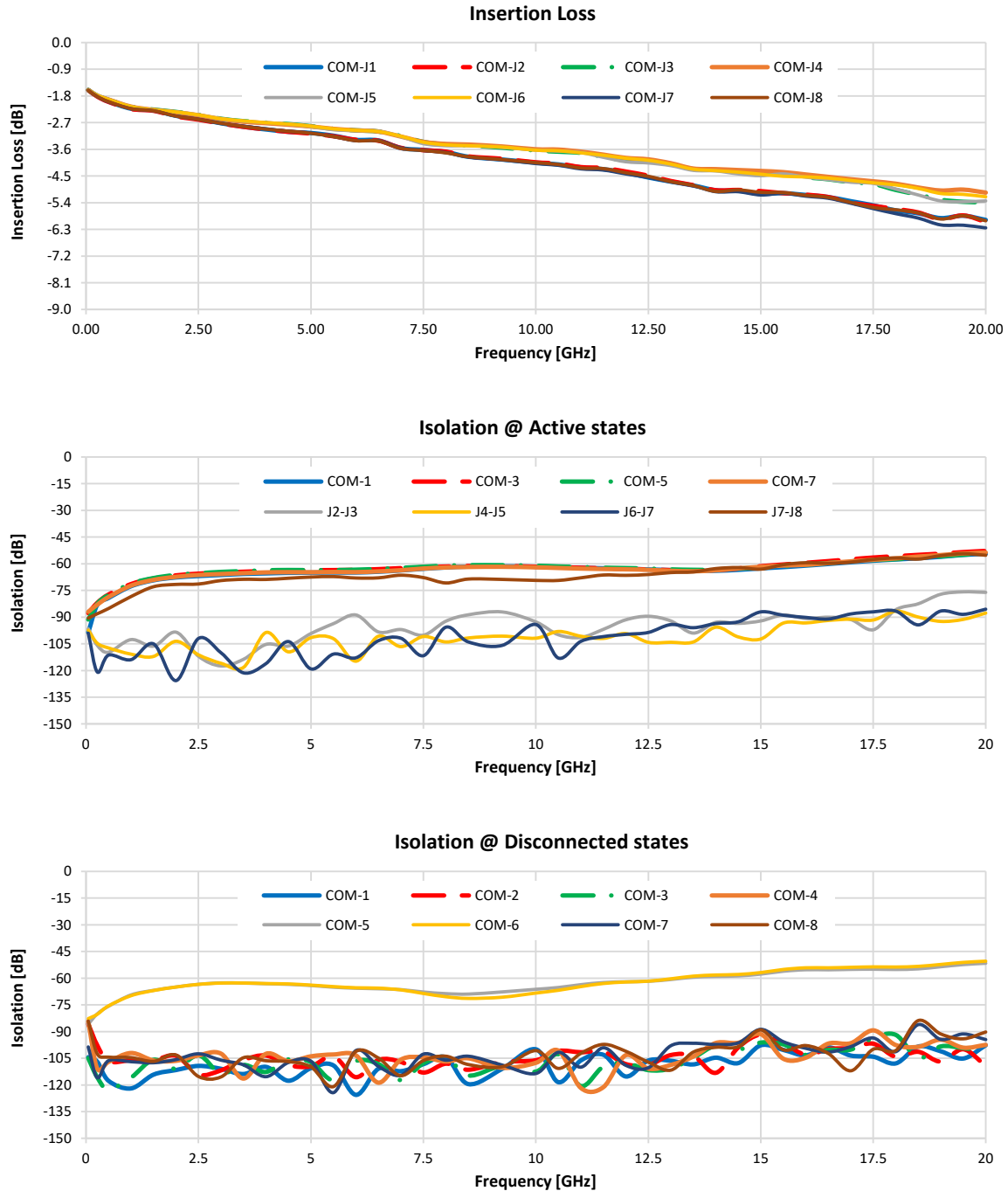
## NOTES:

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at <https://www.minicircuits.com/terms/viewterm.html>



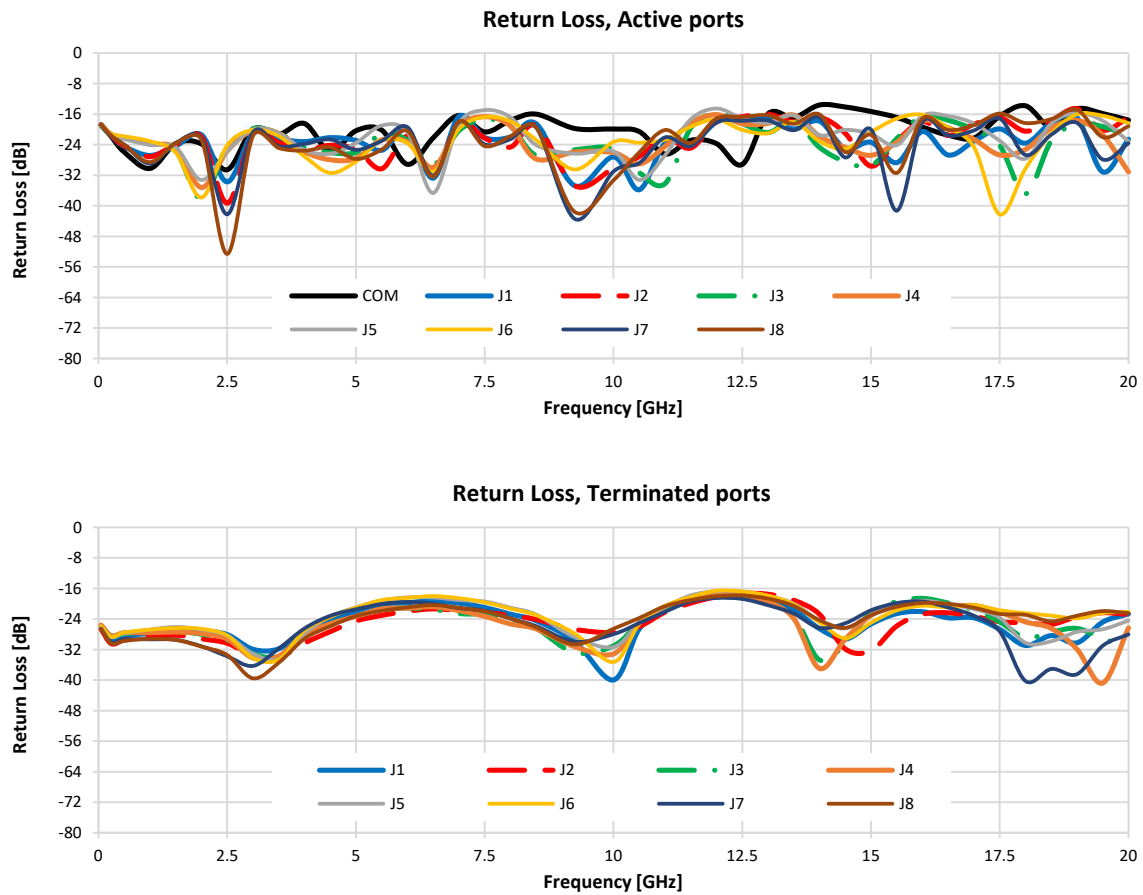
## Typical Performance Curves

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.



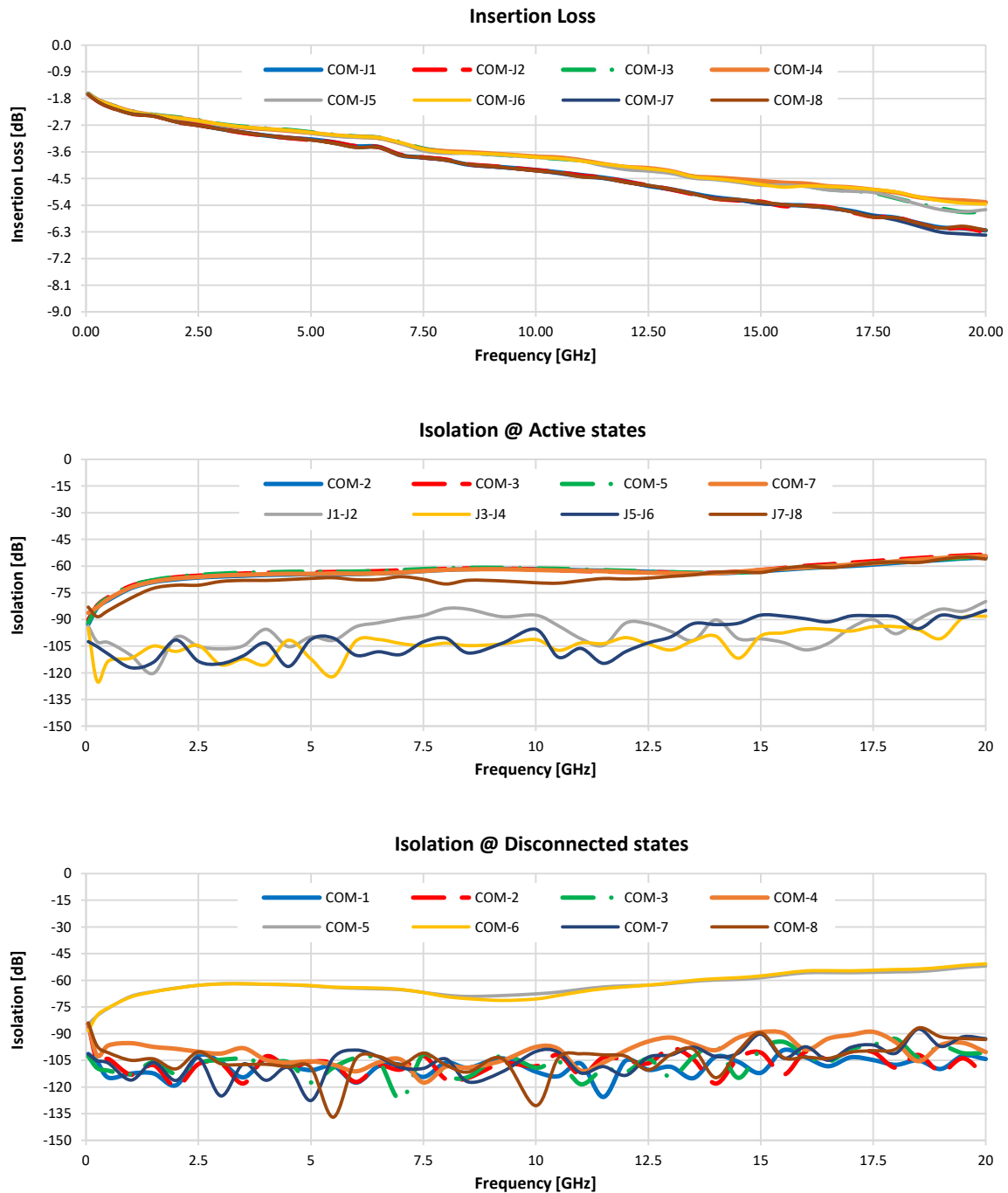
## Typical Performance Curves

Test Conditions: @ Temperature = 0°C, Pin = 8 dBm.



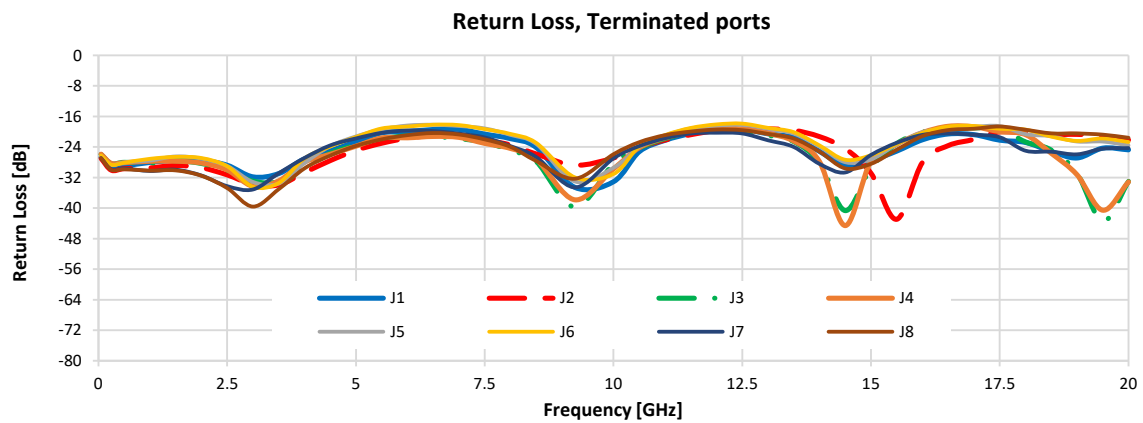
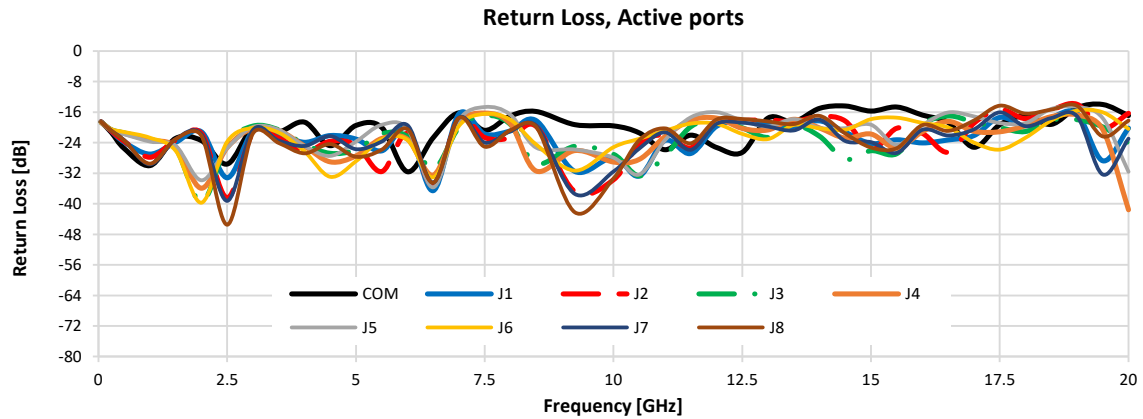
## Typical Performance Curves

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.



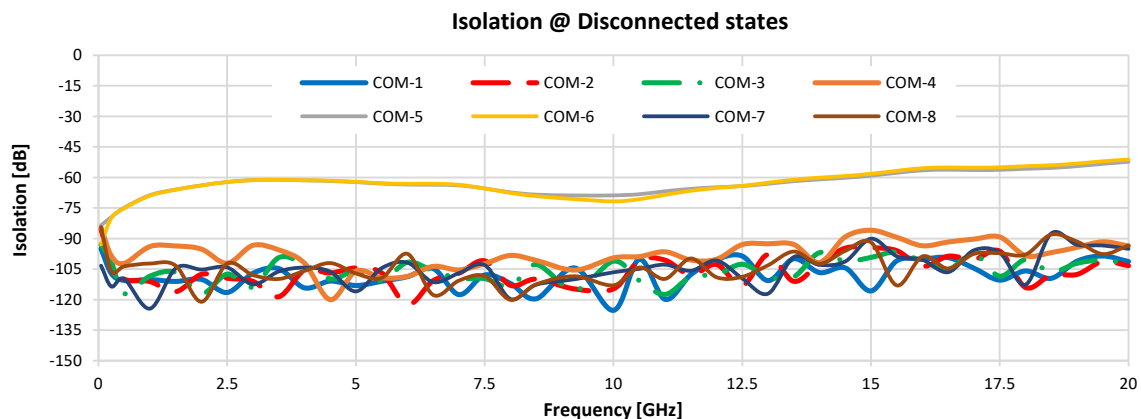
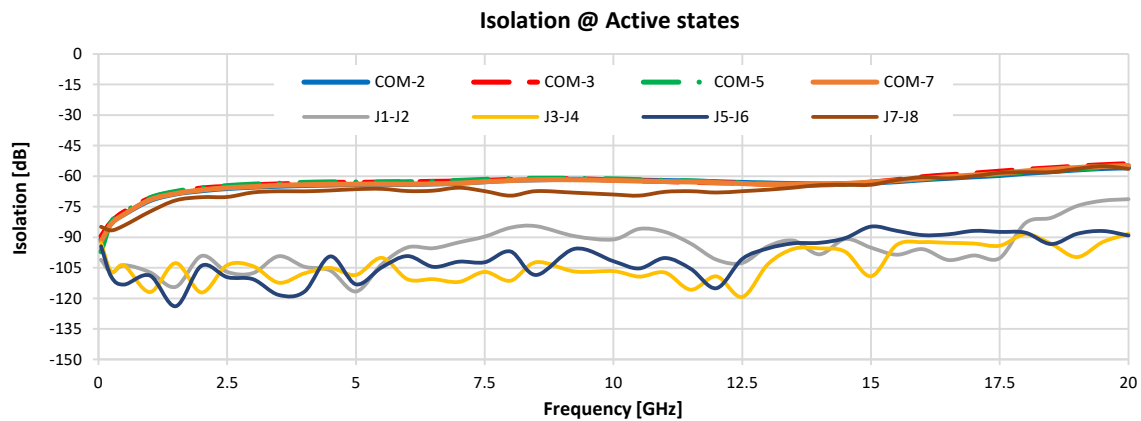
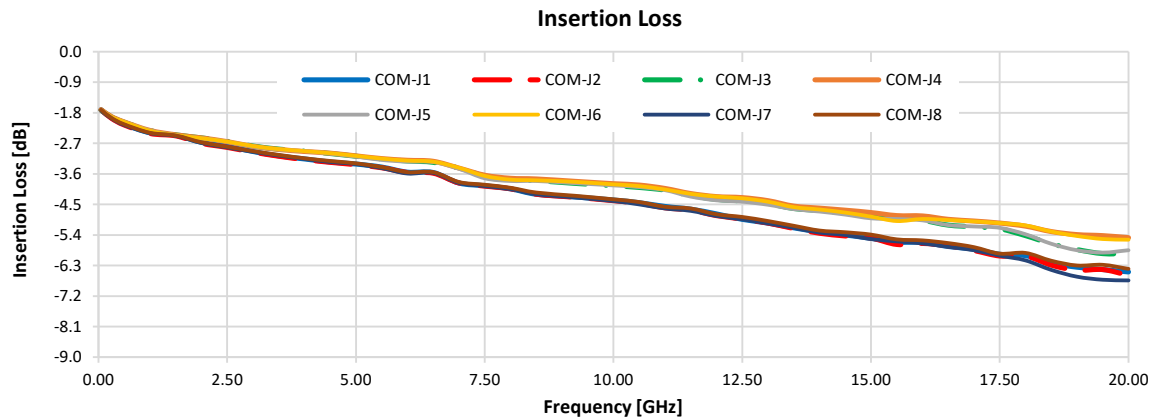
## Typical Performance Curves

Test Conditions: @ Temperature = +25°C, Pin = 8 dBm.



## Typical Performance Curves

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.



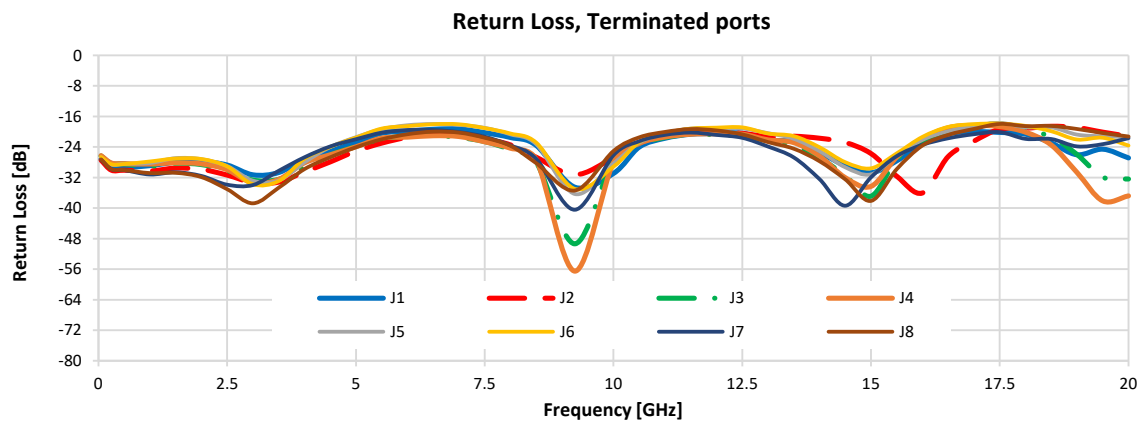
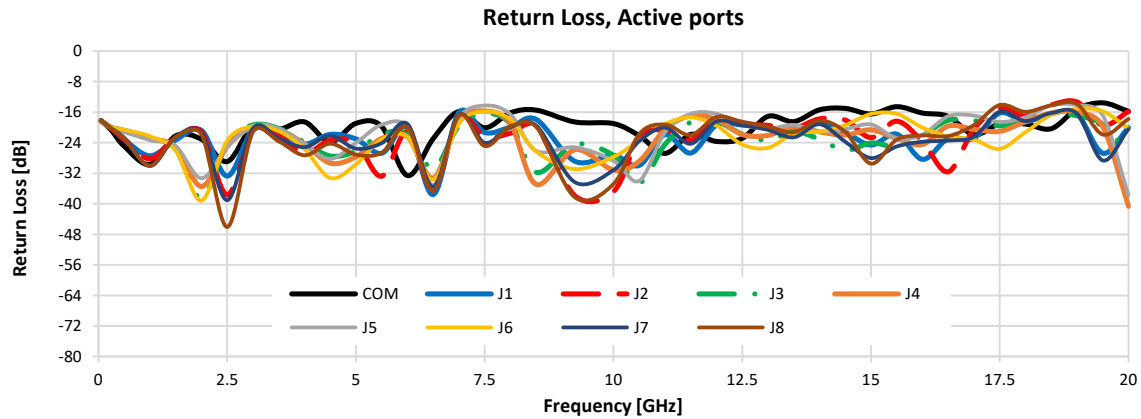
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## Typical Performance Curves

Test Conditions: @ Temperature = +50°C, Pin = 8 dBm.



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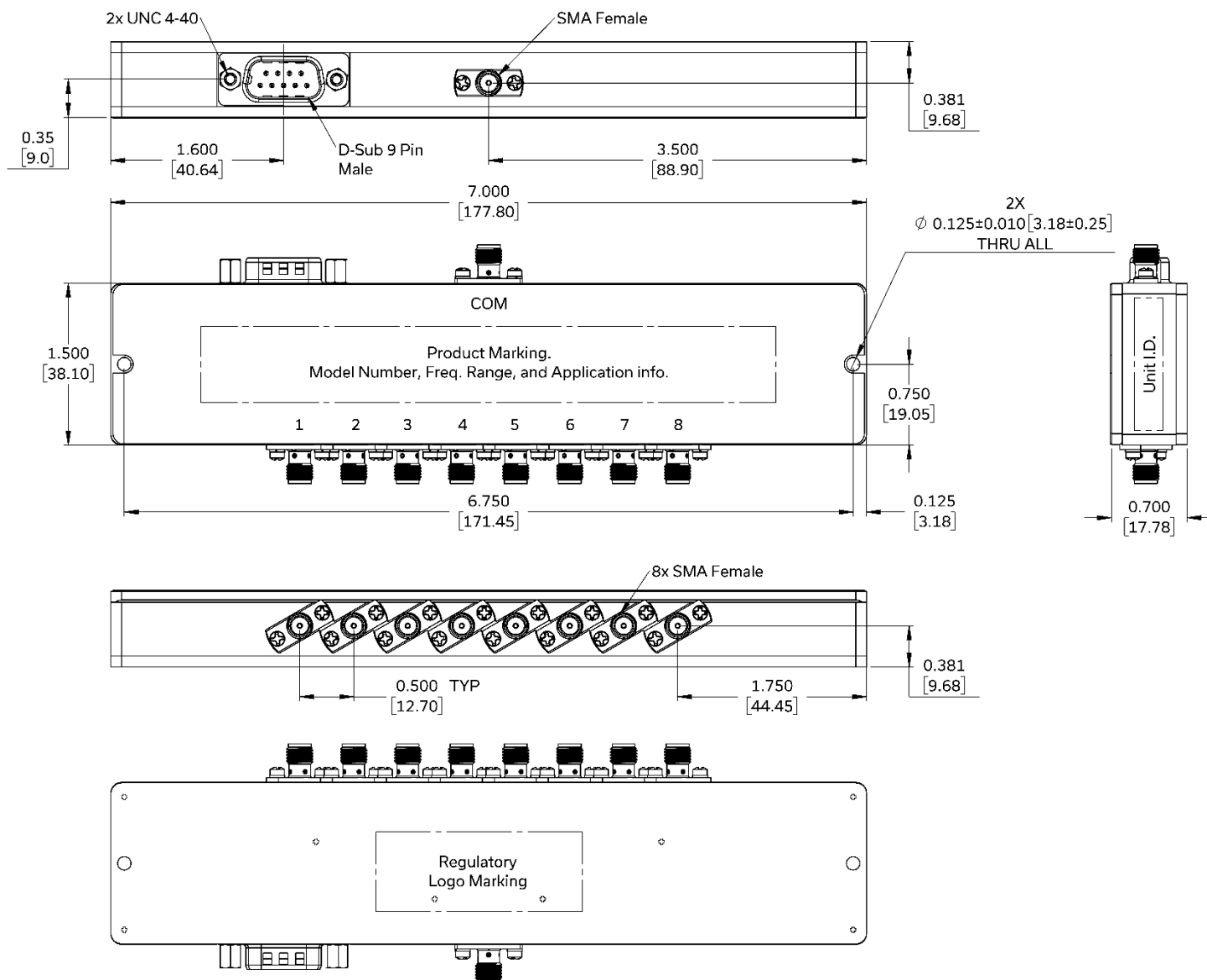


# Case Style

# RB

## Outline Dimensions

## RB3408



### NOTES:

1. Case material: Aluminum alloy.
2. Case Finish: Nickel Plate.
3. Dimensions: Inches [mm].  
Tolerances 2 Pl.  $\pm 0.03$  inch; 3 Pl.  $\pm 0.015$  inch.
4. Weight: 400 grams
5. Marking may contain other features or characters for internal lot control.



[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

## Environmental Specifications ENV55T2



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification                  | Test/Inspection Condition            | Reference/Spec              |
|--------------------------------|--------------------------------------|-----------------------------|
| Operating Temperature          | -10° to 60° C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature            | -20° to 85° C<br>Ambient Environment | Individual Model Data Sheet |
| Operating and Storage Humidity | 5% to 85% RH (non-condensing)        | Ambient                     |
| Bench Handling Test            | Bench Top Tip 45° & Drop             | MIL-PRF-28800F              |
| Transit Drop Test              | Free Fall Drop, 20 cm (7.9 inches)   | MIL-PRF-28800F Class 3      |