



USB

Solid State SP8T Switch

USB-1SP8T-183

50Ω 0.1 to 18 GHz

THE BIG DEAL

- Super wide bandwidth, solid-state design
- High isolation, 60 dB @ 18 GHz
- USB control and automation
- Daisy-chain control of up to 25 switches

APPLICATIONS

- RF signal routing / switch matrices
- Satellite communications up to Ku band
- Military radio, radar & electronic warfare
- Microwave radio / cellular infrastructure
- Test & measurement systems



Generic photo used for illustration purposes only

Model No.	USB-1SP8T-183
Case Style	NR3245
Connectors	2.92 mm (female) (Compatible with SMA and 3.5 mm)

DOWNLOAD

SOFTWARE PACKAGE

Refer to our website for compliance methodologies and qualifications



PRODUCT OVERVIEW

Mini-Circuits' USB-1SP8T-183 is a fast switching solid-state SP8T covering an ultra-wide bandwidth, from 0.1 to 18 GHz. The solid-state design features an impressive combination of high isolation, low insertion loss and good linearity across the entire band. The switch is supplied in a low profile package with precision 2.92 mm RF connectors.

The daisy-chain control interface with "dynamic addressing" simplifies control integration, allowing multiple switches to be combined into a Master / Slave chain. Simply connect, then power on and the whole chain of up to 25 compatible switches can be controlled independently through a single USB and software interface.

Full software support is provided, including our user-friendly GUI application for Windows and a full API with programming instructions for Windows and Linux environments (both 32-bit and 64-bit systems).

KEY FEATURES

Feature	Advantages
Fast switching sequences	Program automated switching sequences to run with extremely fast transitions and no external control.
High performance	Solid-state design combining high isolation with low insertion loss from 0.1 to 18 GHz
Dynamic daisy-chain control	Control up to 25 switches through a single USB interface.
USB control	USB HID interface provides easy compatibility with a wide range of software setups and programming environments
Full software support	User friendly Windows GUI (graphical user interface) allows manual control straight out of the box, while the comprehensive API (application programming interface) with examples and instructions allows easy automation in most programming environments

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Mini-Circuits

ELECTRICAL SPECIFICATIONS AT 0 TO 50°C

Parameter	Ports	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range	-	-	0.1		18	GHz
Insertion Loss	COM to any active port	0.1 - 6	-	3.00	4.20	dB
		6 - 10	-	4.00	5.00	
		10 - 15	-	5.10	6.20	
		15 - 18	-	5.70	6.90	
Isolation	Between any of ports J1 to J8	0.1 - 6	60	70	-	dB
		6 - 10	60	65	-	
		10 - 15	55	63	-	
		15 - 18	50	60	-	
	COM to any terminated port (including disconnected state)	0.1 - 6	55	75	-	
		6 - 10	55	65	-	
		10 - 15	51	63	-	
		15 - 18	48	60	-	
Return Loss	COM port (in all active states)	0.1 - 6	-	19	-	dB
		6 - 10	-	15.5	-	
		10 - 15	-	14	-	
		15 - 18	-	14.5	-	
	Any port connected to COM	0.1 - 6	-	19	-	
		6 - 10	-	15.5	-	
		10 - 15	-	15.5	-	
		15 - 18	-	15.5	-	
	Any terminated port	0.1 - 6	-	21	-	
		6 - 10	-	19	-	
		10 - 15	-	17.5	-	
		15 - 18	-	19	-	
Power Input @1 dB Compression ¹	COM to any active port	0.1 - 18	-	27	-	dBm
IP3 ^{2,3}	COM to any active port	0.5 - 18	-	50	-	dBm
Transition Time ⁴	-	-	-	25	100	ns
Minimum Dwell Time ⁵	High speed mode	-	-	10	-	µs
Switching Time (USB) ⁶	-	-	-	2	-	ms
Supply Voltage (Vcc)	USB port	-	4.75	5	5.25	V _{DC}
Supply Current (Icc) ⁷		-	-	75	100	mA
Current Pass-through ⁸	-	-	-	-	500	mA
Operating RF Input Power ¹	Between COM & active port	Hot switching	-	-	+18	dBm
	Between COM & active port	Cold switching	-	-	+24	
	Into any termination	-	-	-	+24	

1. Max power at hot switching derates linearly from +18 dBm @ 600 MHz to +17 dBm @100 MHz, at all other conditions it derates linearly from +24 dBm @ 600 MHz to +17 dBm @100 MHz.
2. IP3 may degrade below 500 MHz to about +45 dBm.
3. IP3 tested with 1 MHz span between signals, +8 dBm per tone.
4. Transition time spec represents the time that the RF signal paths are interrupted during switching and thus is specified without communication delays.
5. Minimum dwell time is the shortest time that can be achieved between 2 switch transitions when programming an automated switch sequence.
6. Switching time (USB) is the time from issuing a single software command via USB to the switch state changing. The most significant factor is the host PC, influenced by CPU load and USB protocol. The time shown is an estimate for a medium CPU load and USB 2.0 connection.
7. USB current draw for a single unit with no slave units.
8. Pass through current is the maximum supply current handling of a unit with slave modules attached. If controlling a large number of slave modules additional power supplies should be included to ensure this limit is not exceeded. See page 5 for details.





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ABSOLUTE MAXIMUM RATINGS

Operating Temperature	0°C to 50°C
Storage Temperature	-20°C to 60°C
DC supply voltage max.	6V
DC voltage @ RF Ports	20 V

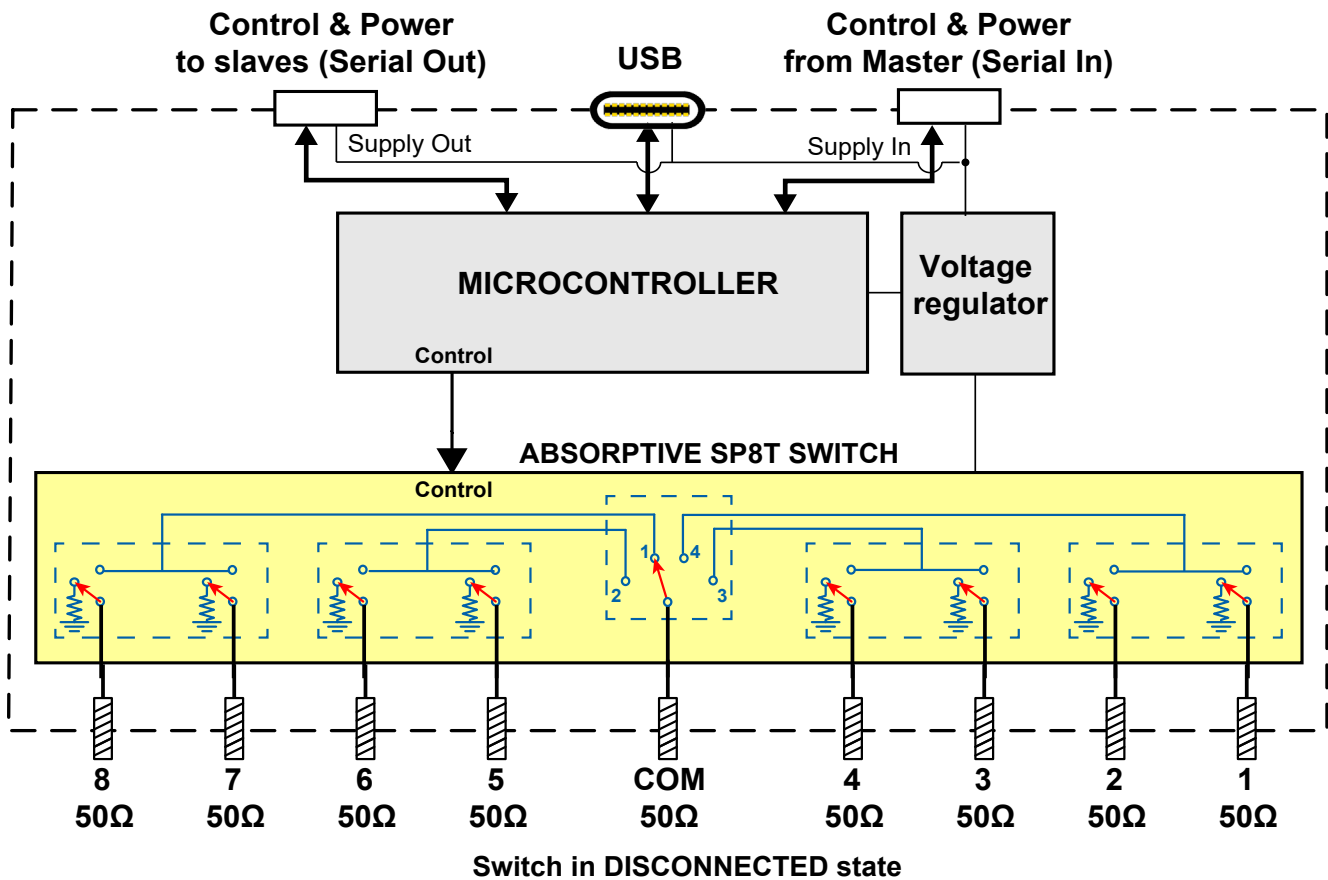
Permanent damage may occur if any of these limits are exceeded. Operating in the range between operating power limits and absolute maximum ratings for extended periods of time may result in reduced life and reliability.

CONNECTIONS

Port Name	Connector Type
RF SP8T (COM & 1 to 8)	2.92 mm female
USB	USB type-C receptacle
Serial In (Digital Control 2 port)	Digital Snap Fit Connector ⁹
Serial Out (Digital Control 1 port)	Digital Snap Fit Connector ⁹

9. Mating connector is Hirose ST40X-10S-CV(30).

BLOCK DIAGRAM



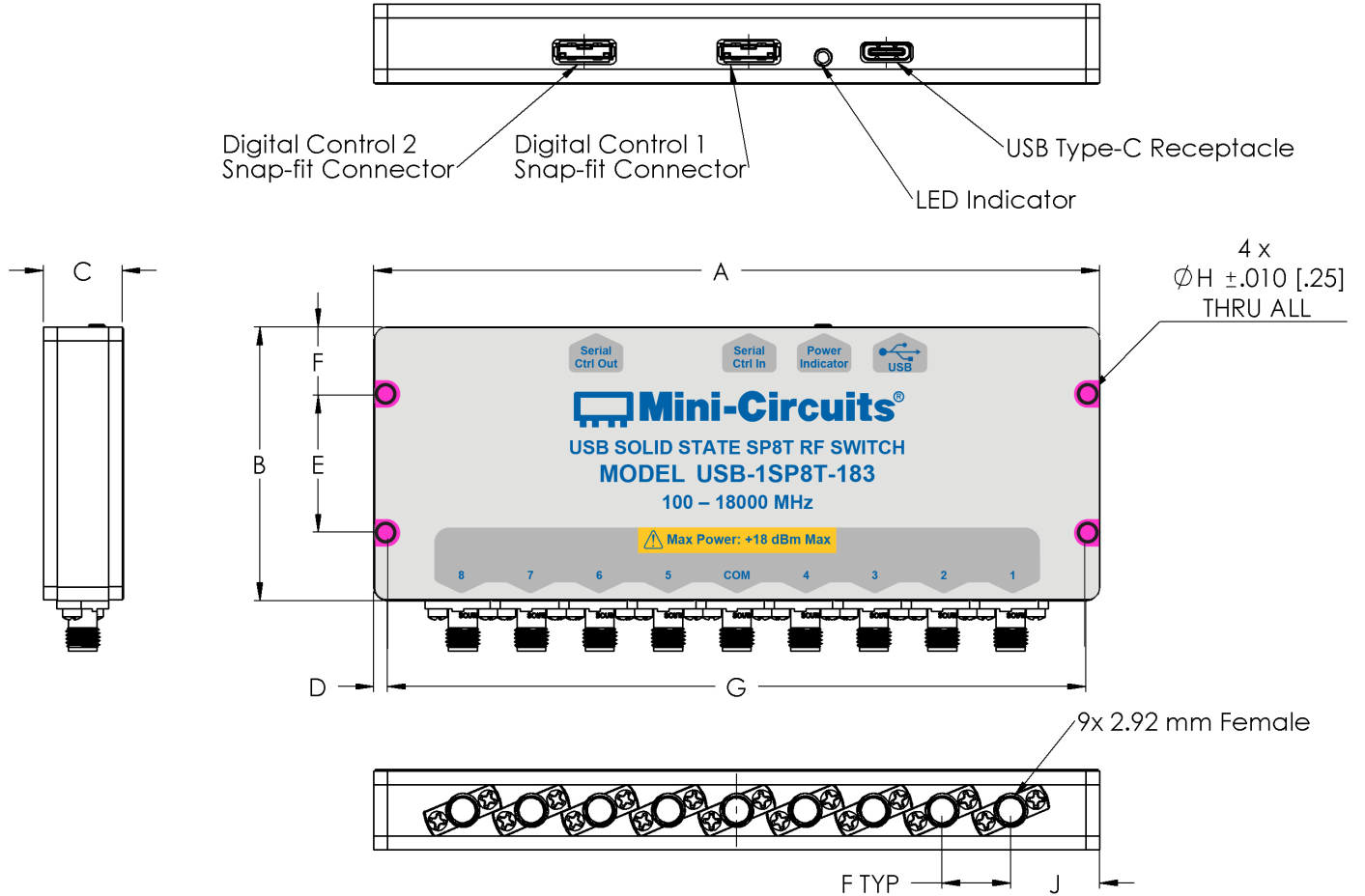


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OUTLINE DRAWING (NR3245)



OUTLINE DIMENSIONS (INCH mm)

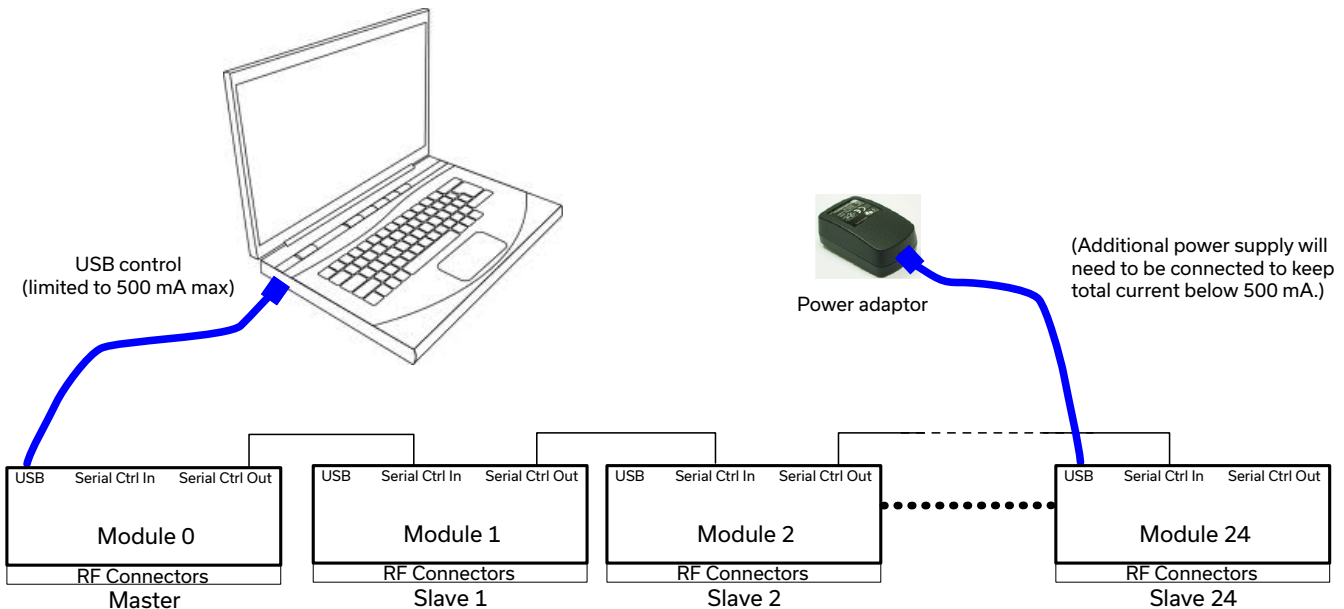
A	B	C	D	E	F	G	H	J	weight
5.30	2.00	0.575	0.10	1.00	0.50	5.10	0.106	0.65	grams
134.62	50.80	14.610	2.54	25.40	12.70	129.54	2.690	16.51	185





CONNECTING MULTIPLE MODULES (DAISY CHAIN)

The USB-1SP8T-183 model is designed to connect up to 25 modules in series (daisy chain) using dynamic addressing, meaning there is no need to specifically set the address of the modules. The addresses will be set automatically as part of establishing the communications with the computer. The module connected to the computer's USB port will be assigned address 0 (master), the first module connected to it will get address 1 (slave) and subsequent modules incrementing up to address 24 (slave).



Connections between modules will be made using the serial in/out ports with the module connected to the PC act as a master and all other as slave modules. All control will be through the master module (address 0) which is the only one communicating with the PC. Serial control out port of each module should be connected to the serial control in port of the next module.

Power will be supplied from the PC via the master module up to a maximum of 500 mA. Generally, additional power supply will be needed to keep total current below 500 mA. All power supplies should be connected to the module via the module's USB port. Connecting an additional power supply will automatically cut off power draw from the serial control in port for that module.

The serial master/slave bus allows connecting modules of different types to the same daisy chain as long as all support Mini-Circuits Dynamic addressing setup. To add a new module to the setup, simply connect the module and refresh the address listing, no need to reset any of the existing modules or assign addresses manually.

Note: Different module types may have different current consumption which will change the number of units which can be connected before an additional power supply is needed.



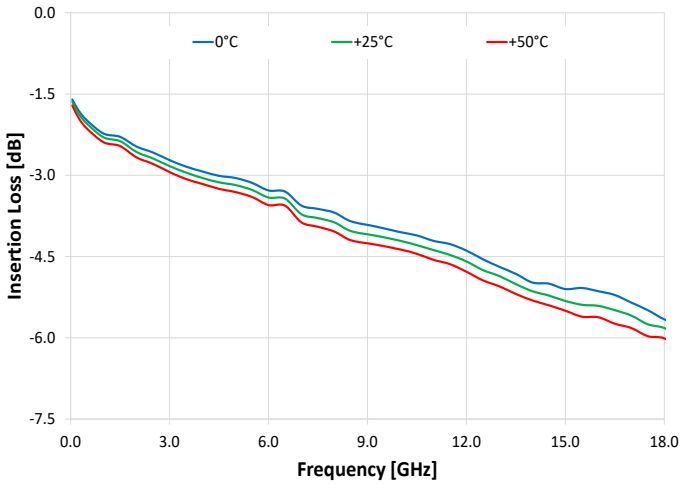
USB

Solid State SP8T Switch

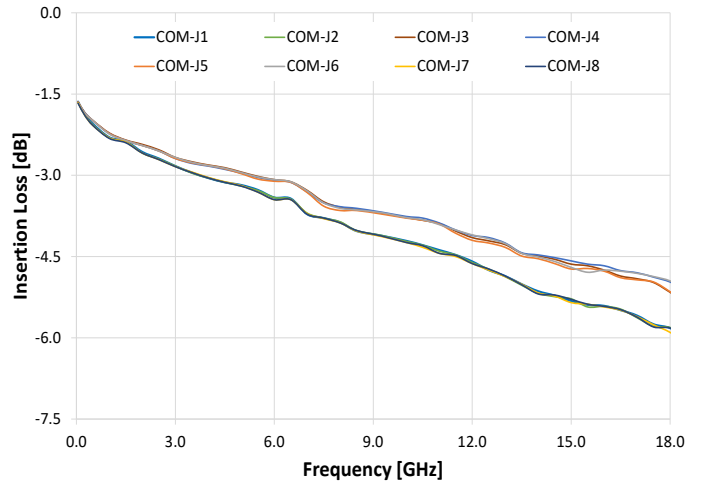
USB-1SP8T-183

TYPICAL PERFORMANCE CURVES

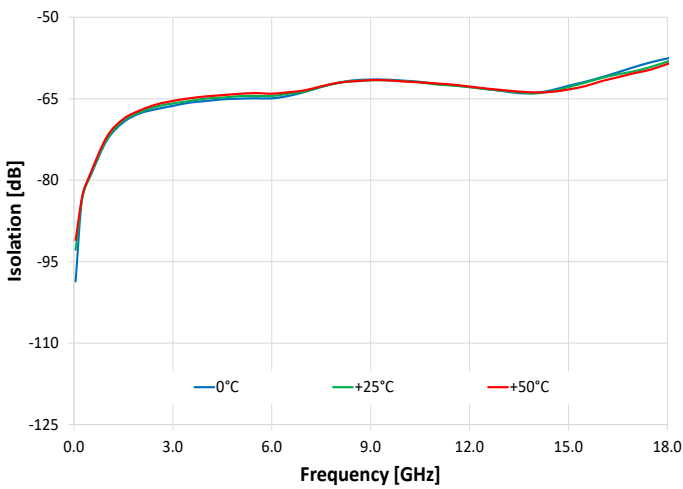
Insertion Loss over Temperature (J1 Active)



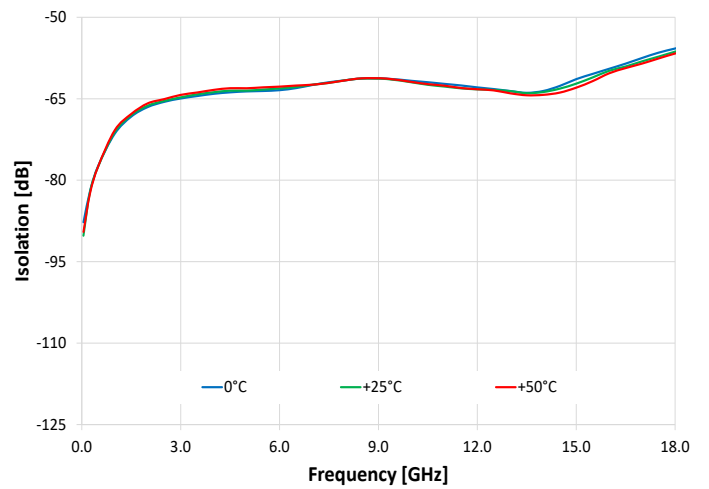
Insertion Loss J1 - J8 Active



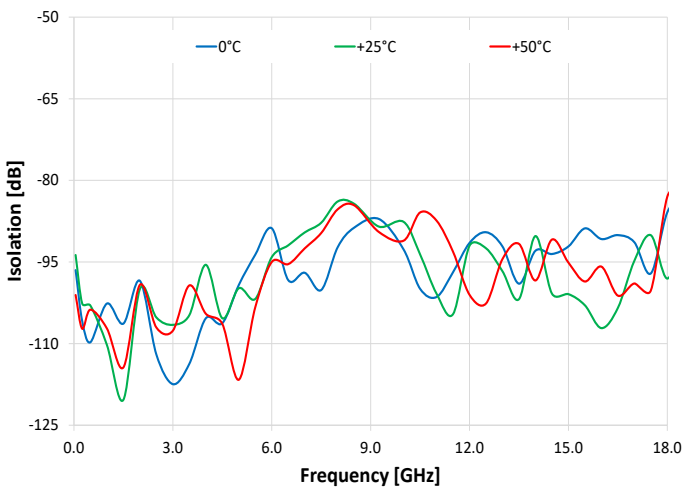
Isolation Com to J1 (J2 Active)



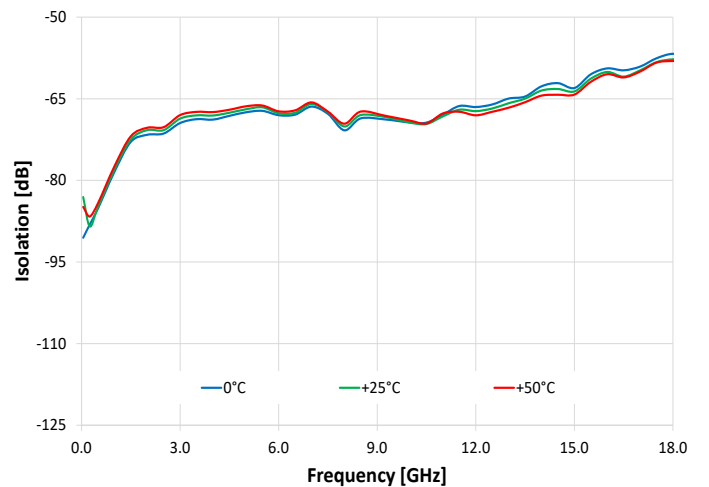
Isolation Com to J3 (J4 Active)



Isolation J2 to J3 (J2 Active)



Isolation J7 to J8 (J7 Active)





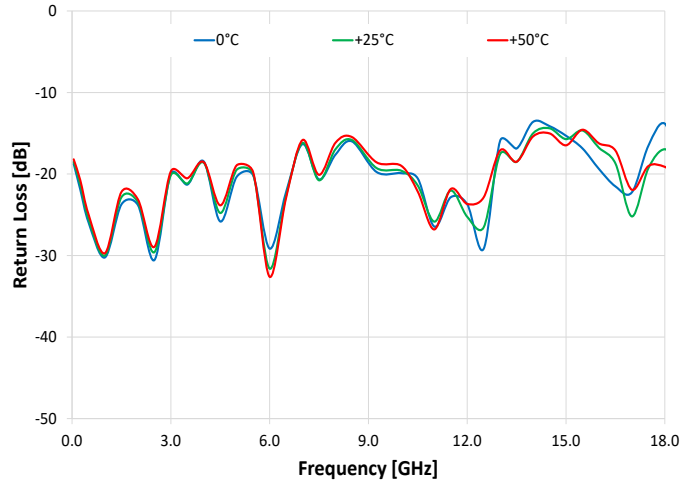
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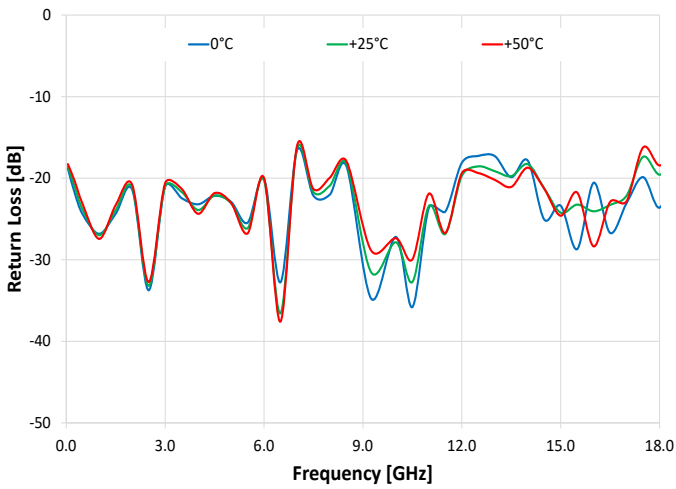
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TYPICAL PERFORMANCE CURVES (CONTINUED)

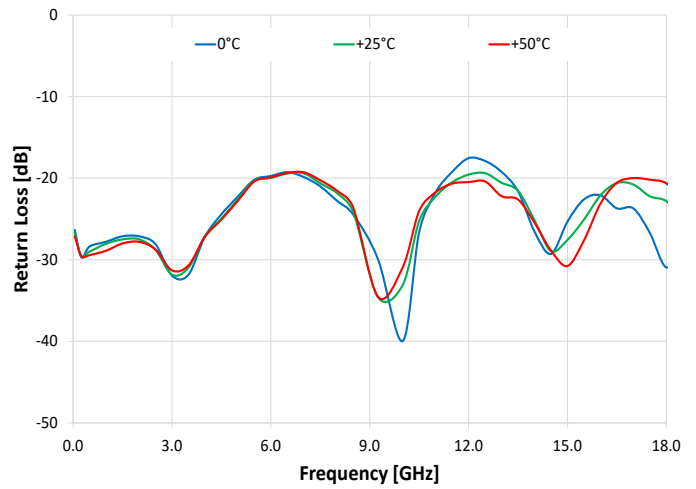
Return Loss @ COM over Temperature (J1 Active)



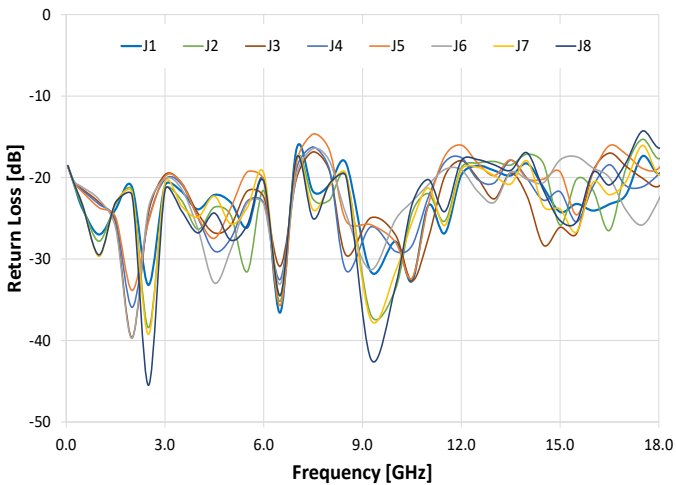
Return Loss @ J1 over Temperature (J1 Active)



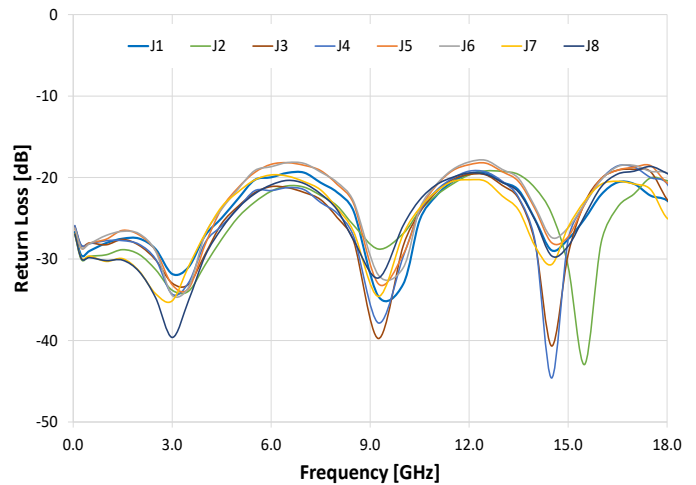
Return Loss @ J1 over Temperature (J1 Terminated)



Return Loss @ Active ports (J1 - J8 Active)



Return Loss @ Terminated ports (J1 - J8 Terminated)





SOFTWARE SPECIFICATIONS

SOFTWARE & DOCUMENTATION DOWNLOAD:

- Mini-Circuits' full software and support package including user guide, Windows GUI, DLL files, programming manual and examples can be downloaded free of charge from: <https://www.minicircuits.com/softwaredownload/solidstate.html>
- Please contact testsolutions@minicircuits.com for support

MINIMUM SYSTEM REQUIREMENTS:

Parameter	Requirements	
Interface	USB HID or Daisy Chain dynamic addressing	
System Requirements	GUI	Windows 7 or later
	USB API DLL	Windows 7 or later and programming environment with ActiveX or .NET support
	USB Direct Programming	Linux, Windows 7 or later
	Daisy Chain dynamic addressing	An additional Mini-Circuits model supporting dynamic addressing
Hardware	Intel i3 (or equivalent) or later	

APPLICATION PROGRAMMING INTERFACE (API)

USB SUPPORT (WINDOWS):

- ActiveX COM DLL file for creation of 32-bit programs
- .NET library DLL file for creation of 32 / 64-bit programs
- Supported by most common programming environments

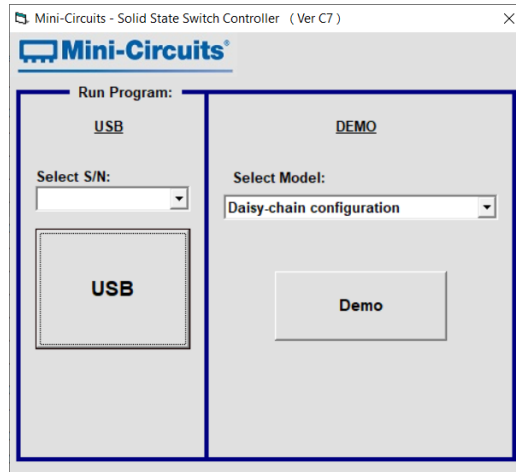
USB SUPPORT (LINUX):

- Direct USB programming using a series of USB interrupt codes
- Full programming instructions and examples available for a wide range of programming environments / languages.

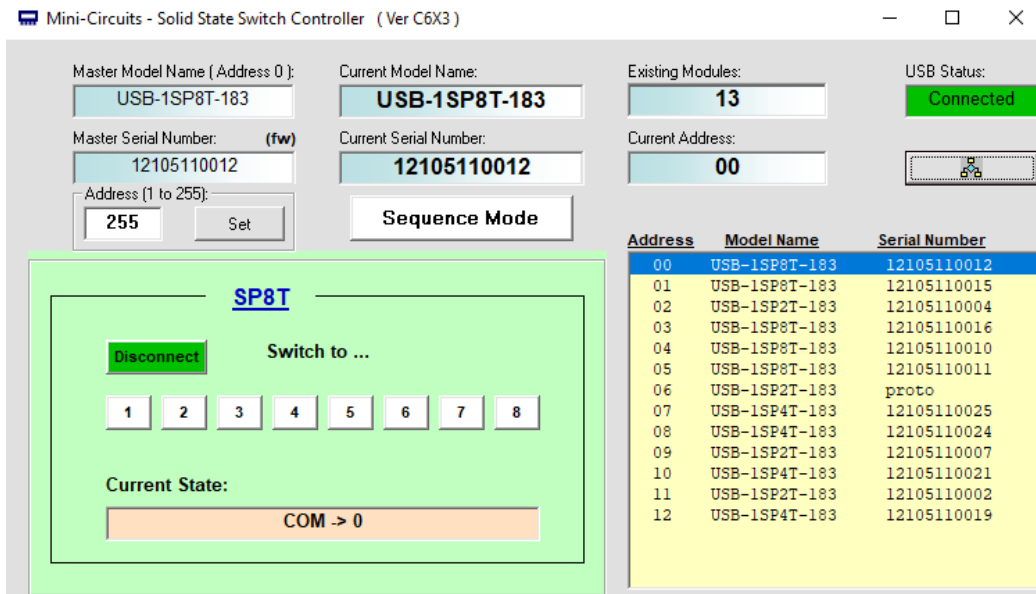


GRAPHICAL USER INTERFACE (GUI) FOR WINDOWS - KEY FEATURES

- Connect via USB
- Run GUI in "demo mode" to evaluate software without a hardware connection



- View and set switch states at the click of a button
- Control up to 25 units from a single USB control
- Configure and run timed switching sequences





USB

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Mini-Circuits

ORDERING INFORMATION

Please contact Mini-Circuits' Test Solutions department for price and availability: testsolutions@minicircuits.com

Model	Description
USB-1SP8T-183	USB RF SP8T switch

Included Accessories	Part No.	Description
	USB-CBL-AC-3+	3.3 ft (1.0 m) USB cable: USB type A (Male) to USB type C (Male)

OPTIONAL ACCESSORIES

USB-CBL-AC-3+	3.3 ft (1.0 m) USB Cable: USB type A (Male) to USB type C (Male)
CBL-1.5FT-MMD+	1.5 ft (0.45 m) cable assembly for serial control Daisy Chain with snap fit connectors
USB-AC/DC-5	AC/DC +5V power adaptor with USB connector ^{10, 11}

10. The power adaptor may be used to provide additional power via USB port when connecting several units in daisy chain.

11. Includes power plugs for US, UK, EU, IL, AU & China. Plugs for other countries are also available. If you need a power cord for a country not listed please contact testsolutions@minicircuits.com

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.
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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

Frequency (MHz)	Insertion Loss							
	(dB)							
	COM-J1	COM-J2	COM-J3	COM-J4	COM-J5	COM-J6	COM-J7	COM-J8
50	1.60	1.61	1.60	1.60	1.60	1.60	1.61	1.61
250	1.81	1.82	1.79	1.79	1.78	1.78	1.82	1.82
500	1.99	2.00	1.93	1.92	1.92	1.92	2.00	1.99
750	2.13	2.14	2.04	2.04	2.04	2.04	2.13	2.13
1000	2.23	2.24	2.16	2.16	2.16	2.16	2.23	2.23
1250	2.24	2.26	2.21	2.21	2.21	2.21	2.25	2.25
1500	2.29	2.30	2.26	2.27	2.27	2.27	2.30	2.30
1750	2.38	2.40	2.31	2.32	2.31	2.31	2.39	2.40
2000	2.47	2.49	2.34	2.35	2.34	2.34	2.48	2.48
2250	2.53	2.55	2.38	2.38	2.38	2.38	2.54	2.54
2500	2.58	2.60	2.44	2.45	2.44	2.44	2.59	2.59
2750	2.64	2.65	2.50	2.51	2.51	2.50	2.65	2.65
3000	2.72	2.73	2.57	2.58	2.57	2.57	2.73	2.72
3500	2.84	2.84	2.65	2.67	2.65	2.64	2.82	2.83
4000	2.93	2.93	2.70	2.72	2.70	2.70	2.91	2.92
4500	3.01	3.01	2.75	2.77	2.75	2.75	2.99	2.99
5000	3.05	3.07	2.82	2.83	2.83	2.82	3.05	3.06
5500	3.14	3.16	2.91	2.91	2.94	2.91	3.17	3.17
6000	3.28	3.28	2.96	2.96	2.97	2.96	3.31	3.31
6500	3.30	3.31	3.00	3.00	2.99	3.00	3.31	3.32
7000	3.56	3.55	3.15	3.17	3.17	3.16	3.55	3.57
7500	3.62	3.63	3.35	3.35	3.41	3.36	3.64	3.64
8000	3.69	3.68	3.44	3.42	3.48	3.45	3.71	3.72
8500	3.85	3.84	3.47	3.44	3.48	3.48	3.86	3.85
9000	3.90	3.89	3.52	3.48	3.51	3.50	3.93	3.91
9500	3.97	3.94	3.59	3.52	3.58	3.54	4.00	3.96
10000	4.05	4.04	3.64	3.60	3.63	3.63	4.08	4.05
10500	4.11	4.08	3.68	3.61	3.66	3.65	4.14	4.11
11000	4.21	4.20	3.72	3.68	3.71	3.72	4.26	4.23
11500	4.27	4.23	3.85	3.78	3.87	3.80	4.30	4.25
12000	4.39	4.35	3.98	3.89	4.02	3.90	4.43	4.39
12500	4.55	4.49	4.03	3.94	4.06	3.97	4.55	4.51
13000	4.69	4.67	4.11	4.07	4.15	4.10	4.70	4.69
13500	4.82	4.81	4.27	4.25	4.31	4.27	4.83	4.82
14000	4.98	4.98	4.30	4.27	4.33	4.32	5.03	5.02
14500	5.00	4.97	4.36	4.30	4.43	4.37	5.03	4.97
15000	5.10	5.01	4.42	4.33	4.49	4.44	5.14	5.05
15500	5.08	5.08	4.41	4.37	4.43	4.51	5.08	5.06
16000	5.14	5.13	4.54	4.45	4.54	4.53	5.18	5.15
16500	5.21	5.21	4.61	4.53	4.62	4.57	5.25	5.22
17000	5.35	5.40	4.71	4.61	4.71	4.65	5.42	5.39
17250	5.44	5.45	4.73	4.64	4.72	4.68	5.50	5.46
17500	5.49	5.51	4.77	4.68	4.75	4.73	5.60	5.56
17750	5.62	5.59	4.87	4.76	4.85	4.80	5.69	5.65
18000	5.66	5.61	4.97	4.76	4.94	4.80	5.77	5.64
18250	5.64	5.60	5.01	4.80	5.00	4.84	5.81	5.62
18500	5.76	5.73	5.13	4.89	5.14	4.92	5.92	5.74
18750	5.83	5.84	5.24	4.93	5.28	4.99	6.07	5.85
19000	5.92	5.96	5.30	4.99	5.34	5.09	6.15	5.95
19250	5.93	5.98	5.36	5.04	5.38	5.17	6.18	5.96
19500	5.84	5.83	5.37	4.96	5.37	5.12	6.16	5.84
19750	5.89	5.89	5.36	4.99	5.32	5.15	6.17	5.89
20000	5.98	6.05	5.39	5.06	5.34	5.20	6.25	6.01

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Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

Frequency (MHz)	VSWR, Active Ports (:1)								
	COM	J1	J2	J3	J4	J5	J6	J7	J8
50	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
250	1.17	1.18	1.18	1.19	1.19	1.18	1.19	1.18	1.18
500	1.11	1.13	1.13	1.17	1.17	1.16	1.18	1.14	1.13
750	1.03	1.10	1.10	1.16	1.15	1.15	1.16	1.10	1.10
1000	1.06	1.10	1.09	1.14	1.14	1.13	1.15	1.07	1.08
1250	1.11	1.11	1.11	1.13	1.13	1.13	1.13	1.10	1.10
1500	1.14	1.13	1.14	1.11	1.12	1.12	1.10	1.14	1.14
1750	1.16	1.17	1.17	1.08	1.09	1.10	1.06	1.18	1.17
2000	1.14	1.19	1.17	1.02	1.04	1.04	1.03	1.16	1.16
2250	1.08	1.14	1.12	1.05	1.04	1.03	1.07	1.10	1.09
2500	1.06	1.04	1.02	1.13	1.11	1.11	1.13	1.02	1.00
2750	1.16	1.12	1.10	1.20	1.18	1.18	1.19	1.13	1.11
3000	1.22	1.19	1.18	1.23	1.22	1.22	1.22	1.20	1.18
3500	1.19	1.16	1.14	1.19	1.19	1.19	1.18	1.13	1.12
4000	1.27	1.15	1.11	1.12	1.11	1.11	1.09	1.14	1.11
4500	1.11	1.17	1.13	1.10	1.08	1.10	1.06	1.16	1.12
5000	1.21	1.15	1.12	1.11	1.09	1.14	1.08	1.11	1.09
5500	1.22	1.11	1.06	1.19	1.16	1.25	1.16	1.15	1.12
6000	1.07	1.22	1.18	1.16	1.15	1.20	1.14	1.24	1.21
6500	1.17	1.05	1.05	1.07	1.07	1.03	1.06	1.05	1.05
7000	1.36	1.35	1.28	1.21	1.25	1.27	1.23	1.29	1.29
7500	1.20	1.17	1.17	1.32	1.34	1.44	1.34	1.14	1.13
8000	1.30	1.17	1.12	1.25	1.25	1.34	1.29	1.16	1.18
8500	1.38	1.27	1.25	1.10	1.09	1.13	1.16	1.24	1.24
9000	1.24	1.08	1.11	1.05	1.06	1.04	1.01	1.07	1.06
9500	1.24	1.08	1.04	1.15	1.13	1.14	1.11	1.06	1.05
10000	1.23	1.09	1.06	1.12	1.10	1.11	1.15	1.06	1.04
10500	1.21	1.03	1.09	1.06	1.07	1.04	1.14	1.08	1.11
11000	1.10	1.14	1.17	1.04	1.13	1.10	1.16	1.17	1.22
11500	1.16	1.13	1.12	1.23	1.28	1.31	1.24	1.13	1.14
12000	1.14	1.28	1.29	1.38	1.37	1.46	1.31	1.29	1.32
12500	1.07	1.32	1.34	1.27	1.27	1.33	1.22	1.30	1.34
13000	1.38	1.32	1.38	1.20	1.27	1.28	1.20	1.30	1.36
13500	1.33	1.23	1.29	1.29	1.37	1.36	1.29	1.22	1.27
14000	1.53	1.29	1.34	1.12	1.18	1.18	1.15	1.34	1.37
14500	1.49	1.12	1.20	1.08	1.12	1.22	1.12	1.09	1.11
15000	1.41	1.15	1.07	1.07	1.10	1.19	1.20	1.22	1.19
15500	1.34	1.08	1.15	1.16	1.15	1.13	1.32	1.02	1.06
16000	1.24	1.21	1.29	1.36	1.30	1.36	1.37	1.29	1.33
16500	1.18	1.10	1.18	1.30	1.23	1.35	1.23	1.18	1.22
17000	1.17	1.15	1.27	1.22	1.16	1.27	1.12	1.22	1.26
17250	1.25	1.18	1.32	1.17	1.13	1.21	1.07	1.26	1.34
17500	1.35	1.23	1.33	1.13	1.10	1.15	1.02	1.32	1.39
17750	1.44	1.25	1.29	1.05	1.06	1.07	1.05	1.23	1.36
18000	1.51	1.14	1.21	1.03	1.12	1.09	1.06	1.10	1.28
18250	1.32	1.15	1.20	1.12	1.19	1.22	1.15	1.12	1.23
18500	1.24	1.28	1.30	1.15	1.23	1.27	1.19	1.19	1.32
18750	1.32	1.34	1.44	1.23	1.28	1.34	1.28	1.25	1.43
19000	1.46	1.33	1.46	1.27	1.30	1.39	1.37	1.28	1.44
19250	1.46	1.20	1.36	1.27	1.27	1.35	1.40	1.18	1.33
19500	1.38	1.06	1.22	1.24	1.18	1.30	1.36	1.08	1.17
19750	1.28	1.12	1.21	1.20	1.11	1.20	1.32	1.06	1.17
20000	1.31	1.16	1.33	1.18	1.06	1.15	1.28	1.14	1.25

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

Frequency (MHz)	VSWR, Internally Terminated Ports (:1)							
	J1	J2	J3	J4	J5	J6	J7	J8
50	1.10	1.10	1.11	1.11	1.11	1.11	1.10	1.10
250	1.07	1.06	1.08	1.08	1.08	1.08	1.06	1.06
500	1.08	1.07	1.08	1.09	1.09	1.09	1.07	1.07
750	1.09	1.08	1.09	1.09	1.09	1.09	1.08	1.08
1000	1.09	1.08	1.09	1.09	1.10	1.10	1.07	1.07
1250	1.09	1.08	1.09	1.09	1.10	1.10	1.07	1.07
1500	1.09	1.08	1.09	1.09	1.10	1.10	1.07	1.07
1750	1.09	1.08	1.09	1.09	1.10	1.10	1.07	1.06
2000	1.09	1.07	1.08	1.08	1.10	1.10	1.06	1.06
2250	1.09	1.07	1.08	1.08	1.09	1.09	1.05	1.05
2500	1.08	1.06	1.07	1.07	1.08	1.08	1.04	1.04
2750	1.07	1.05	1.06	1.05	1.06	1.06	1.03	1.03
3000	1.05	1.04	1.04	1.04	1.05	1.04	1.03	1.02
3500	1.05	1.04	1.04	1.04	1.04	1.04	1.05	1.03
4000	1.09	1.06	1.07	1.08	1.09	1.09	1.10	1.07
4500	1.13	1.09	1.11	1.12	1.15	1.14	1.15	1.11
5000	1.17	1.13	1.15	1.15	1.20	1.19	1.18	1.15
5500	1.22	1.15	1.18	1.19	1.25	1.25	1.22	1.18
6000	1.23	1.17	1.19	1.19	1.28	1.27	1.23	1.20
6500	1.24	1.19	1.18	1.20	1.27	1.29	1.22	1.21
7000	1.23	1.18	1.16	1.18	1.25	1.27	1.19	1.19
7500	1.20	1.17	1.15	1.15	1.24	1.23	1.17	1.17
8000	1.16	1.15	1.13	1.11	1.19	1.19	1.14	1.14
8500	1.13	1.13	1.10	1.10	1.15	1.15	1.11	1.10
9000	1.08	1.11	1.08	1.07	1.11	1.10	1.09	1.07
9500	1.05	1.09	1.03	1.05	1.05	1.07	1.06	1.06
10000	1.02	1.09	1.06	1.04	1.06	1.04	1.08	1.10
10500	1.10	1.11	1.12	1.12	1.12	1.11	1.12	1.14
11000	1.18	1.17	1.19	1.20	1.20	1.21	1.17	1.20
11500	1.25	1.23	1.27	1.26	1.29	1.28	1.24	1.25
12000	1.31	1.28	1.31	1.32	1.34	1.35	1.27	1.29
12500	1.29	1.32	1.29	1.29	1.34	1.34	1.26	1.29
13000	1.25	1.31	1.23	1.24	1.29	1.29	1.21	1.26
13500	1.18	1.25	1.15	1.14	1.22	1.22	1.16	1.21
14000	1.10	1.16	1.04	1.03	1.13	1.12	1.10	1.13
14500	1.07	1.05	1.06	1.07	1.10	1.07	1.12	1.10
15000	1.11	1.05	1.17	1.15	1.15	1.12	1.18	1.15
15500	1.16	1.11	1.24	1.21	1.22	1.18	1.23	1.20
16000	1.17	1.16	1.27	1.23	1.25	1.21	1.24	1.23
16500	1.14	1.16	1.23	1.20	1.22	1.20	1.20	1.22
17000	1.14	1.15	1.18	1.21	1.19	1.21	1.15	1.19
17250	1.11	1.13	1.13	1.17	1.15	1.18	1.11	1.18
17500	1.10	1.12	1.12	1.17	1.14	1.18	1.09	1.16
17750	1.12	1.11	1.10	1.19	1.10	1.18	1.04	1.14
18000	1.06	1.12	1.07	1.12	1.06	1.16	1.02	1.15
18250	1.11	1.12	1.08	1.17	1.08	1.19	1.04	1.15
18500	1.08	1.11	1.09	1.10	1.07	1.15	1.03	1.12
18750	1.06	1.13	1.12	1.10	1.09	1.15	1.01	1.14
19000	1.06	1.15	1.10	1.05	1.09	1.14	1.02	1.15
19250	1.09	1.15	1.09	1.02	1.09	1.14	1.04	1.17
19500	1.12	1.16	1.07	1.02	1.10	1.16	1.06	1.17
19750	1.13	1.15	1.05	1.05	1.11	1.16	1.09	1.16
20000	1.16	1.16	1.05	1.10	1.13	1.17	1.08	1.16

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

Frequency (MHz)	Isolation @ Active states (dB)							
	COM-1	COM-3	COM-5	COM-7	J2-J3	J4-J5	J6-J7	J7-J8
50	98.63	87.74	91.35	87.03	96.50	97.37	99.02	90.54
250	83.11	81.98	82.47	83.00	105.85	104.69	120.82	88.10
500	79.24	77.31	77.59	78.72	109.74	107.33	111.36	85.17
750	75.38	74.01	73.95	74.79	112.97	105.60	103.49	81.22
1000	72.64	71.44	71.18	72.30	102.64	110.81	113.93	78.45
1250	70.62	69.62	69.32	70.31	102.84	105.31	109.59	75.34
1500	69.32	68.29	68.07	69.07	106.32	112.11	105.04	72.92
1750	68.35	67.24	67.08	68.12	100.37	106.47	109.61	71.34
2000	67.69	66.53	66.27	67.35	98.46	103.59	125.69	71.62
2250	67.28	65.99	65.95	66.82	118.18	116.85	105.90	71.73
2500	66.91	65.57	65.36	66.31	112.01	111.21	101.99	71.39
2750	66.49	65.28	65.01	66.26	104.08	130.94	105.88	70.16
3000	66.31	64.95	64.60	65.79	117.45	115.94	110.03	69.46
3500	65.72	64.50	64.15	65.28	113.72	118.27	121.33	68.75
4000	65.43	64.09	63.69	64.87	105.35	98.65	116.14	68.83
4500	65.11	63.82	63.52	64.73	106.25	109.53	103.74	68.14
5000	64.99	63.65	63.60	64.78	99.23	101.54	119.11	67.49
5500	64.91	63.57	63.56	64.62	93.66	102.12	110.79	67.22
6000	64.93	63.42	63.34	64.72	88.80	114.77	112.87	68.02
6500	64.49	63.04	62.89	64.28	98.33	100.74	103.26	67.92
7000	63.75	62.46	62.31	63.64	96.98	106.59	101.88	66.44
7500	62.84	61.96	61.70	62.69	100.15	100.91	111.69	67.78
8000	62.09	61.60	61.12	62.07	92.29	103.95	95.66	70.80
8500	61.61	61.26	60.81	61.81	88.69	101.71	103.96	68.60
9000	61.49	61.17	60.73	61.68	87.21	101.12	96.91	68.28
9500	61.50	61.38	60.83	61.72	89.45	99.20	103.66	69.36
10000	61.67	61.70	61.12	62.01	92.70	101.84	94.17	69.36
10500	61.89	61.96	61.56	62.37	99.92	98.07	113.01	69.38
11000	62.28	62.26	61.86	62.71	101.43	100.74	103.62	67.91
11500	62.55	62.55	62.22	62.94	96.87	101.97	100.95	66.33
12000	62.84	62.91	62.44	63.13	91.49	99.25	99.69	66.52
12500	63.20	63.22	62.70	63.42	89.53	104.17	98.62	66.05
13000	63.57	63.58	63.17	63.96	92.15	104.14	94.20	64.96
13500	63.97	63.91	63.41	64.23	98.98	103.96	95.96	64.59
14000	63.95	63.57	63.39	63.70	92.93	95.67	93.61	62.71
14500	63.41	62.64	62.74	62.64	93.53	101.14	92.63	62.13
15000	62.61	61.39	62.13	61.73	92.14	102.30	87.06	63.03
15500	61.89	60.42	61.46	61.00	88.82	93.35	88.93	60.51
16000	61.05	59.48	60.57	60.58	90.78	93.26	90.17	59.42
16500	60.13	58.53	59.58	59.65	90.06	91.87	91.08	59.77
17000	59.16	57.49	58.61	58.66	91.37	91.15	88.22	59.09
17250	58.71	57.02	58.26	58.21	91.56	92.07	87.69	58.43
17500	58.29	56.51	57.87	57.78	97.10	91.61	87.04	57.56
17750	57.91	56.12	57.61	57.39	94.26	89.49	88.26	56.86
18000	57.58	55.75	57.43	56.99	85.86	86.66	86.62	56.74
18250	57.17	55.34	57.00	56.29	85.47	86.16	89.14	57.18
18500	56.90	55.02	56.61	55.95	82.51	89.96	94.36	57.39
18750	56.47	54.67	56.17	55.51	80.57	90.26	90.62	56.56
19000	56.09	54.32	55.81	55.13	77.15	92.41	86.59	55.42
19250	55.64	53.89	55.37	54.63	76.16	90.36	87.22	54.61
19500	55.03	53.45	54.92	54.22	75.80	91.28	88.44	54.33
19750	54.66	53.11	54.53	53.92	75.78	89.61	87.44	54.77
20000	54.44	52.78	54.21	53.70	76.09	87.72	85.55	55.23

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = 0°C, Pin=8dBm

Frequency (MHz)	Isolation @ Disconnected state (dB)							
	COM-1	COM-2	COM-3	COM-4	COM-5	COM-6	COM-7	COM-8
50	104.42	85.76	104.98	84.24	85.80	82.75	98.64	84.14
250	106.95	97.73	115.69	110.87	80.08	80.30	115.94	102.57
500	117.69	106.77	122.56	107.05	75.79	75.56	106.37	104.38
750	101.97	107.71	108.58	99.38	71.92	72.03	108.09	103.00
1000	121.98	106.12	115.89	102.07	69.43	69.85	106.96	104.62
1250	114.25	108.23	112.92	100.34	67.90	68.10	103.56	113.61
1500	114.22	106.15	105.87	106.26	66.84	66.96	107.54	106.75
1750	102.69	105.06	116.09	106.52	65.79	65.90	105.44	109.91
2000	111.63	103.63	110.96	106.43	64.95	64.99	105.76	103.18
2250	107.59	106.82	103.82	107.93	64.11	64.21	107.12	105.64
2500	109.31	114.20	103.29	103.39	63.47	63.47	102.51	115.27
2750	111.19	104.94	106.86	100.85	62.89	62.93	111.29	102.29
3000	110.94	111.80	113.65	102.42	62.64	62.76	106.09	115.51
3500	113.87	105.93	108.75	116.42	62.76	62.73	108.71	104.70
4000	109.86	103.47	112.72	102.52	63.12	63.02	115.38	106.41
4500	117.65	108.89	105.64	106.71	63.47	63.24	107.38	106.90
5000	110.55	109.52	107.23	103.94	64.12	63.90	106.67	109.88
5500	109.06	103.88	117.45	102.90	65.08	64.74	124.33	120.96
6000	125.59	115.64	106.58	103.42	65.64	65.40	100.69	101.20
6500	110.91	105.95	108.24	118.73	65.95	65.59	109.57	104.88
7000	112.28	107.08	117.27	105.79	66.45	66.59	114.57	114.80
7500	108.33	113.04	107.79	104.50	67.79	68.60	102.69	106.30
8000	104.51	108.06	104.46	106.84	68.70	70.43	106.11	103.87
8500	119.54	111.46	114.69	105.04	68.94	71.38	103.87	108.55
9000	106.78	106.24	112.89	107.21	68.11	71.28	105.06	101.74
9500	103.31	109.82	105.50	104.64	67.01	70.15	112.49	100.49
10000	99.98	106.13	112.54	107.56	66.25	68.36	113.59	100.74
10500	118.45	100.94	102.77	100.73	65.24	66.81	101.67	110.73
11000	106.25	101.64	120.62	121.70	63.65	64.74	110.01	102.28
11500	103.07	101.28	109.69	121.26	62.46	62.99	99.10	97.21
12000	115.26	108.30	107.76	103.28	62.02	62.15	109.00	101.08
12500	106.30	108.82	111.68	110.87	61.75	61.69	110.36	107.20
13000	106.46	103.21	110.81	108.76	60.75	60.36	97.96	111.70
13500	108.47	103.71	104.76	104.04	59.44	58.86	96.60	101.54
14000	104.69	113.20	97.95	96.43	58.99	58.22	97.28	98.86
14500	107.72	98.91	100.10	96.32	58.72	57.91	96.36	98.52
15000	97.72	91.71	96.21	91.46	57.70	56.84	88.77	89.13
15500	100.32	96.52	97.21	105.28	56.10	55.11	95.71	100.25
16000	103.37	103.01	103.19	104.68	55.26	54.16	99.42	97.87
16500	98.87	99.85	100.32	96.78	55.29	54.17	101.56	102.34
17000	103.51	99.22	100.14	96.55	55.06	53.90	98.47	112.06
17250	103.31	101.36	104.16	96.41	54.96	53.70	95.97	96.00
17500	104.13	96.83	93.59	89.34	54.96	53.65	93.62	99.94
17750	105.66	94.62	92.91	92.38	55.06	53.72	99.85	102.44
18000	107.90	104.19	91.88	97.58	55.11	53.73	101.30	100.66
18250	102.16	99.83	98.58	101.70	55.03	53.58	93.90	92.13
18500	98.43	101.39	104.87	98.58	54.76	53.36	86.11	83.83
18750	115.75	100.61	100.02	98.23	54.22	52.87	90.92	88.87
19000	101.10	106.87	98.37	94.55	53.56	52.29	94.43	91.36
19250	102.62	102.89	97.33	92.11	52.95	51.72	92.56	94.89
19500	105.16	99.93	99.33	99.07	52.36	51.13	91.35	94.09
19750	96.91	112.80	103.54	94.44	51.94	50.73	91.57	93.60
20000	97.68	109.35	101.13	97.51	51.62	50.45	94.52	90.26

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +25°C, Pin=8dBm

Frequency (MHz)	Insertion Loss							
	(dB)							
	COM-J1	COM-J2	COM-J3	COM-J4	COM-J5	COM-J6	COM-J7	COM-J8
50	1.64	1.65	1.64	1.65	1.65	1.65	1.66	1.67
250	1.87	1.88	1.84	1.84	1.85	1.85	1.89	1.89
500	2.05	2.07	1.99	1.99	1.99	1.99	2.08	2.08
750	2.20	2.21	2.11	2.11	2.12	2.12	2.22	2.22
1000	2.30	2.31	2.22	2.23	2.23	2.24	2.31	2.32
1250	2.32	2.33	2.29	2.30	2.30	2.30	2.34	2.34
1500	2.37	2.38	2.35	2.36	2.36	2.36	2.39	2.40
1750	2.47	2.49	2.40	2.42	2.42	2.41	2.49	2.50
2000	2.57	2.59	2.43	2.45	2.45	2.45	2.59	2.59
2250	2.63	2.65	2.47	2.48	2.49	2.48	2.65	2.65
2500	2.69	2.70	2.53	2.55	2.55	2.55	2.71	2.71
2750	2.74	2.75	2.59	2.62	2.61	2.61	2.76	2.77
3000	2.83	2.83	2.67	2.69	2.69	2.67	2.84	2.84
3500	2.95	2.96	2.75	2.78	2.77	2.76	2.94	2.95
4000	3.05	3.05	2.81	2.83	2.82	2.82	3.04	3.05
4500	3.13	3.13	2.86	2.89	2.88	2.87	3.12	3.13
5000	3.18	3.20	2.94	2.96	2.97	2.95	3.19	3.20
5500	3.27	3.28	3.02	3.04	3.07	3.03	3.31	3.31
6000	3.41	3.41	3.08	3.09	3.11	3.08	3.45	3.45
6500	3.43	3.44	3.12	3.13	3.13	3.12	3.45	3.45
7000	3.72	3.70	3.28	3.31	3.32	3.29	3.71	3.72
7500	3.79	3.79	3.49	3.51	3.57	3.51	3.80	3.79
8000	3.87	3.86	3.59	3.58	3.65	3.61	3.88	3.88
8500	4.03	4.02	3.63	3.61	3.65	3.64	4.03	4.02
9000	4.08	4.08	3.68	3.66	3.69	3.67	4.10	4.09
9500	4.14	4.12	3.74	3.69	3.75	3.70	4.17	4.14
10000	4.21	4.22	3.78	3.76	3.79	3.78	4.24	4.24
10500	4.29	4.29	3.83	3.79	3.83	3.82	4.33	4.30
11000	4.38	4.40	3.89	3.88	3.90	3.91	4.44	4.44
11500	4.47	4.47	4.03	4.01	4.07	4.01	4.50	4.48
12000	4.59	4.61	4.15	4.11	4.20	4.10	4.63	4.63
12500	4.75	4.73	4.21	4.15	4.25	4.17	4.75	4.73
13000	4.86	4.87	4.28	4.25	4.33	4.26	4.87	4.86
13500	5.01	5.03	4.44	4.43	4.49	4.44	5.01	5.02
14000	5.14	5.18	4.49	4.47	4.54	4.51	5.17	5.19
14500	5.22	5.24	4.55	4.52	4.63	4.59	5.23	5.21
15000	5.32	5.28	4.64	4.58	4.73	4.70	5.35	5.29
15500	5.39	5.43	4.67	4.64	4.72	4.79	5.38	5.38
16000	5.41	5.42	4.75	4.67	4.77	4.75	5.43	5.42
16500	5.49	5.47	4.86	4.76	4.89	4.77	5.49	5.48
17000	5.59	5.63	4.91	4.80	4.93	4.81	5.61	5.62
17250	5.69	5.71	4.91	4.82	4.92	4.82	5.68	5.71
17500	5.75	5.79	4.98	4.88	4.97	4.87	5.76	5.80
17750	5.79	5.80	5.04	4.93	5.03	4.92	5.82	5.83
18000	5.82	5.81	5.16	4.97	5.15	4.95	5.90	5.82
18250	5.89	5.90	5.25	5.04	5.26	5.02	6.00	5.90
18500	6.00	6.02	5.35	5.13	5.37	5.12	6.11	6.01
18750	6.06	6.11	5.45	5.16	5.48	5.17	6.24	6.09
19000	6.15	6.19	5.51	5.21	5.55	5.25	6.31	6.17
19250	6.19	6.22	5.59	5.26	5.61	5.33	6.36	6.18
19500	6.18	6.16	5.63	5.24	5.62	5.33	6.37	6.11
19750	6.19	6.18	5.61	5.26	5.56	5.34	6.35	6.15
20000	6.25	6.31	5.62	5.30	5.55	5.36	6.41	6.24

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +25°C, Pin=8dBm

Frequency (MHz)	VSWR, Active Ports (:1)								
	COM	J1	J2	J3	J4	J5	J6	J7	J8
50	1.27	1.27	1.27	1.27	1.26	1.27	1.27	1.27	1.27
250	1.19	1.20	1.20	1.21	1.21	1.20	1.21	1.20	1.20
500	1.11	1.14	1.14	1.18	1.18	1.18	1.19	1.15	1.14
750	1.03	1.10	1.10	1.17	1.16	1.16	1.17	1.09	1.09
1000	1.07	1.09	1.08	1.15	1.15	1.14	1.16	1.07	1.07
1250	1.12	1.10	1.11	1.13	1.13	1.13	1.13	1.10	1.11
1500	1.16	1.14	1.15	1.11	1.12	1.12	1.10	1.15	1.15
1750	1.17	1.18	1.18	1.08	1.08	1.09	1.06	1.19	1.18
2000	1.14	1.19	1.18	1.02	1.03	1.04	1.02	1.18	1.17
2250	1.08	1.14	1.12	1.05	1.04	1.04	1.07	1.10	1.10
2500	1.07	1.04	1.02	1.13	1.12	1.11	1.14	1.02	1.01
2750	1.16	1.11	1.10	1.20	1.18	1.18	1.19	1.13	1.11
3000	1.22	1.20	1.18	1.23	1.22	1.23	1.22	1.20	1.18
3500	1.19	1.18	1.16	1.21	1.20	1.20	1.19	1.14	1.13
4000	1.27	1.14	1.10	1.13	1.12	1.12	1.10	1.12	1.10
4500	1.12	1.17	1.14	1.10	1.07	1.09	1.05	1.17	1.13
5000	1.24	1.15	1.12	1.11	1.09	1.14	1.07	1.11	1.09
5500	1.22	1.10	1.05	1.18	1.15	1.24	1.15	1.14	1.11
6000	1.05	1.21	1.18	1.16	1.15	1.21	1.15	1.24	1.21
6500	1.16	1.03	1.04	1.06	1.05	1.03	1.05	1.04	1.04
7000	1.37	1.36	1.30	1.22	1.26	1.28	1.23	1.31	1.31
7500	1.20	1.18	1.16	1.34	1.36	1.45	1.35	1.13	1.12
8000	1.33	1.20	1.16	1.24	1.25	1.34	1.29	1.20	1.20
8500	1.39	1.28	1.23	1.07	1.06	1.11	1.13	1.24	1.23
9000	1.28	1.06	1.07	1.09	1.08	1.07	1.01	1.04	1.04
9500	1.22	1.07	1.03	1.12	1.11	1.12	1.09	1.05	1.04
10000	1.23	1.08	1.04	1.09	1.07	1.08	1.12	1.05	1.04
10500	1.19	1.05	1.13	1.05	1.08	1.05	1.15	1.11	1.15
11000	1.11	1.14	1.17	1.09	1.16	1.15	1.20	1.19	1.22
11500	1.17	1.10	1.11	1.23	1.28	1.31	1.25	1.11	1.13
12000	1.12	1.23	1.26	1.29	1.31	1.38	1.25	1.25	1.29
12500	1.10	1.27	1.28	1.22	1.22	1.28	1.18	1.26	1.30
13000	1.31	1.25	1.29	1.16	1.20	1.23	1.15	1.23	1.27
13500	1.27	1.23	1.27	1.24	1.29	1.29	1.24	1.20	1.25
14000	1.43	1.28	1.32	1.17	1.22	1.22	1.22	1.29	1.33
14500	1.47	1.19	1.28	1.08	1.16	1.22	1.21	1.14	1.18
15000	1.39	1.13	1.11	1.10	1.18	1.24	1.29	1.14	1.12
15500	1.45	1.15	1.22	1.09	1.11	1.13	1.31	1.10	1.11
16000	1.34	1.13	1.18	1.24	1.19	1.24	1.26	1.21	1.24
16500	1.26	1.15	1.10	1.33	1.27	1.37	1.22	1.17	1.20
17000	1.12	1.17	1.26	1.27	1.20	1.32	1.14	1.21	1.28
17250	1.15	1.29	1.36	1.22	1.18	1.27	1.12	1.30	1.41
17500	1.24	1.31	1.41	1.22	1.19	1.26	1.11	1.37	1.48
17750	1.32	1.29	1.36	1.17	1.19	1.21	1.11	1.31	1.43
18000	1.33	1.23	1.30	1.19	1.24	1.26	1.16	1.23	1.36
18250	1.27	1.23	1.33	1.24	1.30	1.36	1.24	1.23	1.36
18500	1.25	1.31	1.41	1.29	1.32	1.42	1.28	1.31	1.41
18750	1.30	1.37	1.52	1.28	1.37	1.44	1.37	1.34	1.52
19000	1.44	1.36	1.50	1.29	1.34	1.46	1.40	1.33	1.47
19250	1.52	1.24	1.37	1.27	1.29	1.41	1.40	1.19	1.32
19500	1.50	1.08	1.22	1.23	1.21	1.30	1.37	1.05	1.16
19750	1.38	1.13	1.23	1.15	1.10	1.16	1.29	1.12	1.19
20000	1.33	1.22	1.36	1.13	1.02	1.05	1.21	1.15	1.28

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +25°C, Pin=8dBm

Frequency (MHz)	VSWR, Internally Terminated Ports (:1)							
	J1	J2	J3	J4	J5	J6	J7	J8
50	1.10	1.09	1.11	1.11	1.10	1.10	1.09	1.09
250	1.07	1.06	1.08	1.08	1.08	1.08	1.07	1.07
500	1.07	1.07	1.08	1.08	1.08	1.08	1.07	1.07
750	1.08	1.07	1.08	1.09	1.09	1.09	1.07	1.07
1000	1.08	1.07	1.08	1.09	1.09	1.09	1.06	1.06
1250	1.09	1.07	1.08	1.09	1.10	1.10	1.07	1.07
1500	1.09	1.07	1.09	1.09	1.10	1.10	1.07	1.06
1750	1.09	1.07	1.09	1.08	1.10	1.10	1.06	1.06
2000	1.09	1.07	1.08	1.08	1.09	1.09	1.05	1.05
2250	1.08	1.06	1.07	1.08	1.08	1.09	1.05	1.05
2500	1.08	1.06	1.06	1.07	1.07	1.07	1.04	1.04
2750	1.06	1.05	1.05	1.05	1.06	1.05	1.03	1.03
3000	1.05	1.04	1.05	1.04	1.04	1.04	1.04	1.02
3500	1.06	1.04	1.05	1.05	1.04	1.04	1.06	1.04
4000	1.09	1.06	1.07	1.08	1.08	1.09	1.09	1.07
4500	1.12	1.09	1.11	1.11	1.14	1.14	1.14	1.10
5000	1.16	1.12	1.14	1.14	1.19	1.19	1.18	1.14
5500	1.21	1.15	1.18	1.18	1.24	1.25	1.21	1.17
6000	1.22	1.18	1.19	1.18	1.27	1.26	1.23	1.20
6500	1.24	1.20	1.19	1.19	1.28	1.28	1.23	1.21
7000	1.24	1.19	1.18	1.18	1.27	1.28	1.21	1.20
7500	1.21	1.17	1.16	1.15	1.25	1.24	1.18	1.17
8000	1.18	1.14	1.12	1.13	1.20	1.21	1.14	1.14
8500	1.13	1.11	1.08	1.09	1.15	1.15	1.10	1.09
9000	1.06	1.08	1.04	1.04	1.08	1.08	1.05	1.05
9500	1.02	1.07	1.03	1.03	1.03	1.04	1.05	1.06
10000	1.05	1.09	1.08	1.07	1.07	1.06	1.09	1.11
10500	1.12	1.13	1.13	1.13	1.13	1.14	1.14	1.16
11000	1.17	1.17	1.18	1.18	1.20	1.20	1.18	1.20
11500	1.21	1.20	1.22	1.22	1.25	1.25	1.21	1.22
12000	1.24	1.23	1.23	1.25	1.27	1.28	1.21	1.24
12500	1.24	1.25	1.23	1.24	1.28	1.29	1.21	1.23
13000	1.21	1.24	1.20	1.21	1.24	1.25	1.17	1.21
13500	1.18	1.23	1.16	1.16	1.21	1.22	1.13	1.18
14000	1.12	1.19	1.08	1.08	1.14	1.14	1.08	1.12
14500	1.07	1.13	1.02	1.01	1.08	1.09	1.06	1.07
15000	1.09	1.06	1.07	1.09	1.09	1.10	1.10	1.08
15500	1.12	1.01	1.15	1.15	1.15	1.15	1.15	1.12
16000	1.17	1.08	1.22	1.22	1.22	1.21	1.20	1.19
16500	1.21	1.14	1.25	1.27	1.25	1.26	1.21	1.23
17000	1.20	1.17	1.25	1.26	1.26	1.27	1.20	1.25
17250	1.20	1.20	1.25	1.26	1.26	1.27	1.18	1.26
17500	1.17	1.22	1.24	1.22	1.27	1.25	1.18	1.26
17750	1.16	1.21	1.19	1.21	1.22	1.24	1.13	1.24
18000	1.16	1.21	1.16	1.20	1.20	1.24	1.12	1.24
18250	1.15	1.23	1.14	1.17	1.22	1.23	1.13	1.25
18500	1.12	1.20	1.12	1.11	1.19	1.19	1.12	1.21
18750	1.09	1.21	1.07	1.08	1.16	1.16	1.10	1.23
19000	1.09	1.20	1.06	1.06	1.16	1.16	1.11	1.21
19250	1.11	1.19	1.03	1.03	1.16	1.17	1.12	1.20
19500	1.13	1.19	1.01	1.02	1.16	1.18	1.13	1.20
19750	1.13	1.18	1.02	1.03	1.17	1.16	1.15	1.20
20000	1.12	1.17	1.05	1.05	1.14	1.16	1.13	1.18

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +25°C, Pin=8dBm

Frequency (MHz)	Isolation @ Active states (dB)							
	COM-1	COM-3	COM-5	COM-7	J2-J3	J4-J5	J6-J7	J7-J8
50	92.82	90.22	91.78	86.30	93.72	94.96	102.50	83.07
250	83.45	82.13	82.69	83.27	102.63	124.83	105.30	88.45
500	79.08	77.45	77.73	78.44	103.02	113.34	109.58	84.94
750	75.11	73.66	73.70	74.55	104.17	100.30	102.08	80.69
1000	72.42	71.15	70.95	71.97	110.25	111.77	117.17	78.00
1250	70.49	69.47	69.24	70.07	110.58	103.95	108.12	74.98
1500	69.02	68.04	67.90	68.72	120.32	104.98	114.07	72.48
1750	68.16	67.07	66.78	67.80	104.09	114.34	112.52	71.13
2000	67.47	66.28	66.06	66.96	99.98	108.00	101.58	70.76
2250	66.96	65.75	65.44	66.53	106.28	101.22	104.13	70.89
2500	66.45	65.40	64.99	66.14	105.19	104.64	113.60	70.76
2750	66.20	65.10	64.70	65.70	114.81	110.86	106.19	69.64
3000	65.86	64.75	64.28	65.33	106.55	115.54	114.87	68.65
3500	65.42	64.19	63.72	64.90	104.77	112.24	110.40	68.05
4000	64.97	63.80	63.52	64.56	95.52	115.43	103.29	68.08
4500	64.79	63.51	63.28	64.31	105.33	101.68	116.48	67.57
5000	64.53	63.50	63.15	64.41	99.83	112.24	101.25	66.94
5500	64.47	63.31	63.25	64.12	101.79	122.08	100.51	66.57
6000	64.50	63.10	63.09	64.29	94.11	102.09	110.16	67.67
6500	64.08	62.84	62.78	64.05	91.94	101.27	108.19	67.57
7000	63.66	62.41	62.24	63.57	89.57	103.55	109.74	65.96
7500	62.81	62.08	61.73	62.77	87.79	104.84	102.55	67.47
8000	62.11	61.59	61.28	62.11	83.88	103.35	100.57	70.09
8500	61.73	61.29	60.98	61.85	84.31	104.73	108.91	67.99
9000	61.58	61.33	60.97	61.78	86.12	113.17	133.63	67.97
9500	61.55	61.58	61.06	61.89	87.31	107.76	102.87	68.99
10000	61.75	61.97	61.38	62.18	87.62	101.31	95.58	69.39
10500	61.99	62.43	61.57	62.47	93.60	107.40	111.25	69.62
11000	62.37	62.75	61.94	62.67	100.83	103.19	106.30	68.23
11500	62.55	63.08	62.30	62.90	104.58	103.61	114.72	67.01
12000	62.86	63.27	62.63	63.33	92.01	100.25	108.08	67.27
12500	63.23	63.38	63.01	63.73	92.48	103.77	103.16	66.79
13000	63.52	63.60	63.41	63.95	96.71	107.19	99.80	65.82
13500	63.82	63.98	63.80	64.21	101.83	101.94	92.34	64.97
14000	64.01	63.76	63.82	64.04	90.24	99.39	92.91	63.49
14500	63.60	63.14	63.59	63.20	100.81	111.86	92.17	63.21
15000	62.86	62.22	62.92	62.17	100.91	99.23	87.58	63.65
15500	62.05	61.07	62.01	61.45	102.96	97.55	88.12	61.31
16000	61.19	59.85	60.94	60.80	107.15	95.25	89.65	60.08
16500	60.50	59.06	59.94	60.01	103.44	95.66	91.38	60.93
17000	59.93	58.11	59.10	59.20	94.78	96.57	88.06	59.78
17250	59.55	57.77	58.70	58.86	92.33	96.24	87.16	58.95
17500	59.14	57.24	58.31	58.44	90.08	94.10	87.96	58.27
17750	58.67	56.78	57.93	57.89	94.30	95.73	88.90	57.89
18000	58.17	56.33	57.60	57.34	98.04	94.07	88.66	57.76
18250	57.79	55.90	57.28	56.77	89.83	91.44	89.93	57.95
18500	57.36	55.52	56.84	56.34	89.95	95.82	95.18	58.00
18750	56.97	55.09	56.42	55.89	88.49	96.79	90.16	57.35
19000	56.59	54.72	56.09	55.51	84.25	100.81	87.69	56.24
19250	56.16	54.39	55.76	55.16	85.82	97.42	87.89	55.26
19500	55.70	54.09	55.46	54.82	85.39	88.94	88.95	54.89
19750	55.36	53.75	55.07	54.52	82.26	89.87	87.13	55.40
20000	55.19	53.51	54.73	54.36	79.91	88.23	84.94	56.04

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +25°C, Pin=8dBm

Frequency (MHz)	Isolation @ Disconnected state (dB)							
	COM-1	COM-2	COM-3	COM-4	COM-5	COM-6	COM-7	COM-8
50	101.43	84.50	102.68	84.56	84.84	88.41	101.50	83.96
250	105.86	105.22	109.38	102.39	79.89	79.68	105.19	97.05
500	114.78	104.31	110.84	96.60	75.66	75.43	106.63	100.78
750	105.03	108.60	105.06	97.01	71.67	71.84	112.07	121.42
1000	112.47	113.08	112.88	95.36	68.99	69.38	116.13	105.00
1250	126.42	102.92	113.20	94.02	67.45	67.73	106.89	107.38
1500	112.37	107.69	106.06	97.46	66.34	66.48	106.20	104.20
1750	109.51	110.60	108.17	99.46	65.25	65.40	128.35	102.77
2000	119.04	119.73	112.65	98.53	64.34	64.49	116.35	109.84
2250	106.50	113.80	110.27	121.11	63.54	63.58	102.50	101.60
2500	102.37	107.13	106.39	100.19	62.83	62.81	103.71	100.25
2750	109.74	106.99	113.47	98.46	62.25	62.40	104.60	114.84
3000	106.03	106.85	104.72	101.20	61.99	62.08	125.05	106.99
3500	114.59	118.03	104.12	98.18	62.00	61.94	107.06	107.41
4000	104.17	102.81	106.66	104.78	62.31	62.21	116.24	107.25
4500	107.93	108.99	106.08	106.31	62.59	62.47	109.19	108.66
5000	110.54	105.80	117.50	105.55	63.16	62.96	127.64	109.13
5500	108.16	106.90	109.06	107.51	64.01	63.84	103.52	136.99
6000	117.57	117.18	103.70	111.20	64.50	64.13	99.25	104.21
6500	108.34	108.20	105.04	106.27	64.85	64.41	103.02	102.81
7000	107.57	110.17	127.42	104.59	65.30	65.14	109.12	107.45
7500	114.38	102.51	101.63	117.51	66.80	66.89	109.53	100.99
8000	106.29	115.67	113.35	108.59	68.36	69.16	104.20	107.66
8500	109.20	114.83	114.33	109.12	69.09	70.37	117.20	111.58
9000	111.01	105.58	113.33	101.46	68.91	71.17	104.42	104.32
9500	103.11	108.02	115.19	107.55	68.32	71.05	107.42	107.48
10000	111.43	108.33	109.22	97.50	67.63	70.52	100.06	130.51
10500	113.95	101.86	105.53	98.59	66.64	68.56	100.43	103.70
11000	106.83	113.34	118.47	110.82	65.08	66.44	112.14	101.33
11500	125.62	103.40	109.98	106.34	63.75	64.76	108.53	101.97
12000	105.12	105.00	111.63	99.51	63.10	63.69	113.46	102.71
12500	110.39	106.65	104.12	94.38	62.79	62.69	103.22	110.44
13000	108.68	98.26	114.36	92.23	61.83	61.51	102.05	101.75
13500	115.05	104.35	103.18	95.90	60.61	60.02	97.60	98.69
14000	102.95	118.09	96.53	99.27	59.87	59.13	102.86	114.78
14500	105.88	103.91	114.88	92.31	59.45	58.52	101.03	99.77
15000	112.04	100.66	98.74	89.20	58.58	57.56	90.28	89.55
15500	99.32	113.09	94.62	89.77	57.06	56.07	103.78	103.37
16000	103.30	100.15	102.44	99.05	55.79	54.71	97.39	103.21
16500	108.34	104.52	105.80	92.79	55.69	54.57	104.93	103.94
17000	103.32	100.14	98.62	90.70	55.76	54.68	97.73	100.38
17250	106.10	102.30	97.33	90.71	55.69	54.53	92.16	98.53
17500	104.85	100.42	96.34	89.01	55.56	54.32	96.41	99.62
17750	101.04	101.12	94.36	90.02	55.44	54.12	94.91	98.29
18000	107.53	109.20	93.00	94.89	55.29	53.95	101.03	98.70
18250	107.02	110.07	99.01	104.41	55.24	53.85	96.96	90.76
18500	105.01	101.98	103.13	105.50	55.07	53.68	87.48	86.81
18750	107.67	104.14	102.08	98.46	54.57	53.26	92.50	89.40
19000	109.87	111.50	97.15	96.40	54.10	52.81	97.21	91.80
19250	100.83	101.69	102.22	95.38	53.53	52.26	94.69	95.29
19500	102.32	103.85	101.01	95.21	52.84	51.59	91.77	92.76
19750	99.94	100.04	107.61	96.08	52.32	51.06	93.03	97.58
20000	104.28	114.46	100.72	100.39	51.97	50.76	92.86	93.33

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +50°C, Pin=8dBm

Frequency (MHz)	Insertion Loss							
	(dB)							
	COM-J1	COM-J2	COM-J3	COM-J4	COM-J5	COM-J6	COM-J7	COM-J8
50	1.71	1.72	1.72	1.71	1.72	1.72	1.73	1.71
250	1.95	1.96	1.92	1.91	1.92	1.92	1.96	1.95
500	2.14	2.16	2.08	2.07	2.07	2.07	2.16	2.14
750	2.30	2.31	2.20	2.19	2.20	2.20	2.31	2.29
1000	2.39	2.41	2.32	2.32	2.32	2.33	2.40	2.39
1250	2.41	2.43	2.39	2.39	2.39	2.39	2.43	2.41
1500	2.46	2.48	2.45	2.45	2.46	2.46	2.48	2.47
1750	2.56	2.59	2.51	2.51	2.51	2.51	2.59	2.58
2000	2.67	2.70	2.54	2.54	2.55	2.55	2.69	2.67
2250	2.74	2.76	2.58	2.58	2.59	2.58	2.76	2.74
2500	2.79	2.82	2.64	2.65	2.65	2.65	2.82	2.80
2750	2.85	2.87	2.71	2.72	2.72	2.71	2.87	2.85
3000	2.94	2.96	2.78	2.79	2.79	2.78	2.95	2.93
3500	3.07	3.08	2.87	2.88	2.88	2.87	3.06	3.04
4000	3.16	3.18	2.93	2.94	2.93	2.93	3.16	3.14
4500	3.25	3.26	3.00	2.99	3.00	2.99	3.25	3.22
5000	3.31	3.33	3.08	3.07	3.09	3.07	3.31	3.29
5500	3.40	3.42	3.16	3.15	3.19	3.15	3.43	3.40
6000	3.55	3.56	3.22	3.20	3.24	3.21	3.59	3.55
6500	3.56	3.58	3.26	3.23	3.25	3.24	3.57	3.55
7000	3.87	3.87	3.43	3.43	3.45	3.42	3.87	3.84
7500	3.95	3.96	3.66	3.64	3.73	3.66	3.96	3.92
8000	4.04	4.04	3.77	3.73	3.81	3.77	4.05	4.01
8500	4.20	4.20	3.80	3.75	3.81	3.79	4.20	4.15
9000	4.25	4.26	3.86	3.80	3.86	3.82	4.27	4.21
9500	4.31	4.31	3.92	3.82	3.91	3.84	4.34	4.26
10000	4.37	4.39	3.95	3.89	3.94	3.91	4.40	4.35
10500	4.45	4.47	4.00	3.93	3.99	3.96	4.50	4.43
11000	4.56	4.60	4.08	4.03	4.08	4.06	4.62	4.57
11500	4.64	4.67	4.24	4.18	4.27	4.19	4.69	4.62
12000	4.78	4.83	4.35	4.27	4.38	4.27	4.84	4.79
12500	4.94	4.93	4.40	4.30	4.42	4.32	4.94	4.87
13000	5.05	5.05	4.48	4.39	4.51	4.42	5.06	4.99
13500	5.19	5.21	4.62	4.55	4.64	4.58	5.19	5.13
14000	5.31	5.35	4.68	4.61	4.71	4.65	5.33	5.27
14500	5.40	5.43	4.76	4.67	4.80	4.74	5.40	5.32
15000	5.50	5.49	4.85	4.74	4.91	4.86	5.52	5.39
15500	5.61	5.68	4.90	4.83	4.93	4.99	5.59	5.53
16000	5.62	5.65	4.97	4.84	4.97	4.93	5.65	5.56
16500	5.74	5.72	5.11	4.94	5.11	4.96	5.75	5.64
17000	5.82	5.86	5.16	4.99	5.15	5.00	5.85	5.76
17250	5.92	5.94	5.16	5.00	5.14	5.01	5.92	5.85
17500	5.97	6.02	5.22	5.05	5.19	5.05	6.01	5.95
17750	5.99	6.01	5.30	5.09	5.26	5.08	6.06	5.95
18000	6.01	6.02	5.42	5.14	5.38	5.12	6.15	5.93
18250	6.09	6.14	5.55	5.21	5.54	5.20	6.29	6.03
18500	6.23	6.29	5.66	5.30	5.66	5.30	6.43	6.16
18750	6.28	6.38	5.78	5.33	5.79	5.35	6.58	6.24
19000	6.35	6.44	5.83	5.39	5.85	5.43	6.63	6.30
19250	6.41	6.46	5.90	5.42	5.90	5.49	6.68	6.30
19500	6.42	6.42	5.95	5.42	5.92	5.52	6.72	6.28
19750	6.44	6.46	5.93	5.44	5.87	5.53	6.71	6.30
20000	6.49	6.59	5.95	5.48	5.85	5.54	6.74	6.40

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +50°C, Pin=8dBm

Frequency (MHz)	VSWR, Active Ports (:1)								
	COM	J1	J2	J3	J4	J5	J6	J7	J8
50	1.28	1.28	1.28	1.28	1.27	1.28	1.28	1.28	1.28
250	1.20	1.21	1.21	1.22	1.22	1.22	1.23	1.22	1.22
500	1.12	1.15	1.15	1.20	1.20	1.19	1.21	1.16	1.15
750	1.03	1.10	1.09	1.18	1.17	1.17	1.19	1.09	1.09
1000	1.07	1.09	1.08	1.16	1.15	1.15	1.17	1.06	1.07
1250	1.13	1.11	1.12	1.13	1.13	1.13	1.14	1.11	1.11
1500	1.17	1.15	1.16	1.11	1.12	1.12	1.10	1.16	1.16
1750	1.18	1.19	1.19	1.08	1.08	1.10	1.06	1.20	1.19
2000	1.15	1.20	1.19	1.02	1.03	1.04	1.02	1.19	1.18
2250	1.08	1.15	1.13	1.06	1.04	1.04	1.07	1.11	1.10
2500	1.07	1.05	1.03	1.13	1.12	1.12	1.14	1.02	1.01
2750	1.17	1.12	1.10	1.20	1.18	1.19	1.20	1.14	1.12
3000	1.23	1.21	1.19	1.24	1.22	1.24	1.23	1.22	1.19
3500	1.21	1.19	1.17	1.22	1.21	1.21	1.20	1.16	1.14
4000	1.27	1.13	1.10	1.14	1.13	1.13	1.11	1.12	1.09
4500	1.14	1.18	1.15	1.09	1.07	1.08	1.04	1.17	1.13
5000	1.26	1.15	1.13	1.10	1.09	1.13	1.07	1.11	1.09
5500	1.23	1.10	1.05	1.18	1.15	1.24	1.15	1.13	1.10
6000	1.05	1.22	1.19	1.17	1.16	1.22	1.16	1.25	1.22
6500	1.15	1.03	1.03	1.06	1.04	1.04	1.04	1.03	1.03
7000	1.39	1.37	1.33	1.24	1.27	1.30	1.25	1.34	1.34
7500	1.22	1.19	1.16	1.36	1.39	1.48	1.39	1.13	1.12
8000	1.37	1.22	1.18	1.25	1.25	1.35	1.29	1.22	1.23
8500	1.41	1.29	1.23	1.05	1.04	1.10	1.10	1.24	1.23
9000	1.31	1.08	1.06	1.10	1.09	1.09	1.03	1.03	1.03
9500	1.23	1.07	1.02	1.12	1.10	1.11	1.07	1.05	1.04
10000	1.25	1.09	1.03	1.09	1.06	1.08	1.09	1.06	1.04
10500	1.17	1.07	1.16	1.04	1.07	1.04	1.15	1.14	1.18
11000	1.10	1.17	1.20	1.13	1.21	1.19	1.25	1.22	1.25
11500	1.18	1.10	1.15	1.27	1.33	1.35	1.31	1.13	1.17
12000	1.14	1.24	1.28	1.27	1.29	1.36	1.24	1.27	1.32
12500	1.16	1.24	1.25	1.18	1.18	1.24	1.13	1.24	1.27
13000	1.32	1.22	1.24	1.15	1.17	1.21	1.11	1.20	1.23
13500	1.27	1.19	1.22	1.19	1.23	1.24	1.18	1.16	1.19
14000	1.41	1.26	1.30	1.15	1.19	1.19	1.19	1.25	1.28
14500	1.43	1.19	1.29	1.11	1.17	1.21	1.24	1.14	1.19
15000	1.35	1.13	1.16	1.13	1.21	1.25	1.35	1.08	1.07
15500	1.46	1.18	1.27	1.12	1.15	1.16	1.35	1.12	1.15
16000	1.36	1.08	1.14	1.17	1.13	1.17	1.22	1.14	1.17
16500	1.32	1.15	1.05	1.28	1.23	1.33	1.16	1.14	1.17
17000	1.17	1.16	1.21	1.28	1.21	1.33	1.15	1.16	1.24
17250	1.18	1.31	1.34	1.24	1.19	1.28	1.12	1.28	1.39
17500	1.25	1.37	1.42	1.23	1.19	1.27	1.11	1.38	1.49
17750	1.28	1.32	1.37	1.22	1.22	1.26	1.13	1.32	1.45
18000	1.25	1.27	1.33	1.27	1.27	1.31	1.19	1.28	1.38
18250	1.21	1.25	1.37	1.31	1.34	1.40	1.26	1.28	1.39
18500	1.21	1.36	1.49	1.35	1.37	1.48	1.34	1.37	1.48
18750	1.28	1.39	1.59	1.33	1.40	1.49	1.41	1.39	1.56
19000	1.42	1.35	1.55	1.33	1.38	1.49	1.43	1.36	1.51
19250	1.50	1.25	1.40	1.30	1.31	1.44	1.41	1.23	1.35
19500	1.53	1.10	1.24	1.25	1.23	1.34	1.39	1.08	1.18
19750	1.43	1.12	1.25	1.15	1.11	1.19	1.31	1.16	1.20
20000	1.39	1.22	1.39	1.09	1.02	1.03	1.21	1.21	1.30

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +50°C, Pin=8dBm

Frequency (MHz)	VSWR, Internally Terminated Ports (:1)							
	J1	J2	J3	J4	J5	J6	J7	J8
50	1.09	1.09	1.10	1.10	1.10	1.10	1.09	1.09
250	1.07	1.06	1.08	1.08	1.08	1.08	1.07	1.07
500	1.07	1.06	1.08	1.08	1.08	1.08	1.06	1.07
750	1.07	1.06	1.08	1.08	1.08	1.08	1.06	1.06
1000	1.07	1.06	1.07	1.08	1.08	1.08	1.06	1.06
1250	1.08	1.07	1.08	1.08	1.09	1.09	1.06	1.06
1500	1.08	1.07	1.08	1.08	1.09	1.09	1.06	1.06
1750	1.09	1.07	1.08	1.08	1.10	1.09	1.06	1.06
2000	1.08	1.07	1.08	1.08	1.09	1.09	1.05	1.05
2250	1.08	1.06	1.07	1.07	1.08	1.09	1.05	1.04
2500	1.08	1.06	1.06	1.07	1.07	1.07	1.04	1.04
2750	1.06	1.05	1.06	1.05	1.06	1.05	1.04	1.03
3000	1.06	1.04	1.05	1.04	1.05	1.04	1.04	1.02
3500	1.06	1.04	1.05	1.05	1.05	1.05	1.06	1.04
4000	1.09	1.06	1.07	1.08	1.08	1.09	1.10	1.07
4500	1.12	1.08	1.10	1.10	1.13	1.14	1.14	1.10
5000	1.16	1.12	1.14	1.14	1.19	1.18	1.17	1.13
5500	1.21	1.15	1.17	1.18	1.24	1.25	1.21	1.17
6000	1.23	1.18	1.19	1.19	1.28	1.27	1.24	1.20
6500	1.24	1.20	1.20	1.19	1.29	1.29	1.24	1.22
7000	1.24	1.20	1.18	1.19	1.28	1.29	1.22	1.22
7500	1.21	1.17	1.16	1.16	1.25	1.25	1.19	1.18
8000	1.18	1.14	1.12	1.13	1.20	1.21	1.14	1.14
8500	1.14	1.10	1.08	1.09	1.15	1.16	1.09	1.08
9000	1.07	1.06	1.02	1.03	1.07	1.07	1.03	1.03
9500	1.01	1.06	1.03	1.03	1.02	1.02	1.05	1.06
10000	1.06	1.10	1.09	1.08	1.08	1.07	1.10	1.12
10500	1.13	1.16	1.15	1.15	1.15	1.16	1.16	1.18
11000	1.18	1.19	1.18	1.19	1.21	1.21	1.20	1.22
11500	1.20	1.22	1.20	1.20	1.25	1.25	1.22	1.24
12000	1.21	1.22	1.20	1.21	1.25	1.25	1.20	1.23
12500	1.21	1.21	1.19	1.20	1.25	1.26	1.18	1.20
13000	1.17	1.19	1.17	1.17	1.21	1.21	1.14	1.16
13500	1.16	1.19	1.14	1.16	1.18	1.19	1.10	1.13
14000	1.11	1.18	1.10	1.10	1.12	1.13	1.05	1.09
14500	1.07	1.16	1.05	1.05	1.07	1.08	1.02	1.05
15000	1.06	1.11	1.03	1.04	1.06	1.07	1.05	1.03
15500	1.09	1.05	1.09	1.10	1.10	1.11	1.10	1.07
16000	1.15	1.03	1.16	1.18	1.17	1.19	1.14	1.14
16500	1.21	1.10	1.22	1.25	1.23	1.26	1.18	1.20
17000	1.22	1.16	1.26	1.28	1.27	1.29	1.20	1.24
17250	1.23	1.20	1.28	1.28	1.28	1.30	1.20	1.26
17500	1.22	1.24	1.29	1.26	1.30	1.29	1.22	1.29
17750	1.20	1.24	1.24	1.24	1.27	1.28	1.17	1.27
18000	1.20	1.25	1.23	1.22	1.26	1.27	1.18	1.27
18250	1.17	1.26	1.23	1.19	1.28	1.25	1.18	1.27
18500	1.15	1.27	1.19	1.14	1.26	1.23	1.17	1.27
18750	1.12	1.28	1.13	1.09	1.21	1.19	1.14	1.26
19000	1.11	1.26	1.11	1.06	1.20	1.17	1.14	1.24
19250	1.12	1.24	1.08	1.05	1.20	1.18	1.15	1.23
19500	1.13	1.22	1.05	1.03	1.19	1.18	1.15	1.21
19750	1.11	1.21	1.05	1.01	1.21	1.16	1.18	1.21
20000	1.09	1.19	1.05	1.03	1.19	1.14	1.18	1.19

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220120
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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +50°C, Pin=8dBm

Frequency (MHz)	Isolation @ Active states (dB)							
	COM-1	COM-3	COM-5	COM-7	J2-J3	J4-J5	J6-J7	J7-J8
50	91.03	89.52	97.15	92.00	101.07	92.84	94.44	84.88
250	83.04	82.42	82.46	83.38	107.26	106.98	109.49	86.64
500	78.73	77.41	77.65	78.69	103.76	103.87	113.23	84.20
750	75.16	73.71	73.25	74.52	106.14	109.28	112.00	80.70
1000	71.97	70.79	70.64	71.61	107.22	116.93	108.84	77.42
1250	70.14	69.18	68.74	69.81	103.34	109.33	119.72	74.24
1500	68.72	67.80	67.51	68.57	114.37	102.70	123.89	71.89
1750	67.72	66.74	66.53	67.46	106.71	100.26	105.74	70.48
2000	67.15	65.85	65.77	66.78	99.20	117.12	104.02	70.33
2250	66.50	65.37	65.00	66.14	108.76	105.54	112.32	70.41
2500	66.06	65.07	64.67	65.73	107.04	103.72	109.63	70.22
2750	65.75	64.70	64.32	65.41	101.32	114.63	101.88	69.02
3000	65.40	64.29	63.94	65.16	107.63	104.22	110.63	68.00
3500	64.92	63.85	63.46	64.50	99.31	112.34	118.35	67.41
4000	64.57	63.37	63.07	64.23	104.51	107.74	116.71	67.45
4500	64.34	63.06	62.84	63.99	106.36	105.13	99.41	67.02
5000	64.10	63.07	62.87	63.97	116.64	108.51	113.13	66.39
5500	63.96	62.90	62.92	63.85	103.32	100.12	104.81	66.24
6000	64.07	62.77	62.73	63.98	95.00	110.63	99.26	67.31
6500	63.80	62.57	62.51	63.76	95.39	110.59	104.54	67.13
7000	63.45	62.41	62.10	63.43	92.50	111.94	102.00	65.67
7500	62.71	62.07	61.58	62.72	89.68	107.04	102.29	67.37
8000	62.07	61.61	61.21	62.19	85.32	111.35	97.00	69.58
8500	61.78	61.24	61.06	61.76	84.58	102.25	108.54	67.35
9000	61.51	61.24	61.07	61.75	85.47	103.58	100.43	67.47
9500	61.58	61.43	61.16	61.89	92.86	104.65	98.95	68.48
10000	61.82	61.90	61.36	62.10	91.08	106.65	101.79	69.02
10500	61.98	62.31	61.74	62.42	85.90	109.34	105.32	69.55
11000	62.19	62.59	62.03	62.63	87.40	107.34	100.20	67.69
11500	62.40	63.02	62.37	62.85	93.12	115.77	105.53	67.39
12000	62.76	63.25	62.77	63.17	101.03	109.22	115.04	68.04
12500	63.11	63.46	63.20	63.64	102.63	119.33	100.67	67.39
13000	63.41	64.00	63.60	64.09	94.45	103.18	95.48	66.64
13500	63.68	64.36	63.85	64.09	91.67	95.67	92.98	65.63
14000	63.83	64.28	64.05	63.96	98.39	95.47	92.73	64.42
14500	63.73	63.87	63.88	63.64	90.88	97.13	90.41	64.26
15000	63.29	62.96	63.32	62.90	95.11	109.15	84.77	64.23
15500	62.69	61.75	62.38	62.16	98.58	93.77	86.86	61.89
16000	61.77	60.31	61.34	61.19	95.85	92.40	88.96	60.49
16500	61.04	59.35	60.43	60.27	101.18	92.74	88.57	61.08
17000	60.29	58.52	59.66	59.46	98.95	93.09	86.87	60.00
17250	59.98	58.09	59.27	59.06	101.50	92.87	86.53	58.98
17500	59.63	57.58	58.93	58.66	100.24	94.15	87.39	58.35
17750	59.08	57.16	58.58	58.10	94.77	93.42	87.74	58.07
18000	58.60	56.67	58.14	57.45	82.98	88.55	87.78	58.05
18250	58.22	56.28	57.80	57.01	84.25	91.56	89.27	58.08
18500	57.78	55.93	57.33	56.60	80.45	93.23	93.36	58.04
18750	57.38	55.46	56.88	56.11	77.92	96.47	87.23	57.39
19000	56.92	55.10	56.54	55.79	74.65	99.75	88.33	56.44
19250	56.60	54.73	56.18	55.43	72.67	94.51	89.09	55.51
19500	56.22	54.41	55.89	55.21	72.06	92.36	86.94	55.07
19750	55.93	54.12	55.50	54.89	71.83	90.36	86.63	55.64
20000	55.87	53.89	55.12	54.76	71.30	88.34	89.17	56.43

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Solid State USB RF SP8T Switch

USB-1SP8T-183

Typical Performance Data

TEST CONDITIONS: @Temperature = +50°C, Pin=8dBm

Frequency (MHz)	Isolation @ Disconnected state (dB)							
	COM-1	COM-2	COM-3	COM-4	COM-5	COM-6	COM-7	COM-8
50	95.00	85.54	93.00	84.56	83.51	92.94	103.33	84.40
250	107.22	102.16	101.55	98.55	79.47	79.91	113.57	106.07
500	110.59	109.99	117.04	102.18	74.88	75.17	109.84	103.68
750	109.61	111.10	105.50	98.61	71.23	71.45	111.22	113.88
1000	110.19	111.14	108.47	93.93	68.69	68.93	124.43	102.28
1250	105.00	104.41	106.69	94.46	67.06	67.33	113.19	108.09
1500	111.08	116.12	106.68	93.67	65.93	66.03	104.60	103.35
1750	108.58	106.88	107.69	96.50	64.82	64.95	107.41	102.41
2000	110.08	107.60	117.12	95.22	63.90	63.95	105.23	121.07
2250	113.32	104.49	113.05	103.95	62.94	63.07	106.02	102.21
2500	116.50	109.52	107.50	102.15	62.22	62.27	104.19	102.32
2750	109.31	115.54	115.27	95.38	61.65	61.71	99.65	101.68
3000	107.05	111.06	113.83	93.35	61.30	61.36	112.52	107.95
3500	104.77	118.58	99.39	95.59	61.19	61.22	106.20	109.86
4000	114.24	105.57	102.61	102.11	61.42	61.40	104.28	105.91
4500	110.90	106.95	109.83	120.02	61.75	61.59	106.29	102.07
5000	113.09	104.46	106.06	106.00	62.30	62.15	115.97	107.16
5500	110.99	106.90	110.77	109.28	63.04	62.85	104.52	109.33
6000	108.73	122.52	101.66	108.58	63.50	63.16	101.85	97.52
6500	104.76	110.68	105.92	103.68	63.60	63.13	111.41	117.74
7000	117.56	107.02	109.52	105.42	63.90	63.61	106.97	110.65
7500	107.91	100.96	109.67	102.33	65.39	65.43	103.07	108.45
8000	112.10	113.01	113.51	98.31	67.31	67.61	119.71	120.14
8500	119.57	109.94	102.79	100.75	68.45	69.19	112.68	112.52
9000	102.92	103.94	105.78	105.85	68.69	69.94	119.63	112.72
9500	102.09	118.07	106.72	100.93	68.99	71.06	101.50	107.46
10000	125.28	114.72	101.13	99.53	68.82	71.75	106.57	112.97
10500	100.17	100.74	110.64	98.89	68.25	70.70	104.91	104.22
11000	119.85	100.63	117.44	96.52	66.79	68.54	102.85	109.83
11500	107.77	107.83	108.83	100.58	65.61	66.54	105.85	99.80
12000	100.34	102.76	107.74	100.20	64.82	65.20	100.82	109.02
12500	98.64	113.17	102.66	92.97	64.25	64.17	109.60	108.81
13000	110.66	97.90	108.73	92.59	63.11	62.57	117.09	103.14
13500	99.94	111.02	108.81	92.91	61.85	61.14	99.11	96.40
14000	106.74	102.21	96.94	101.78	60.97	60.12	102.96	102.37
14500	104.44	94.72	101.20	89.20	60.19	59.29	101.27	96.05
15000	115.74	94.52	99.28	85.95	59.12	58.20	90.08	91.89
15500	100.97	95.97	96.62	89.41	57.74	56.76	98.68	113.03
16000	100.14	103.66	101.23	93.56	56.52	55.44	100.49	98.77
16500	99.38	98.69	105.17	91.71	56.20	55.11	106.52	104.74
17000	104.60	100.29	97.56	90.29	56.38	55.22	95.76	97.53
17250	113.09	104.87	100.31	90.23	56.41	55.16	96.70	98.53
17500	110.42	96.20	108.53	89.24	56.27	55.03	97.01	97.25
17750	103.62	101.24	95.75	89.24	56.07	54.74	100.15	107.25
18000	105.94	114.02	100.35	98.44	55.76	54.48	112.65	97.88
18250	112.22	105.29	98.01	99.00	55.56	54.25	94.40	90.11
18500	109.53	107.88	106.33	96.91	55.34	54.01	87.49	88.06
18750	104.10	113.43	106.93	96.38	54.90	53.58	92.62	90.63
19000	101.15	107.63	102.17	94.33	54.46	53.18	93.06	91.50
19250	109.63	101.28	101.58	92.03	53.97	52.71	92.67	97.69
19500	98.58	101.28	100.59	91.63	53.33	52.06	93.42	97.64
19750	99.72	105.42	106.64	93.24	52.73	51.50	93.52	101.70
20000	101.30	103.37	102.40	93.66	52.32	51.21	95.05	93.39

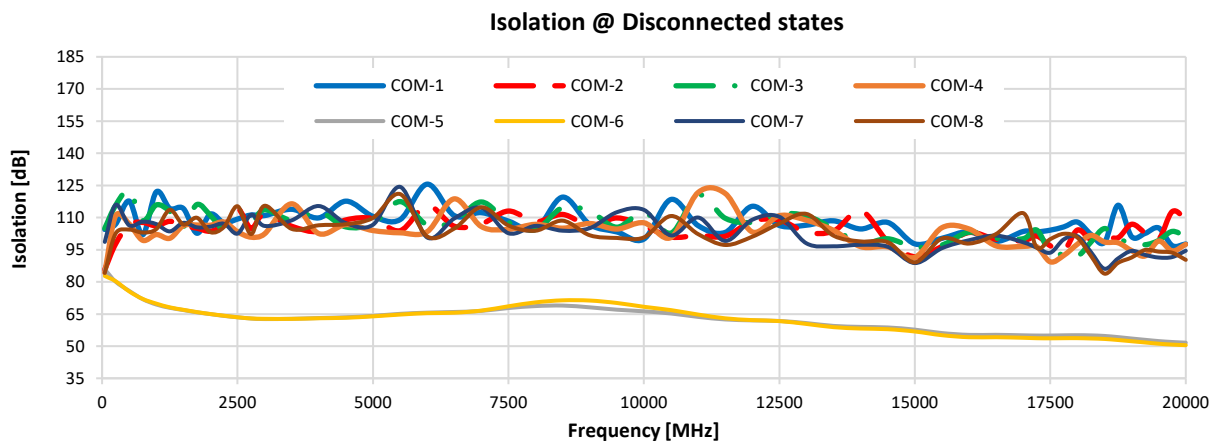
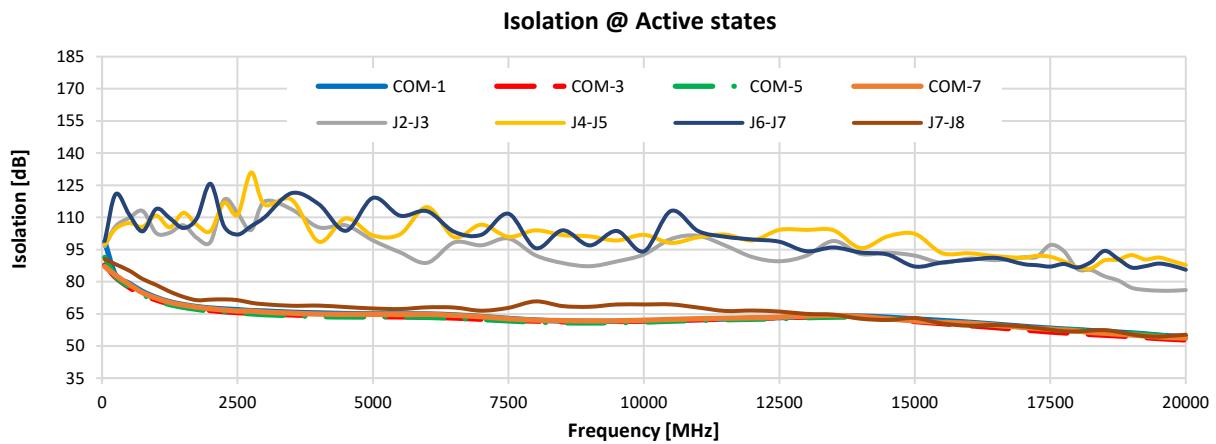
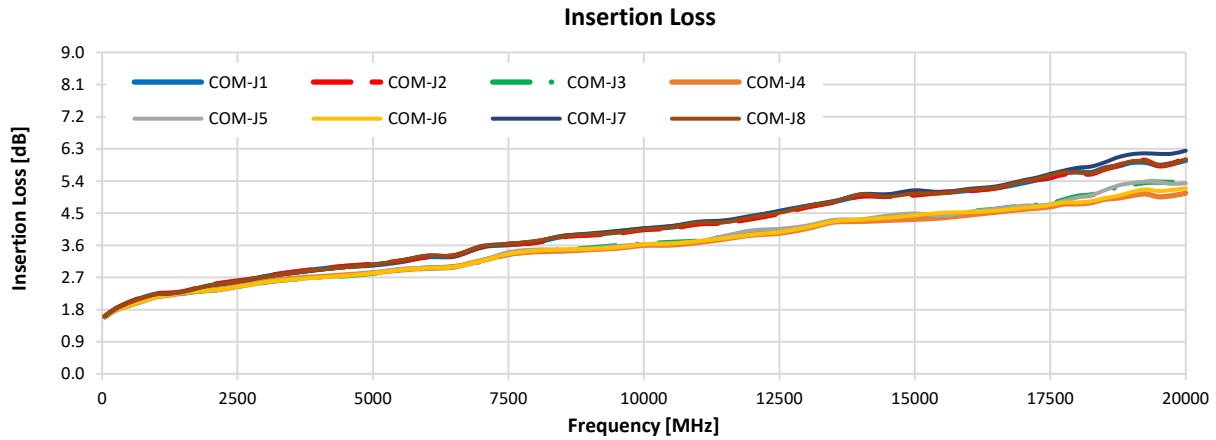
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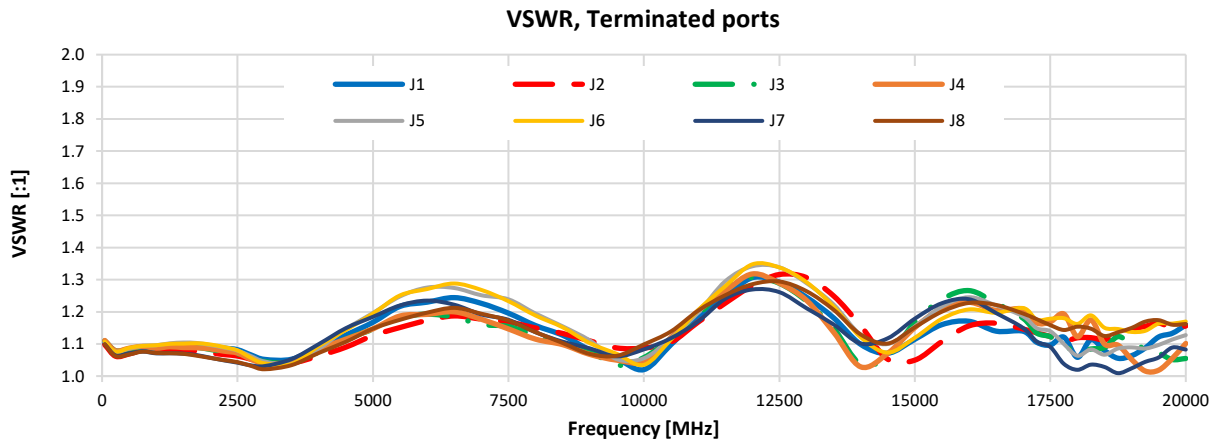
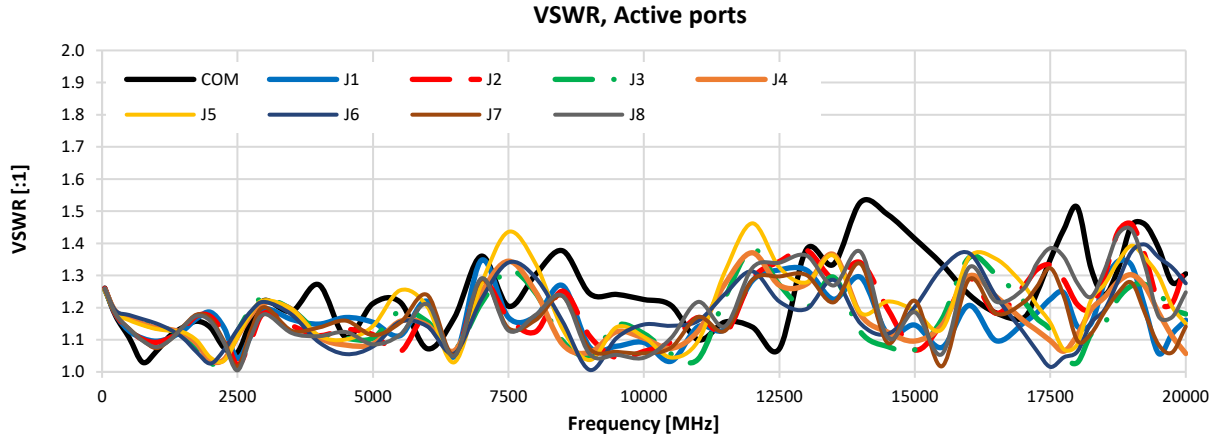
Typical Performance Curves

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



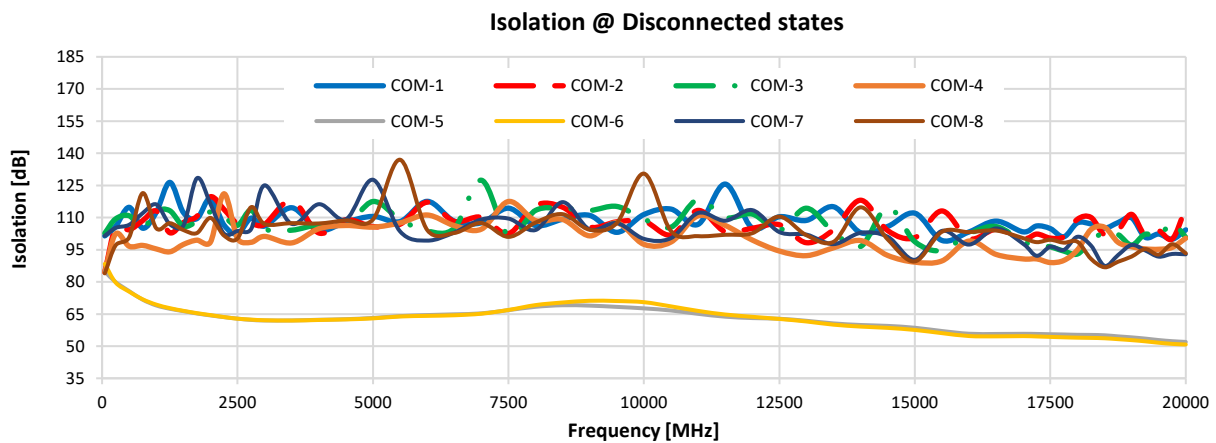
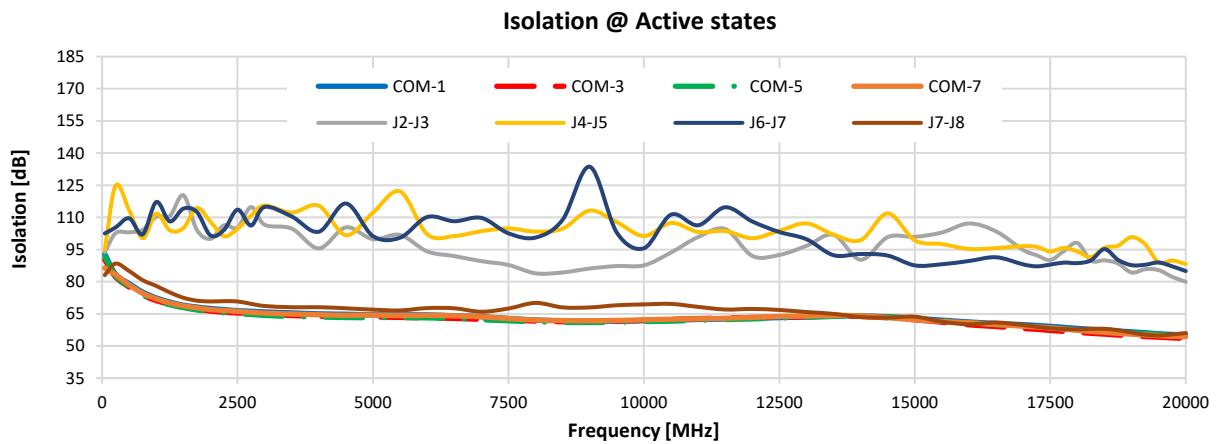
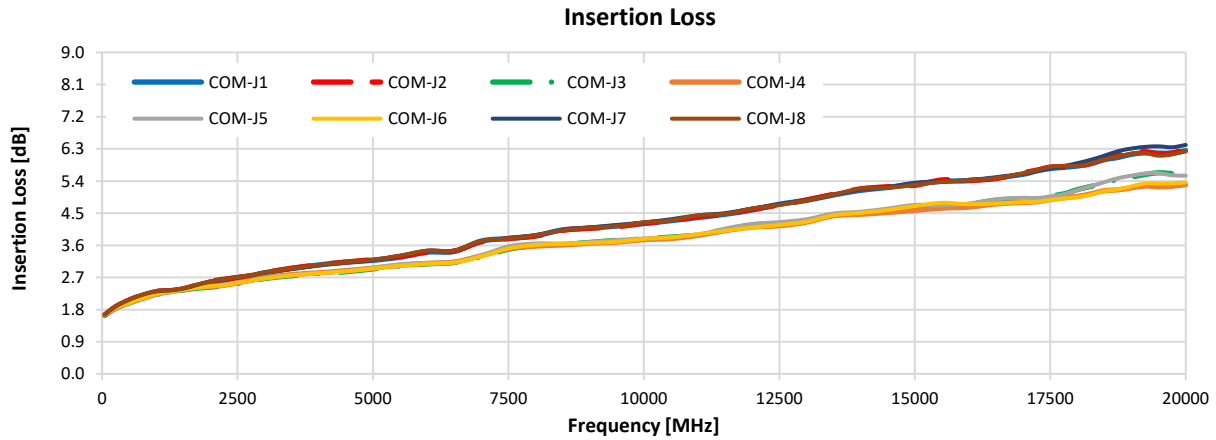
Typical Performance Curves

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



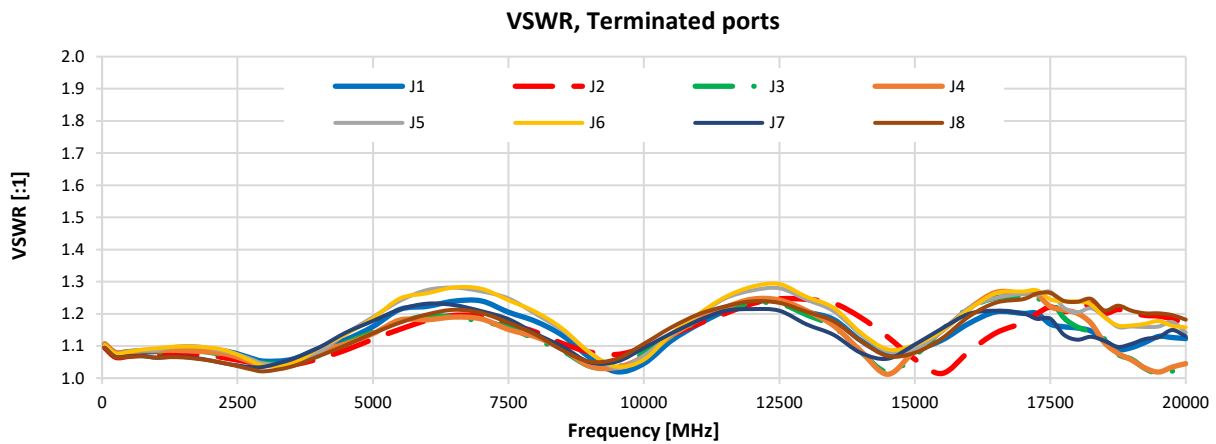
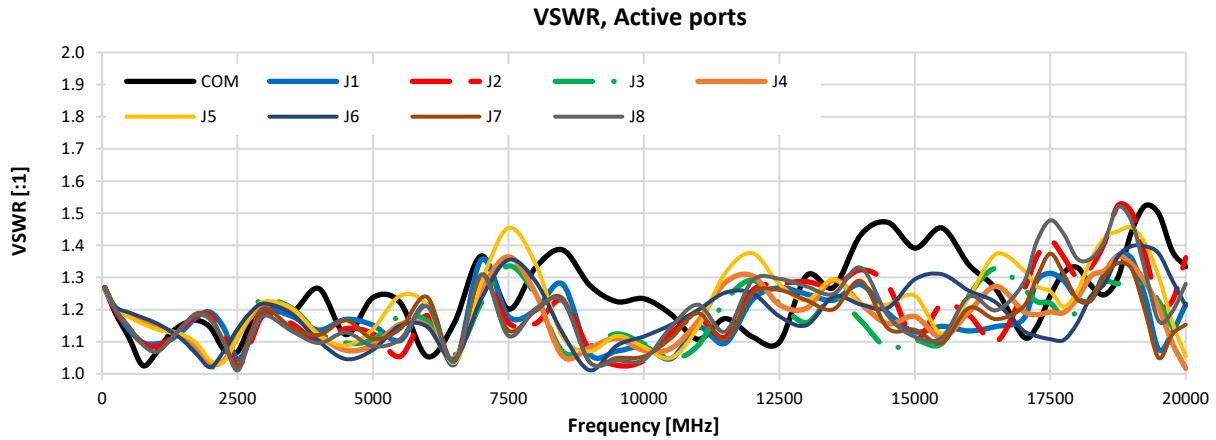
Typical Performance Curves

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



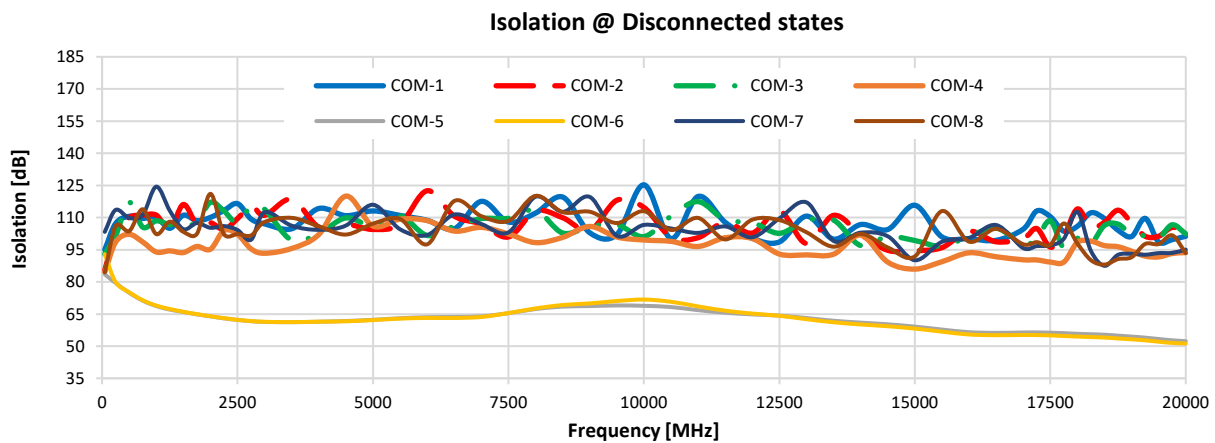
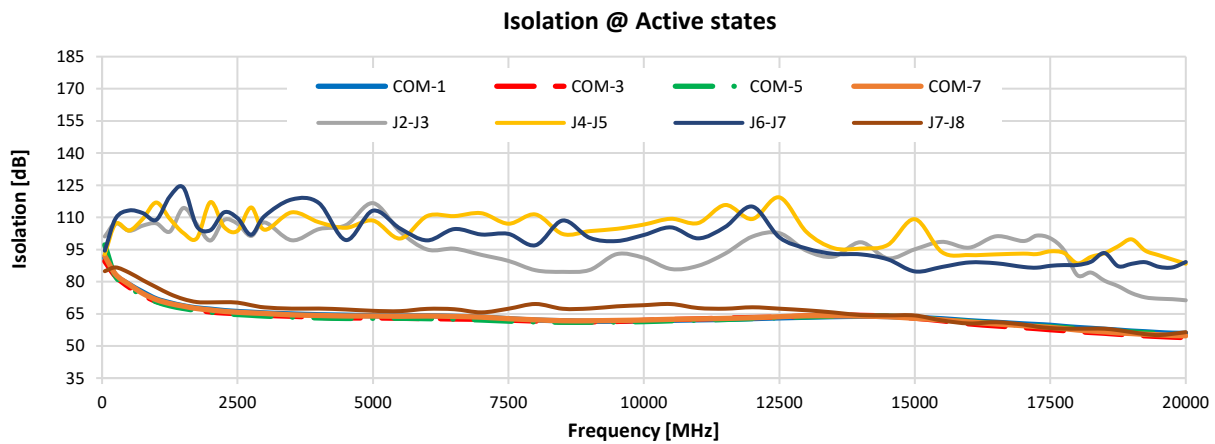
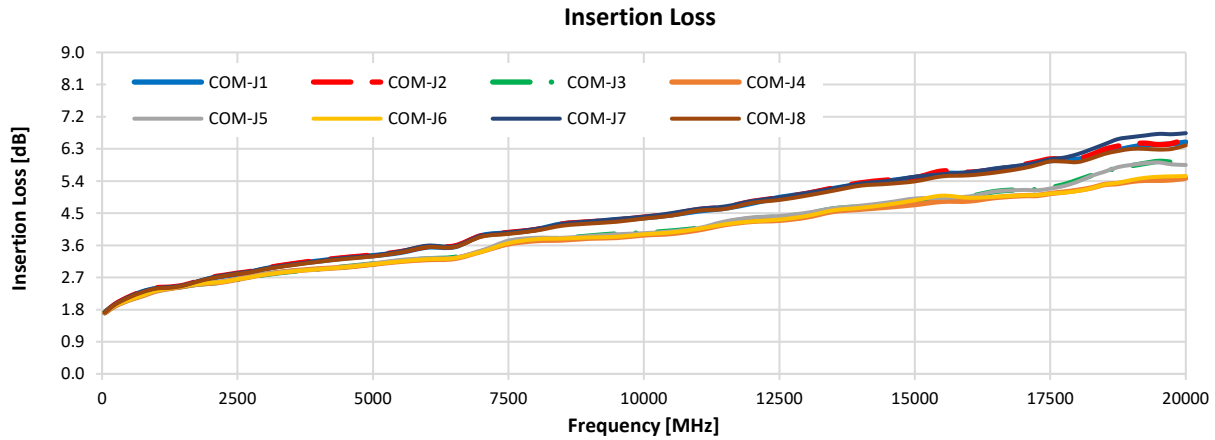
Typical Performance Curves

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



Typical Performance Curves

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



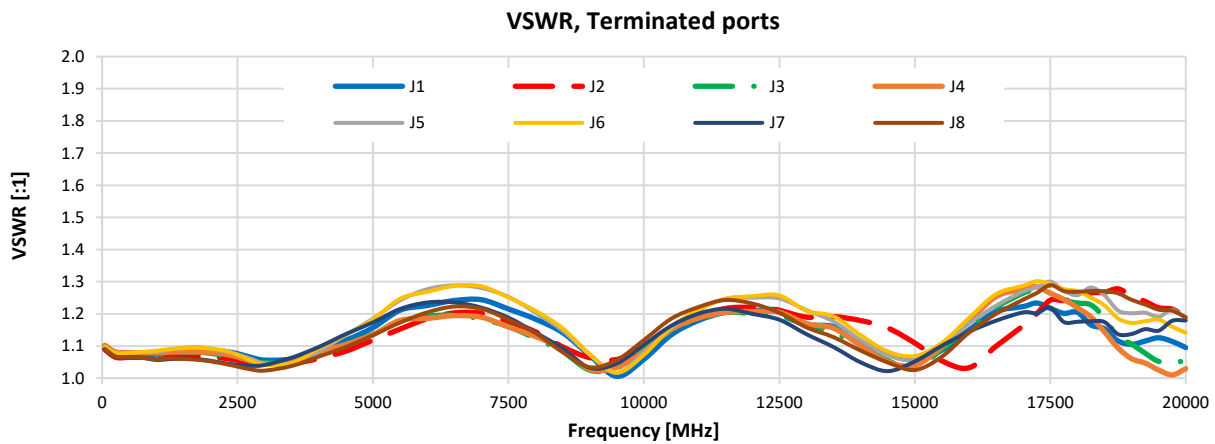
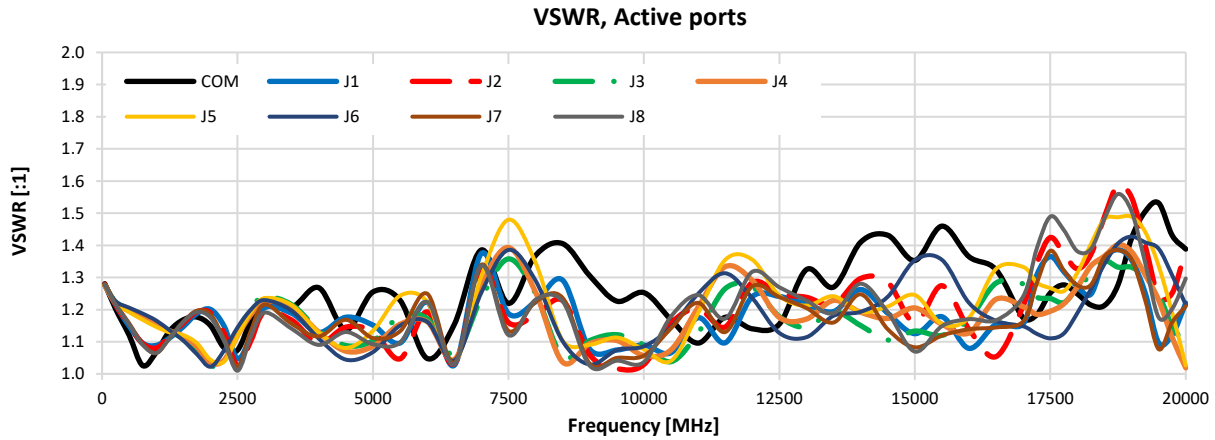
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Typical Performance Curves

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



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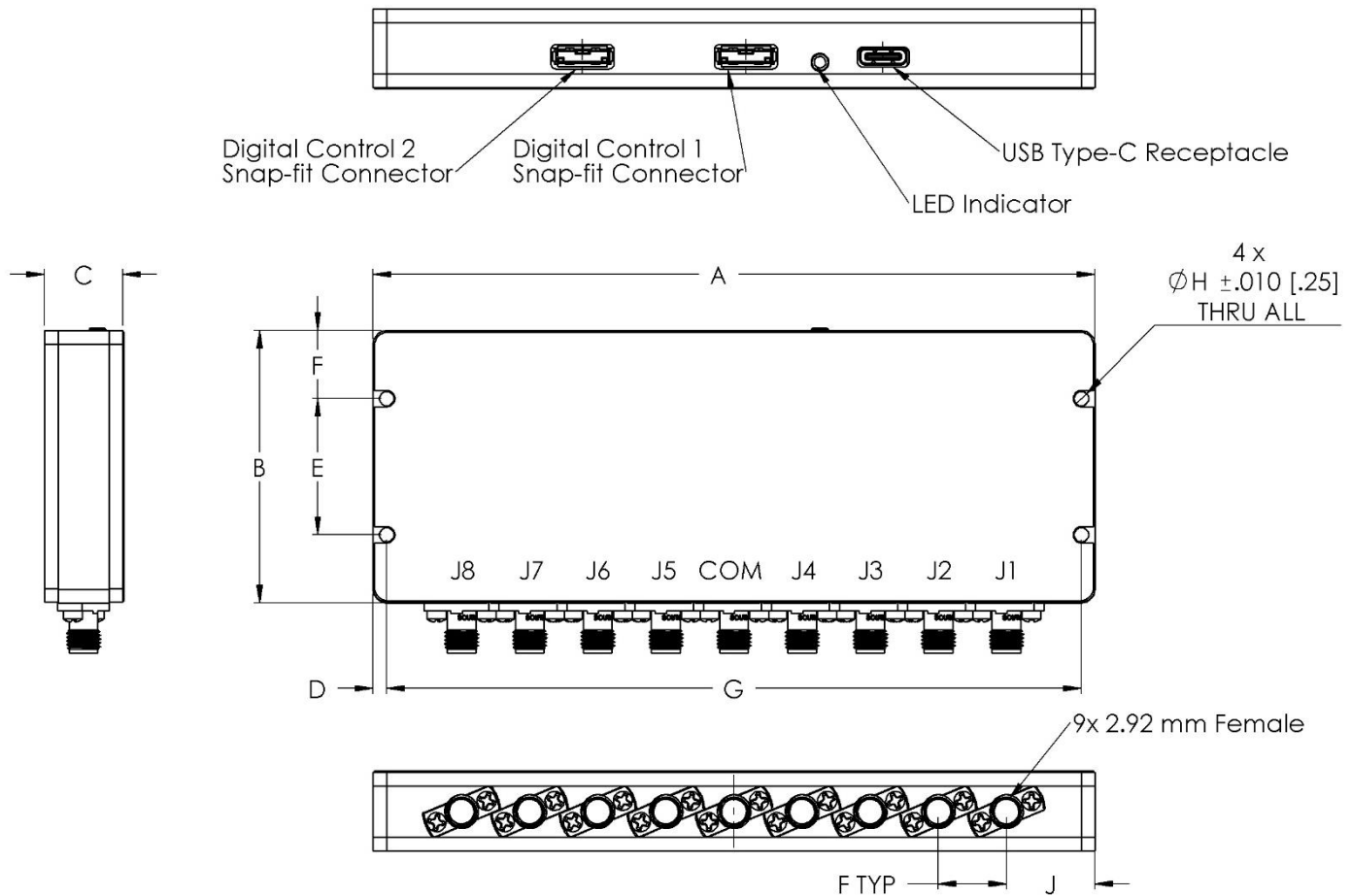


Case Style

NR

Outline Dimensions

NR3245



CASE#	A	B	C	D	E	F	G	H	J	WT. GRAMS
NR3245	5.30 (134.62)	2.00 (50.80)	.575 (14.61)	.100 (2.54)	1.000 (25.40)	.500 (12.70)	5.100 (129.54)	.106 (2.69)	.650 (16.51)	185

Dimensions are in inches (mm). Tolerances: 2PL. +/- .03; 3PL. +/- .015

Notes:

1. Case material: Nickel Plated Aluminum.

Mini-Circuits®

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Environmental Specifications **ENV55**

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	-0° to 50° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-20° to 60° C 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