Xtra Long Life

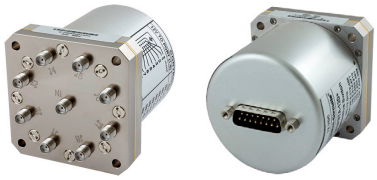
SP8T Switch

MSP8TA-12D+

50Ω DC to 12 GHz, 24 Volt, Absorptive

The Big Deal

- Extra long life - 5 million cycles guaranteed
- Low insertion loss, 0.4 dB typ. at 12 GHz
- High isolation, 90 dB typ. at 12 GHz
- Absorptive
- Reliable sleep mode switching



CASE STYLE: HJ2201

Product Overview

Mini-Circuits' MSP8TA-12D+ is an ultra-reliable, rugged-duty absorptive fail-safe SP8T switch designed in break-before-make configuration. Its patented switch design comprised of very few frictionless moving parts which enable repeatable and optimum performance. Powered by +24VDC, the device has a typical switching speed of 20 milliseconds, insertion loss of 0.4 dB and high isolation of 90 dB. The MSP8TA-12D+ is suitable for use across a wide range of applications, including switching for automated test equipment and redundancy switching.

Key Features

Feature	Advantages
Extra long service life	Exceptionally long service life improves system reliability and reduces the need to replace switches often, making it ideal for automatic test systems.
High isolation, 90 dB typ.	Prevents interference from unwanted signals, ensuring signal integrity and accuracy of testing.
Reliable sleep-mode switching	Offers dependable performance even after being set at a fixed position for prolonged periods. Highly-reliable sleep mode switching averts failures due to "wake up," making it suitable for automatic testing as well as redundancy switching applications.
High repeatability between switching cycles	High repeatability of insertion loss between switching cycles ensures reliable performance critical for automated testing and other measurement applications.
15-Pin D-Sub Connector	Easy and reliable connect/disconnect eliminating soldering and connection errors.

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front view back view

HT-Series Tight Spot SMA Wrench Click Here

CASE STYLE: HJ2201

Connectors	Model
SMA	MSP8TA-12D+

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-15°C to +45°C
Storage Temperature	-15°C to +85°C
RF Power	20W
Control Voltage	26V

Permanent damage may occur if any of these limits are exceeded.

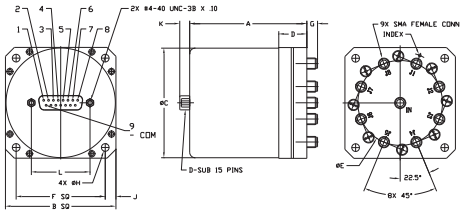
Features

- ultra-reliable, 5 million cycles
- low insertion loss, 0.4 dB typ at 12 GHz
- high isolation, 90 dB typ at 12 GHz
- break-before-make configuration
- absorptive failsafe switch
- reliable "sleep-time" switching
- protected by US Patents 5,272,458; 6,414,577; 7,633,361; 7,843,289 and 6,650,210

Applications

- (ATE) automatic test equipment
- redundancy switching for microwave radio

Outline Drawing



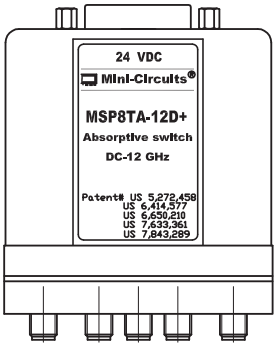
Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
2.63	2.48	2.45	.63	1.900	2.000	.24
66.80	62.99	62.23	16.00	48.26	50.80	6.10

H	J	K	L	wt
.172	.24	.22	1.312	grams
4.37	6.10	5.59	33.32	320

CONTROL LOGIC		
24V TO PORT (1-8)	ON	OFF
9 COM		
1	IN-J1	J1-T1
2	IN-J2	J2-T2
3	IN-J3	J3-T3
4	IN-J4	J4-T4
5	IN-J5	J5-T5
6	IN-J6	J6-T6
7	IN-J7	J7-T7
8	IN-J8	J8-T8

Marking Drawing

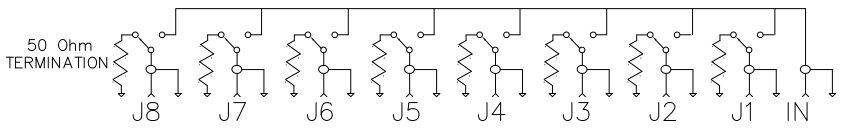


Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ. (Note 1)	Max.	Unit
Frequency Range		DC	—	12	GHz
Insertion Loss	DC - 1 GHz	—	0.10	0.15	dB
	1 - 4	—	0.15	0.25	
	4 - 8	—	0.20	0.45	
	8 - 12	—	0.40	0.80	
Isolation	DC - 1 GHz	95	100	—	dB
	1 - 4	95	100	—	
	4 - 8	85	100	—	
	8 - 12	70	90	—	
VSWR (Note 2)	DC - 1 GHz	—	1.05	1.15	:1
	1 - 4	—	1.10	1.20	
	4 - 8	—	1.30	1.47	
	8 - 12	—	1.35	1.52	
Operating Voltage Range	DC - 12 GHz		24±1		V
Control Signal (Note 3)	24V	—	85	125	mA
RF Power Cold Switching	—	—	—	20	W
RF Power Hot Switching	0.1W	5 million	—	—	Cycles
	1.0W	—	1 million	—	
Switching Time	DC - 12 GHz	—	20	—	ms

Notes
1. The performance values represents a common value for the frequency range. For typical performance across the frequency band, see performance graphs in the next page.
2. All ports, all states.
3. For port IN in Energized state only.
4. +24 Volt applied to energized port, COM is negative.

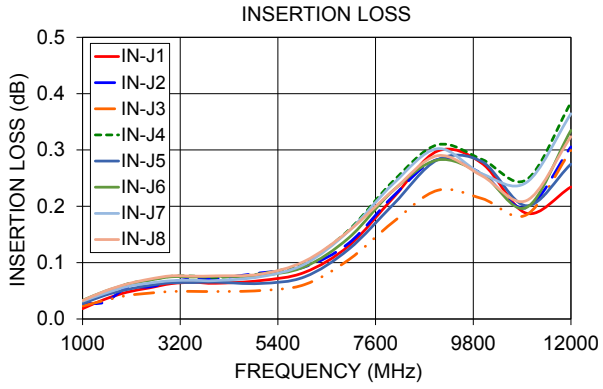
Switching Position (Non-Energized)

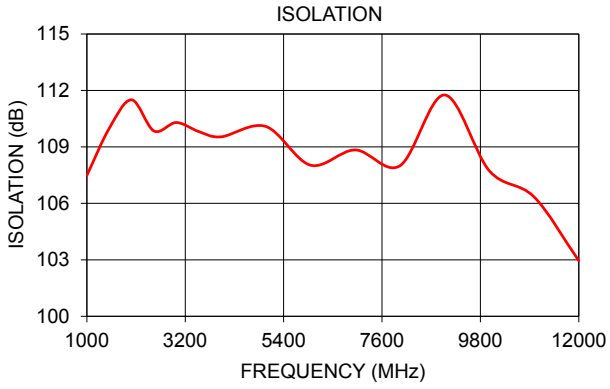


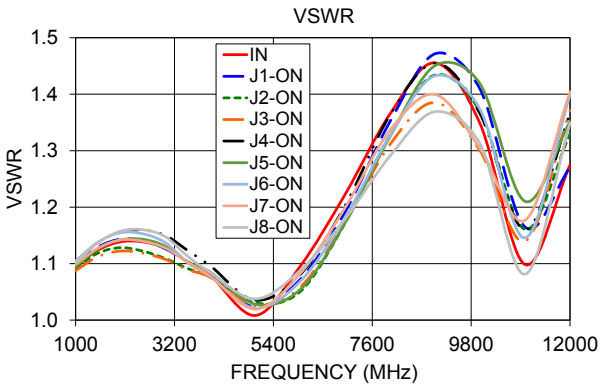
Typical Performance Data

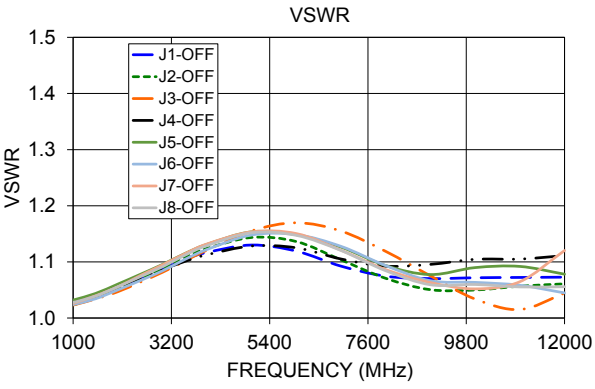
FREQ. (MHz)	ON INSERTION LOSS (dB)								ISOLATION (dB)	VSWR*								
	IN-J1	IN-J2	IN-J3	IN-J4	IN-J5	IN-J6	IN-J7	IN-J8		IN	J1-ON	J2-ON	J3-ON	J4-ON	J5-ON	J6-ON	J7-ON	J8-ON
1000	0.02	0.03	0.02	0.03	0.03	0.03	0.03	0.03	107.48	1.10	1.10	1.09	1.09	1.10	1.09	1.10	1.10	1.10
1500	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	109.98	1.12	1.13	1.12	1.11	1.14	1.13	1.14	1.13	1.14
2000	0.05	0.06	0.04	0.06	0.05	0.06	0.06	0.06	111.50	1.14	1.14	1.13	1.12	1.16	1.14	1.15	1.14	1.16
2500	0.06	0.06	0.05	0.07	0.06	0.07	0.06	0.07	109.85	1.14	1.14	1.12	1.12	1.16	1.14	1.15	1.14	1.16
3000	0.06	0.07	0.05	0.08	0.06	0.07	0.07	0.08	110.29	1.13	1.13	1.11	1.11	1.15	1.13	1.14	1.13	1.15
3500	0.06	0.07	0.05	0.08	0.06	0.07	0.07	0.08	109.82	1.10	1.10	1.09	1.09	1.12	1.10	1.10	1.10	1.11
4000	0.06	0.07	0.05	0.07	0.07	0.08	0.07	0.08	109.53	1.08	1.08	1.08	1.08	1.10	1.08	1.08	1.08	1.08
5000	0.07	0.08	0.05	0.08	0.06	0.08	0.07	0.08	110.09	1.01	1.02	1.03	1.02	1.04	1.03	1.02	1.02	1.04
6000	0.08	0.09	0.06	0.10	0.07	0.09	0.10	0.10	108.03	1.10	1.07	1.05	1.06	1.08	1.05	1.07	1.08	1.09
7000	0.13	0.13	0.11	0.16	0.12	0.14	0.16	0.16	108.84	1.22	1.19	1.17	1.17	1.20	1.17	1.18	1.20	1.18
8000	0.22	0.22	0.17	0.25	0.20	0.23	0.24	0.23	108.00	1.37	1.35	1.33	1.31	1.36	1.33	1.33	1.34	1.29
9000	0.30	0.28	0.23	0.31	0.28	0.28	0.30	0.29	111.76	1.46	1.47	1.43	1.39	1.46	1.45	1.43	1.40	1.37
10000	0.28	0.26	0.21	0.28	0.28	0.26	0.26	0.25	107.73	1.35	1.41	1.37	1.30	1.37	1.42	1.37	1.30	1.31
11000	0.19	0.20	0.18	0.25	0.20	0.20	0.24	0.21	106.34	1.10	1.16	1.16	1.14	1.16	1.21	1.15	1.18	1.08
12000	0.23	0.31	0.30	0.38	0.27	0.33	0.36	0.32	102.96	1.27	1.27	1.33	1.37	1.37	1.35	1.40	1.40	1.35

*See graph below for VSWR OFF state.









Additional 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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