Xtra Long Life

SP6T Switch

MSP6TA-12+

50Ω DC to 12 GHz 24 Volt

CASE STYLE: HJ1143

The Big Deal

- Extra-long switching life
- Low insertion loss, 0.2 dB
- High isolation, 90 dB
- Reliable sleep-mode switching

Product Overview

Mini-Circuits' MSP6TA-12+ is an ultra-reliable, rugged-duty absorptive fail-safe SP6T switch designed in break-before-make configuration. Powered by +24VDC, the device has a typical switching speed of 20 milliseconds, insertion loss of 0.2 dB and high isolation of 90 dB. Offering an ultra-long switching life backed by our 10-year, 100-million cycle extended warranty , the MSP6TA-12+ 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 – qualified to 100 million cycles	Exceptionally long service life improves system reliability and reduces the need to replace switches often.
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 switching cycles ensures reliable performance critical for automated testing and other measurement applications.

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front view back view

HT-Series
Tight Spot
SMA Wrench
From $24.95
Click Here

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Connectors	Model	Price	Qty.
SMA	MSP6TA-12+	$695.00	(1-9)

+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	10W
Control Voltage	26VDC

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

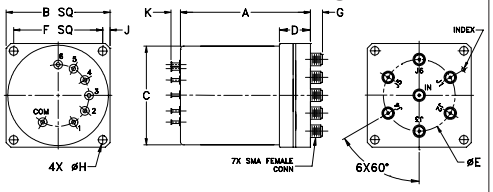
Features

- low insertion loss, 0.2 dB typ.
- high isolation, 90 dB typ.
- ultra reliable
- break-before-make configuration
- absorptive failsafe switch
- protected by US Patents 5,272,458; 6,414,577; 6,650,210; 7,633,361 and 7,843,289

Applications

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

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F
2.63	2.10	2.00	.63	1.45	1.800
66.80	53.34	50.80	16.00	36.83	45.72

G	H	J	K	wt
.24	.172	.15	.19	grams
6.10	4.37	3.81	4.83	230

Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Unit
Frequency Range		DC	—	12	GHz
Insertion Loss	DC - 1 GHz	—	0.10	0.15	dB
	1 - 6	—	0.15	0.25	
	6 - 8	—	0.20	0.30	
	8 - 12	—	0.25	0.35	
Isolation	DC - 1 GHz	85	100	—	dB
	1 - 6	80	95	—	
	6 - 8	80	90	—	
	8 - 12	80	90	—	
VSWR (Note 1,2)	DC - 1 GHz	—	1.05	1.10	:1
	1 - 6	—	1.10	1.25	
	6 - 8	—	1.20	1.35	
	8 - 12	—	1.20	1.35	
Control Signal (Note 3)	24V	—	85	125	mA
Switching Lifetime	0.1W	—	100 million	—	cycles
Hot Switching (Note 4)	1.0W	—	10 million	—	
RF Power Cold Switching	—	—	—	10	W

Notes
1. For ports J1, J2, J3, J4, J5 and J6 all states.
2. For port IN in Energized state only.
3. +24 Volt applied to energized port, all other ports negative or ground. COM is negative.
4. Since these are mechanical devices, a lubrication may be required to meet the expected lifetimes shown in the specifications. Please see Mini-Circuits Warranty Policy regarding these devices.

Additional Specifications

Operating Voltage Range	24V (nom) ±1V
Switching Time (Typ.)	20ms

Patents

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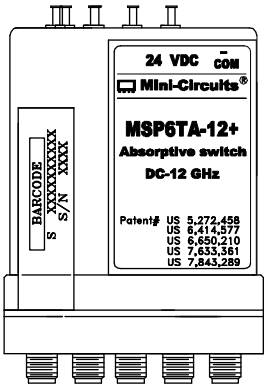
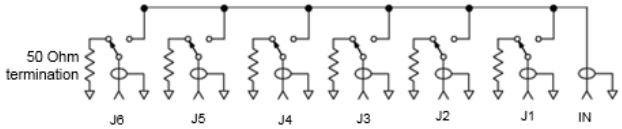
Marking Drawing



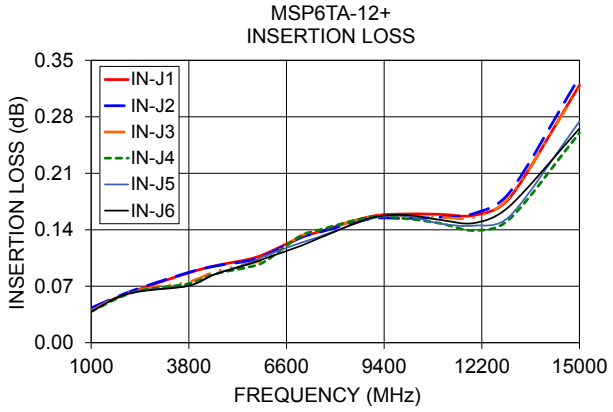
Switching Position (Non-Energized)

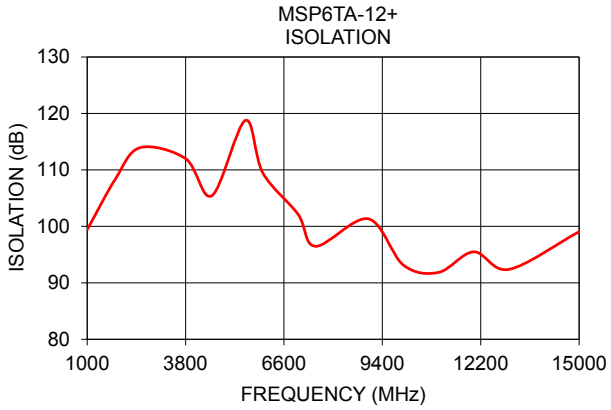


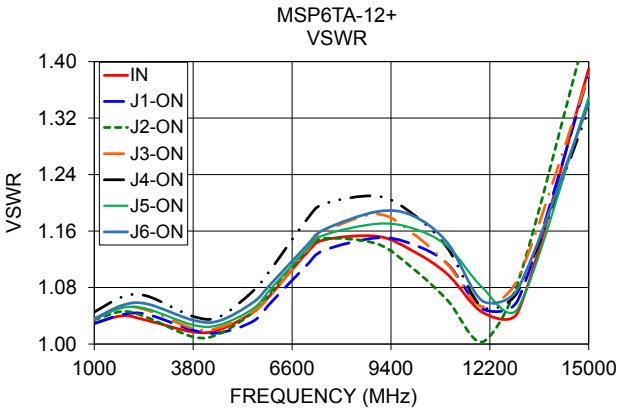
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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 www.minicircuits.com/MCLStore/terms.jsp

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	J1-ON	J2-ON	J3-ON	J4-ON	J5-ON	J6-ON
1000	0.04	0.04	0.04	0.04	0.04	0.04	99.41	1.03	1.03	1.03	1.04	1.05	1.04	1.04
1800	0.06	0.06	0.06	0.06	0.06	0.06	108.37	1.04	1.04	1.05	1.05	1.07	1.05	1.05
2500	0.07	0.07	0.07	0.07	0.06	0.06	113.94	1.03	1.04	1.04	1.05	1.07	1.05	1.06
3800	0.09	0.09	0.08	0.07	0.07	0.07	112.01	1.02	1.02	1.01	1.02	1.04	1.03	1.03
4550	0.10	0.09	0.09	0.09	0.08	0.08	105.44	1.02	1.02	1.01	1.02	1.04	1.03	1.03
5500	0.10	0.10	0.10	0.09	0.10	0.10	118.76	1.05	1.03	1.05	1.05	1.08	1.05	1.06
6000	0.11	0.11	0.10	0.10	0.11	0.10	109.45	1.07	1.06	1.07	1.07	1.11	1.08	1.09
7000	0.13	0.13	0.13	0.13	0.12	0.12	102.15	1.13	1.11	1.13	1.13	1.18	1.13	1.14
7500	0.14	0.14	0.14	0.14	0.13	0.13	96.47	1.15	1.13	1.15	1.16	1.20	1.15	1.16
9000	0.16	0.15	0.16	0.16	0.15	0.15	101.34	1.15	1.15	1.14	1.18	1.21	1.17	1.19
10000	0.16	0.15	0.16	0.15	0.16	0.16	93.14	1.13	1.14	1.11	1.16	1.18	1.16	1.18
11000	0.16	0.16	0.16	0.15	0.15	0.15	91.84	1.10	1.11	1.06	1.11	1.14	1.14	1.14
12000	0.16	0.16	0.16	0.14	0.15	0.15	95.49	1.04	1.05	1.00	1.05	1.05	1.08	1.06
13005	0.18	0.19	0.18	0.15	0.16	0.17	92.38	1.05	1.06	1.09	1.09	1.08	1.05	1.08
15000	0.32	0.33	0.32	0.26	0.27	0.27	99.05	1.39	1.38	1.46	1.38	1.33	1.35	1.34







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