Xtra Long Life

Transfer Switch

50Ω DC to 18 GHz

MTS-18XL-B+

CASE STYLE: DS810

Connectors	Model
SMA	MTS-18XL-B+

Maximum Ratings

Operating Temperature	-15°C to +45°C
Storage Temperature	-15°C to +85°C
RF Power (any single port)	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, 85 dB typ.
- high power handling, 10W
- ultra reliable
- break-before-make configuration
- failsafe microwave transfer switch
- protected by US Patents 5,272,458; 6,414,577; 6,650,210; 7,633,361; 7,843,289

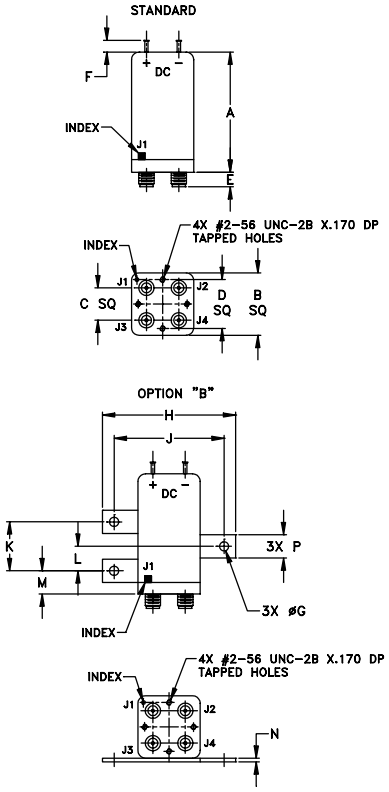
Applications

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

+RoHS Compliant

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

Outline Drawing

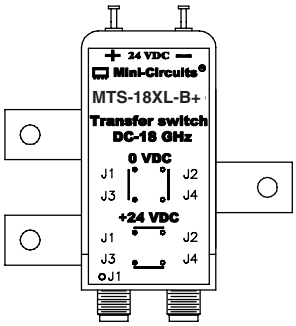


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.97	1.02	.53	.800	.240	.19	.150	2.18
50.04	25.91	13.46	20.32	6.10	4.83	3.81	55.37

J	K	L	M	N	P	wt
1.800	.800	.400	.380	.06	.38	grams
45.72	20.32	10.16	9.65	1.52	9.65	70

Marking Drawing



Electrical Specifications

FREQUENCY (GHz)	INSERTION LOSS (dB)		ISOLATION (dB)		VSWR (:1)		DC CURRENT @+24V (mA)		RF POWER COLD SWITCHING (W)	RF POWER HOT SWITCHING (W) Max.	
	Typ.	Max.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Max.	Note 1	Note 2
DC - 1	0.10	0.15	100	85	1.05	1.10	175	215	10	0.1	1.0
1 - 8	0.10	0.25	90	75	1.15	1.20					
8 - 12	0.20	0.36	86	70	1.15	1.30					
12 - 18	0.25	0.45	76	60	1.15	1.30					

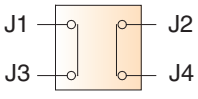
Additional Specifications

Operating Voltage Range	24V (nom) ±1V
Switching Time (Typ.)	20ms
Life[3] (Min.)	10 million switch cycles

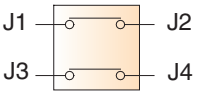
Notes
1. To achieve specified life, hot switching RF power must not exceed this level.
2. Degradation in life (min.) to typically 3 million switch cycles for hot switch at this RF power level.
3. Tested at 0 dBm RF power.

Switching States

DE-ENERGIZED DC=0V



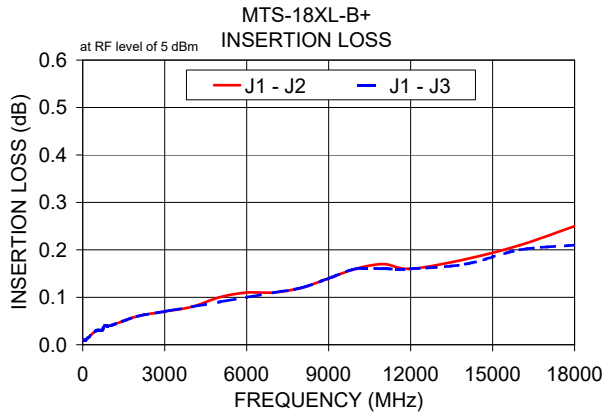
ENERGIZED DC=24V

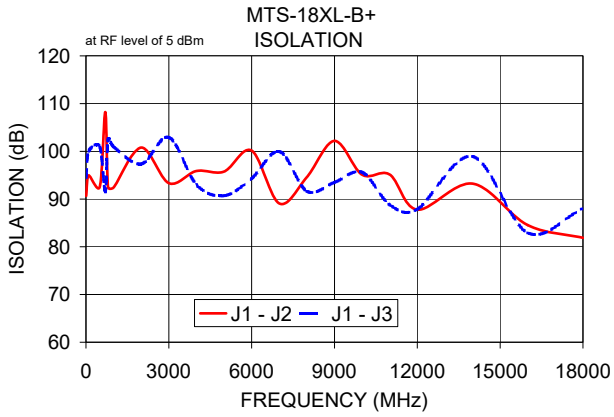


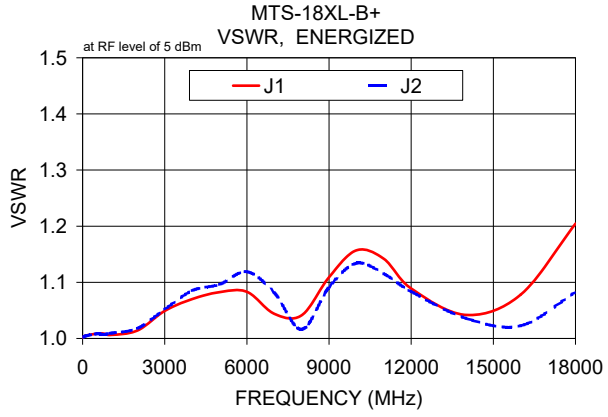
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

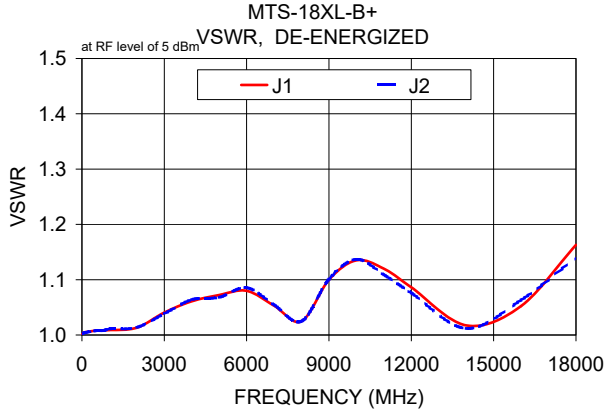
Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB)		OFF ISOLATION (dB)		VSWR energized (:1)		VSWR de-energized (:1)	
	J1-J2	J1-J3	J1-J2	J1-J3	J1	J2	J1	J2
10.00	0.01	0.01	90.66	94.50	1.00	1.00	1.00	1.00
100.00	0.01	0.01	94.93	100.05	1.00	1.00	1.00	1.00
500.00	0.03	0.03	92.59	100.93	1.01	1.01	1.01	1.01
700.00	0.03	0.03	108.21	91.48	1.01	1.01	1.01	1.01
800.00	0.04	0.04	92.52	102.45	1.01	1.01	1.01	1.01
1000.00	0.04	0.04	92.45	100.96	1.01	1.01	1.01	1.01
2000.00	0.06	0.06	100.79	97.34	1.01	1.02	1.01	1.01
3000.00	0.07	0.07	93.32	102.92	1.05	1.05	1.04	1.04
4000.00	0.08	0.08	95.89	93.03	1.07	1.09	1.06	1.06
5000.00	0.10	0.09	95.75	90.70	1.08	1.10	1.07	1.07
6000.00	0.11	0.10	100.15	94.32	1.08	1.12	1.08	1.09
7000.00	0.11	0.11	89.08	99.96	1.04	1.08	1.05	1.05
8000.00	0.12	0.12	94.59	91.64	1.04	1.02	1.02	1.02
9000.00	0.14	0.14	102.19	93.50	1.11	1.09	1.10	1.10
10000.00	0.16	0.16	95.10	95.63	1.16	1.13	1.14	1.14
11000.00	0.17	0.16	95.14	88.79	1.14	1.12	1.12	1.11
12000.00	0.16	0.16	87.77	87.85	1.09	1.08	1.09	1.08
14000.00	0.18	0.17	93.24	98.95	1.04	1.04	1.02	1.01
16000.00	0.21	0.20	84.54	82.94	1.08	1.02	1.05	1.06
18000.00	0.25	0.21	81.87	88.03	1.20	1.08	1.16	1.14









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Xtra Long Life Transfer Switch MTS-18XL-B+

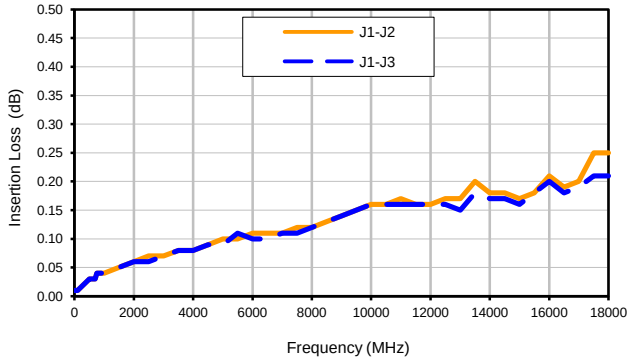
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS ON (dB)		ISOLATON OFF (dB)		VSWR ENERGIZED (:1)		VSWR DE-ENERGIZED (:1)	
	J1-J2	J1-J3	J1-J2	J1-J3	J1	J2	J1	J2
10.0	0.01	0.01	90.66	94.50	1.00	1.00	1.00	1.00
50.0	0.01	0.01	101.14	92.25	1.00	1.00	1.00	1.00
100.0	0.01	0.01	94.93	100.05	1.00	1.00	1.00	1.00
500.0	0.03	0.03	92.59	100.93	1.01	1.01	1.01	1.01
700.0	0.03	0.03	108.21	91.48	1.01	1.01	1.01	1.01
750.0	0.04	0.04	94.79	108.86	1.01	1.01	1.01	1.01
800.0	0.04	0.04	92.52	102.45	1.01	1.01	1.01	1.01
1000.0	0.04	0.04	92.45	100.96	1.01	1.01	1.01	1.01
1500.0	0.05	0.05	98.61	87.38	1.01	1.01	1.01	1.01
2000.0	0.06	0.06	100.79	97.34	1.01	1.02	1.01	1.01
2500.0	0.07	0.06	97.51	104.72	1.03	1.03	1.03	1.02
3000.0	0.07	0.07	93.32	102.92	1.05	1.05	1.04	1.04
3500.0	0.08	0.08	98.46	99.72	1.06	1.07	1.05	1.05
4000.0	0.08	0.08	95.89	93.03	1.07	1.09	1.06	1.06
4500.0	0.09	0.09	92.30	99.42	1.07	1.09	1.07	1.07
5000.0	0.10	0.09	95.75	90.70	1.08	1.10	1.07	1.07
5500.0	0.10	0.11	97.60	93.21	1.09	1.11	1.07	1.08
6000.0	0.11	0.10	100.15	94.32	1.08	1.12	1.08	1.09
6500.0	0.11	0.10	95.17	102.24	1.07	1.11	1.07	1.08
7000.0	0.11	0.11	89.08	99.96	1.04	1.08	1.05	1.05
7500.0	0.12	0.11	99.16	92.07	1.02	1.04	1.02	1.02
8000.0	0.12	0.12	94.59	91.64	1.04	1.02	1.02	1.02
8500.0	0.13	0.13	91.86	95.94	1.08	1.05	1.06	1.07
9000.0	0.14	0.14	102.19	93.50	1.11	1.09	1.10	1.10
9500.0	0.15	0.15	93.12	93.68	1.14	1.12	1.12	1.13
10000.0	0.16	0.16	95.10	95.63	1.16	1.13	1.14	1.14
10500.0	0.16	0.16	95.91	95.23	1.16	1.13	1.13	1.13
11000.0	0.17	0.16	95.14	88.79	1.14	1.12	1.12	1.11
11500.0	0.16	0.16	90.91	84.34	1.11	1.11	1.11	1.10
12000.0	0.16	0.16	87.77	87.85	1.09	1.08	1.09	1.08
12500.0	0.17	0.16	87.81	91.10	1.05	1.07	1.07	1.06
13000.0	0.17	0.15	84.88	99.40	1.04	1.05	1.04	1.04
13500.0	0.20	0.18	92.47	90.30	1.04	1.05	1.03	1.04
14000.0	0.18	0.17	93.24	98.95	1.04	1.04	1.02	1.01
14500.0	0.18	0.17	84.93	92.18	1.06	1.02	1.02	1.02
15000.0	0.17	0.16	94.61	84.44	1.07	1.01	1.03	1.02
15500.0	0.18	0.18	99.94	95.56	1.09	1.02	1.05	1.04
16000.0	0.21	0.20	84.54	82.94	1.08	1.02	1.05	1.06
16500.0	0.19	0.18	88.84	99.24	1.07	1.02	1.07	1.07
17000.0	0.20	0.19	90.32	85.46	1.09	1.01	1.09	1.06
17500.0	0.25	0.21	92.16	91.04	1.14	1.03	1.12	1.09
18000.0	0.25	0.21	81.87	88.03	1.20	1.08	1.16	1.14

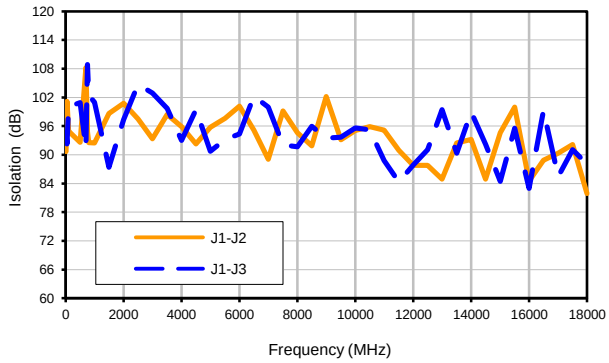
Xtra Long Life Transfer Switch MTS-18XL-B+

Typical Performance Curves

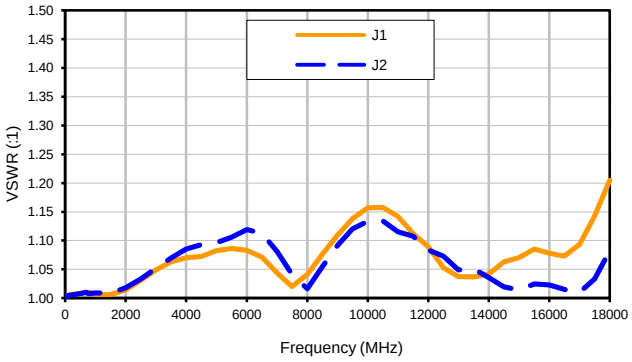
Insertion Loss



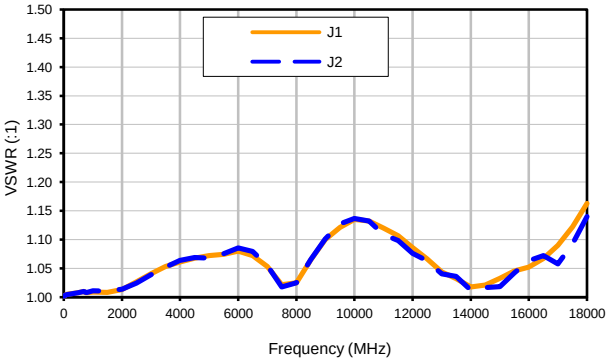
Isolation



VSWR, Energized



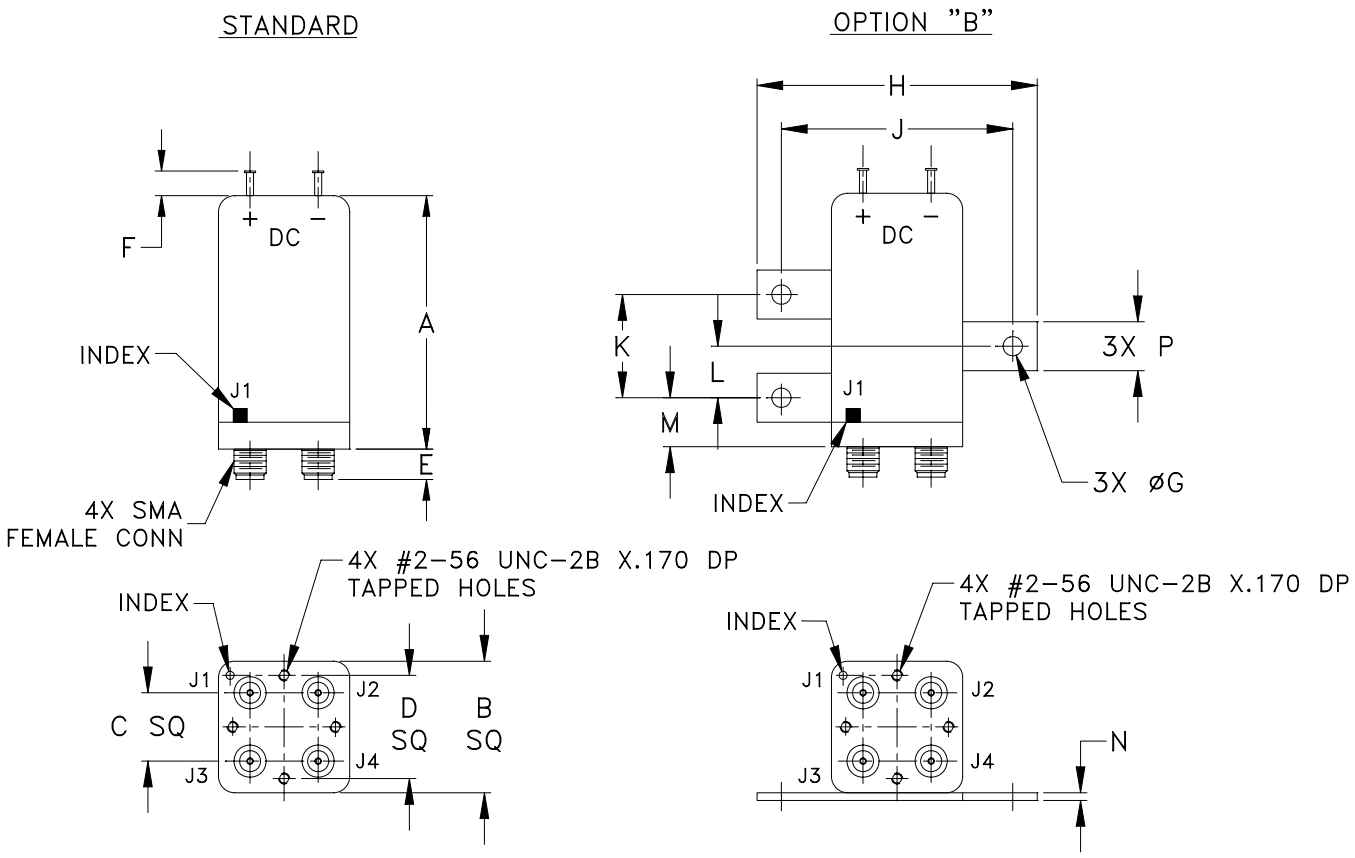
VSWR, De-Energized



Case Style DS

DS810

Outline Dimensions



CASE #	A	B	C	D	E	F	G	H	J	K	L
DS810	1.97 (50.04)	1.02 (25.91)	.53 (13.46)	.800 (20.32)	.240 (6.10)	.19 (4.83)	.150 (3.81)	2.18 (55.37)	1.800 (45.72)	.800 (20.32)	.400 (10.16)

CASE #	M	N	P	WT. GRAM
DS810	.380 (9.65)	.06 (1.52)	.38 (9.65)	70

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3 Pl. ± .015

Note:

1. Case material: Copper-Nickel alloy.

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P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
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Environmental Specifications ENV22

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	-15° to 45°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-15° to 85°C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 96 hours, 40°C	MIL-STD-202, Method 103B, Condition B, Except 50°C
Thermal Shock	-55° to 100°C, 50 cycles	MIL-STD-202, Method 107, Condition B, except -55° to +100°C and 50 cycles
Vibration (High Frequency)	0.06-inch double amplitude, 10-55 Hz, 2 hours in each of three perpendicular directions (total 6 hours)	MIL-STD-202, Method 204, Condition C, Part 1
Mechanical Shock	50G,11 ms sawtooth, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition G
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215