

# Plug-In Switch

50Ω SPDT Pin Diode Reflective 10 to 2500 MHz

## PSW-1211



Generic photo used for illustration purposes only  
CASE STYLE: A06

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power	+20 dBm
Control Current	5mA

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

### Pin Connections

RF IN	5
RF OUT 1	2
RF OUT 2	8
CONTROL 1	1
CONTROL 2	7
GROUND	3,4,6
CASE GND	3,6

### Features

- wideband, 10 to 2500 MHz
- hermetic, metal case

### Applications

- military, hi-rel application
- antenna switching
- UHF/VHF
- satellite communications
- test set-ups

### Switch Electrical Specifications

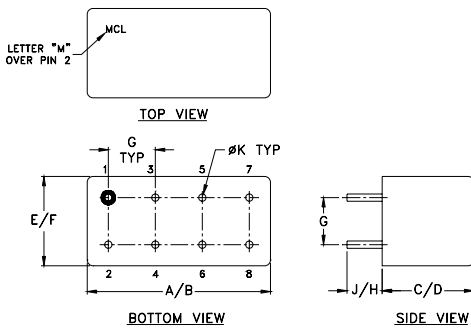
MODEL NO.	FREQ. (MHz)		INSERTION LOSS (dB)				IN-OUT ISOLATION (dB)					
	$f_L$	$f_U$	Low band lw		Upper band U		Frequency Band					
			Typ.	Max.	Typ.	Max.	L		M		U	
							Typ.	Min.	Typ.	Min.	Typ.	Min.
PSW-1211	10	2500	1.1	1.9	1.9	2.7	50	40	35	28	28	22

L= low range( $f_L$  to 10  $f_L$ )

M=mid range(10  $f_L$  to  $f_U/2$ )  
lw=low band ( $f_L$  to  $f_L/2$ )

U=upper range ( $f_U/2$  to  $f_U$ )

### Outline Drawing



### Outline Dimensions (inch/mm)

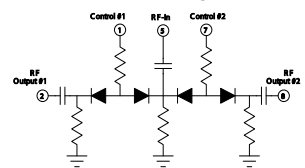
A	B	C	D	E	F
.770	.800	.285	.310	.370	.400
19.56	20.32	7.24	7.87	9.40	10.16

G	H	J	K	wt
.200	.20	.14	.031	grams
5.08	5.08	3.56	0.79	5.2

Additional Specifications	
VSWR ("ON" STATE)	1.7 MAX.
SWITCHING TIME (μSEC)	4 MAX.
RISE TIME (μSEC)	2 TYP.
CONTROL VOLTAGE	ON condition +5V OFF condition 0V
1 dB COMPRESSION	10 to 200 MHz +6 increasing to +19 dBm Above 200 MHz +19 dBm min.

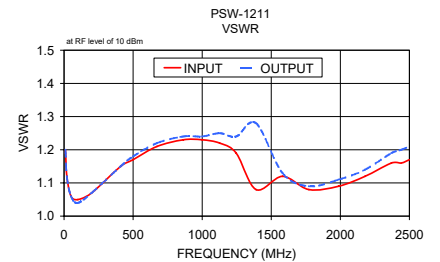
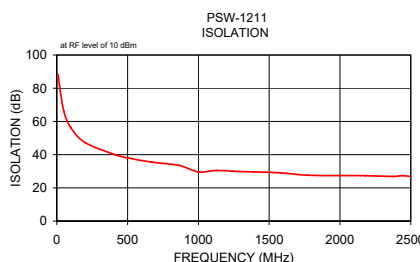
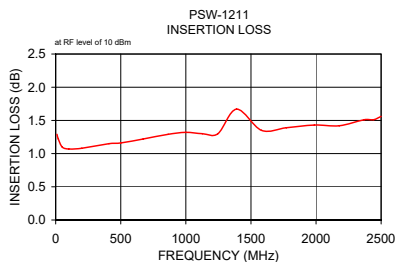
### Control Logic



	CONTROL 1	CONTROL 2	RF OUT 2	RF OUT 1
State 1:	0V	+5V	ON	OFF
State 2:	+5V	0V	OFF	ON

### Typical Performance Data

Freq. (MHz)	ON INSERTION LOSS (dB)				OFF ISOLATION (dB)				VSWR	
	IN-OUT		IN-OUT		IN-OUT		IN-OUT		ON	OFF
	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$	$\bar{x}$	$\sigma$	$\bar{x}$	$\bar{x}$
10.00	1.29	0.19	0.13	0.12	88.14	5.32	5.52	5.48	1.20	27.17
20.00	1.22	0.14	0.09	0.06	80.95	3.49	5.99	5.45	1.12	25.49
50.00	1.10	0.10	0.07	0.06	66.03	2.18	0.79	0.77	1.06	26.18
100.00	1.07	0.09	0.07	0.06	56.13	2.48	0.63	1.00	1.05	24.91
200.00	1.08	0.09	0.06	0.05	47.23	1.83	0.65	0.71	1.07	24.71
409.45	1.15	0.08	0.07	0.05	40.05	1.43	0.45	0.39	1.15	23.36
500.00	1.16	0.08	0.06	0.04	38.02	1.28	0.50	0.28	1.17	22.80
672.45	1.22	0.08	0.06	0.04	35.50	1.05	0.49	0.36	1.21	21.45
863.73	1.29	0.08	0.06	0.04	33.51	0.92	0.71	0.29	1.23	19.28
1000.00	1.32	0.07	0.05	0.03	29.59	0.41	3.76	0.96	1.23	19.05
1126.73	1.30	0.08	0.06	0.05	30.50	0.46	2.81	0.52	1.22	17.59
1246.27	1.30	0.07	0.07	0.06	30.00	0.41	3.80	0.53	1.19	17.26
1389.73	1.67	0.09	0.41	0.09	29.58	0.43	1.32	1.45	1.08	15.74
1581.00	1.35	0.07	0.05	0.04	29.04	0.47	0.58	0.46	1.12	14.86
1772.27	1.39	0.08	0.05	0.05	27.59	0.59	1.64	0.77	1.08	13.60
1987.45	1.43	0.07	0.05	0.04	27.44	0.74	2.62	0.92	1.09	11.11
2178.73	1.42	0.08	0.06	0.04	27.34	0.87	3.10	1.03	1.12	14.41
2370.00	1.51	0.09	0.08	0.05	26.88	1.06	3.36	1.25	1.16	12.24
2441.73	1.51	0.08	0.07	0.04	27.35	1.15	3.49	1.39	1.16	10.69
2500.00	1.56	0.09	0.08	0.06	26.81	1.21	3.44	1.50	1.17	11.44



### Notes

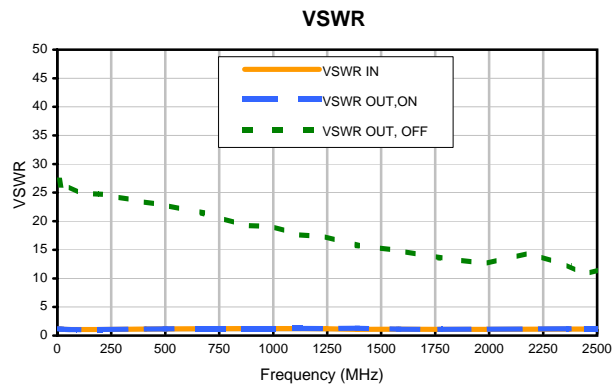
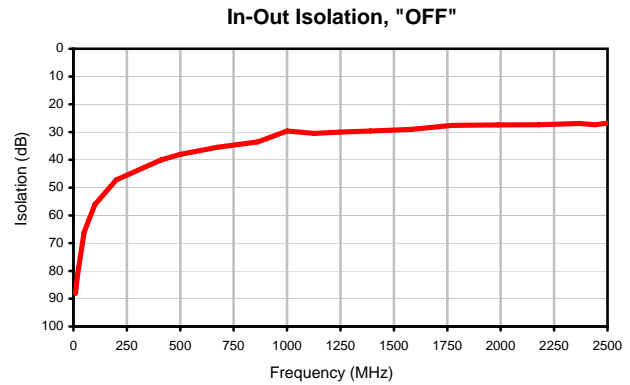
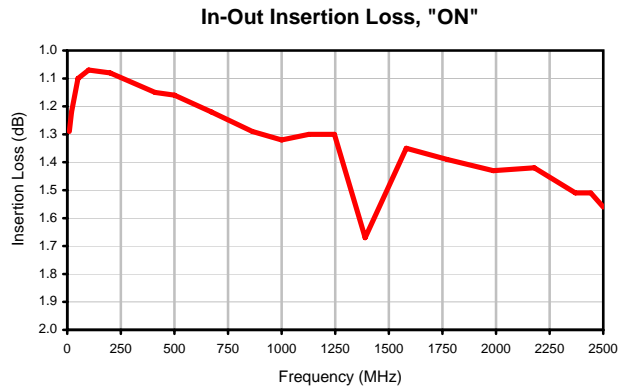
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)



## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB) IN-OUT , "ON"	ISOLATION (dB) IN-OUT , "OFF"	VSWR (:1)		
			IN	OUT , "ON"	OUT , "OFF"
10	1.29	88.14	1.20	1.20	27.17
20	1.22	80.95	1.12	1.12	25.49
50	1.10	66.03	1.06	1.06	26.18
100	1.07	56.13	1.05	1.04	24.91
200	1.08	47.23	1.07	1.07	24.71
409	1.15	40.05	1.15	1.15	23.36
500	1.16	38.02	1.17	1.18	22.80
672	1.22	35.50	1.21	1.22	21.45
864	1.29	33.51	1.23	1.24	19.28
1000	1.32	29.59	1.23	1.24	19.05
1127	1.30	30.50	1.22	1.25	17.59
1246	1.30	30.00	1.19	1.24	17.26
1390	1.67	29.58	1.08	1.28	15.74
1581	1.35	29.04	1.12	1.13	14.86
1772	1.39	27.59	1.08	1.09	13.60
1987	1.43	27.44	1.09	1.11	12.58
2179	1.42	27.34	1.12	1.14	14.41
2370	1.51	26.88	1.16	1.19	12.24
2442	1.51	27.35	1.16	1.20	10.69
2500	1.56	26.81	1.17	1.21	11.44

## Typical Performance Curves

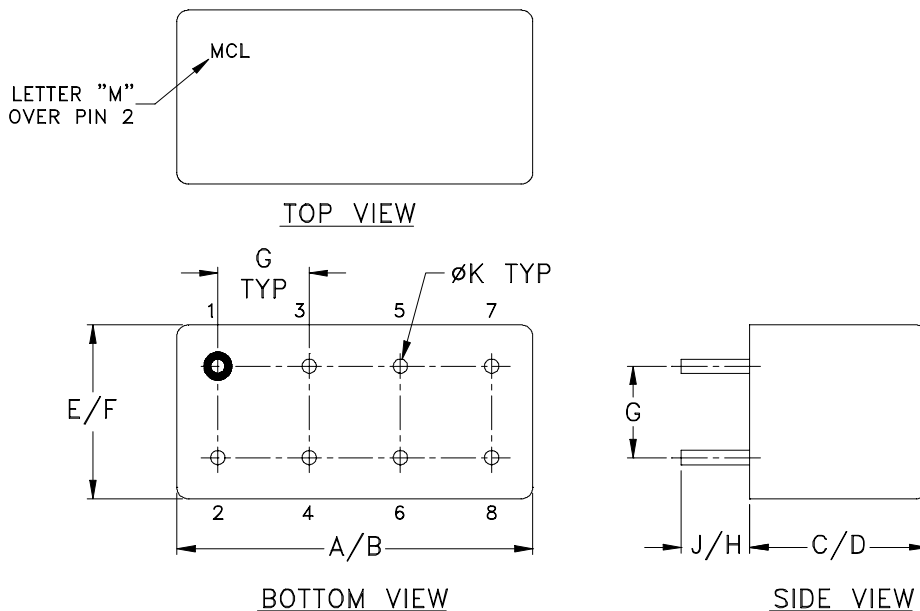


# Case Style

# A

A01  
A04  
A05  
A06

## Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01			.385 (9.78)	.400 (10.16)							5.2
A04	.770 (19.56)	.800 (20.32)	.200 (5.08)	.210 (5.33)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

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

### Notes:

- Header material: C.R.S.  
Pin material: #52 alloy.  
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Insulated spacer available. Request P/N B14-045-01.
- Tolerance on pin diameter  $\pm .005$  inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

**Mini-Circuits**<sup>®</sup>

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

INTERNET <http://www.minicircuits.com>

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

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	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
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
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



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
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D