

Coaxial Switch

50Ω SPST Pin Diode Reflective 10 to 2500 MHz

ZMSW-1111

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.	

Coaxial/Pin Connections

RF IN	COM
RF OUT 2	RF-2
CONTROL 1	1
CONTROL 2	2

Features

- wideband, 10 to 2500 MHz
- good isolation, 35 dB typ.

Applications

- UHF/VHF
- satellite communications
- antenna switching
- test set-ups



Generic photo used for illustration purposes only

CASE STYLE: JJ77

Connectors	Model
SMA	ZMSW-1111

Electrical Specifications

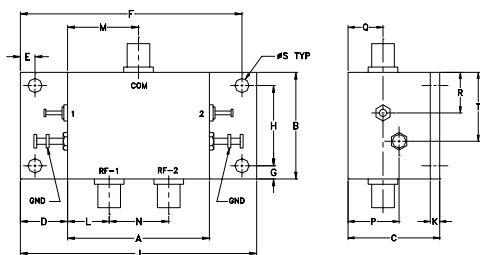
MODEL NO.	FREQ. (MHz)		INSERTION LOSS (dB)				IN-OUT ISOLATION (dB)					
			Low band		Upper band		Frequency Band					
			lw		U		L		M		U	
			Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
ZMSW-1111	10	2500	1.1	1.9	1.9	2.7	50	45	35	28	28	22

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 $f_U/2$)

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

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	H	J	
1.50	1.13	.97	.50	.155	2.345	.14	.850	2.50	
38.10	28.70	24.64	12.70	3.94	59.56	3.56	21.59	63.50	
K	L	M	N	P	Q	R	S	T	wt
.10	.44	.75	.63	.54	.37	.43	.150	.73	grams
2.54	11.18	19.05	16.00	13.72	9.40	10.92	3.81	18.54	50.0

Additional Specifications

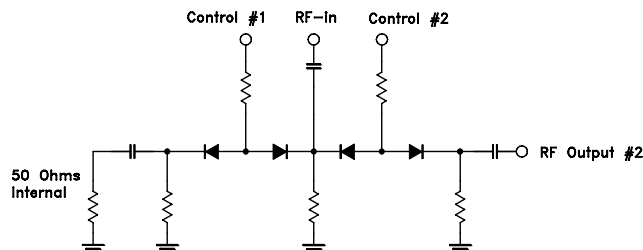
VSWR ("ON" STATE)	1.7 Max
SWITCHING TIME (μSEC)	4 Max.
RISE TIME (μSEC)	2 Typ.
CONTROL VOLTAGE	
ON condition	+5V
OFF condition	0V
1 dB COMPRESSION	
10 to 200 MHz	+6 increasing to +19
Above 200 MHz	dBm
	+19 dBm min.

LOGIC

	CON-TROL 1	CON-TROL 2	RF-2
State 1:	0V	+5V	ON
State 2:	+5V	0V	OFF*

*Absorptive at RF IN

Electrical Schematic



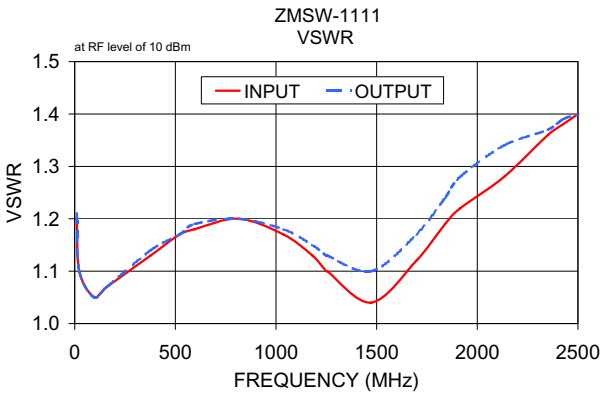
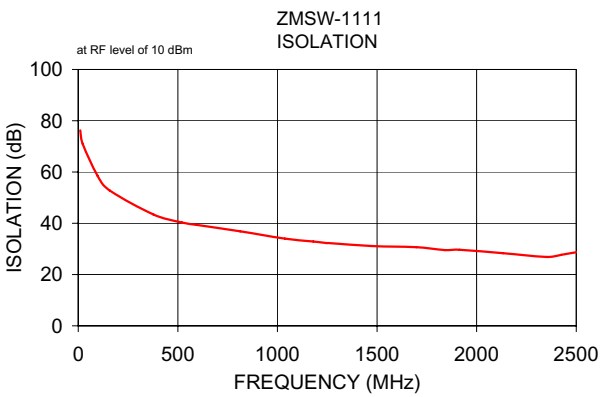
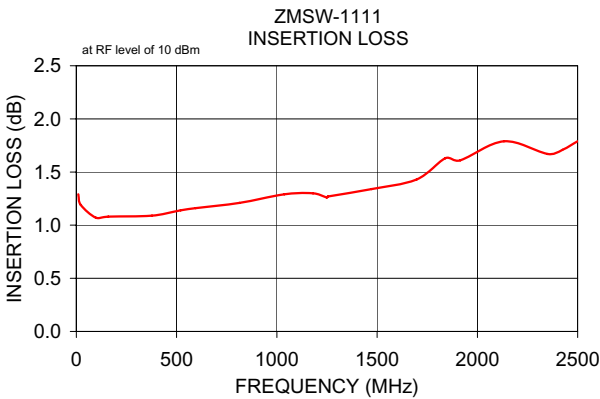
Notes

- 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) (Ctrl1 @ 0V, Ctrl2 @ 5V)		OFF ISOLATION (dB) (Ctrl1 @ 5V, Ctrl2 @ 0V)		VSWR		
	$\bar{x}$	σ	$\bar{x}$	σ	IN $\bar{x}$	OUT $\frac{ON}{\bar{x}}$	OFF $\bar{x}$
10.00	1.29	0.11	76.25	6.59	1.20	1.21	30.07
22.45	1.19	0.10	70.93	4.23	1.10	1.10	30.07
97.15	1.07	0.07	58.52	1.61	1.05	1.05	27.77
159.40	1.08	0.05	52.73	1.00	1.07	1.07	25.87
377.28	1.09	0.06	43.44	0.67	1.13	1.14	19.20
520.45	1.14	0.05	40.30	0.80	1.17	1.17	15.71
595.15	1.16	0.06	39.39	0.70	1.18	1.19	14.22
813.03	1.21	0.06	36.87	0.68	1.20	1.20	11.58
1037.13	1.29	0.06	34.02	0.70	1.17	1.18	10.27
1180.30	1.30	0.06	32.88	0.61	1.13	1.15	10.35
1248.78	1.26	0.06	32.28	0.66	1.10	1.13	10.47
1255.00	1.27	0.06	32.32	0.69	1.10	1.13	10.50
1472.88	1.34	0.05	31.11	0.62	1.04	1.10	12.99
1696.98	1.43	0.07	30.68	0.62	1.12	1.17	23.96
1840.15	1.63	0.09	29.53	0.60	1.19	1.24	76.42
1914.85	1.61	0.08	29.66	0.67	1.22	1.28	429.47
2132.73	1.79	0.09	28.33	0.92	1.28	1.34	42.78
2350.60	1.67	0.07	26.88	1.15	1.36	1.37	205.26
2425.30	1.71	0.07	27.69	1.12	1.38	1.39	152.56
2500.00	1.79	0.09	28.69	1.09	1.40	1.40	62.42



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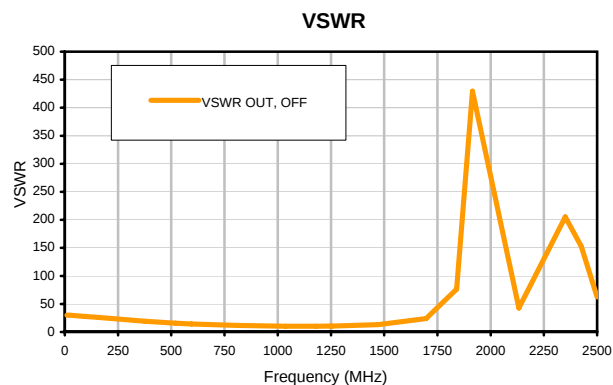
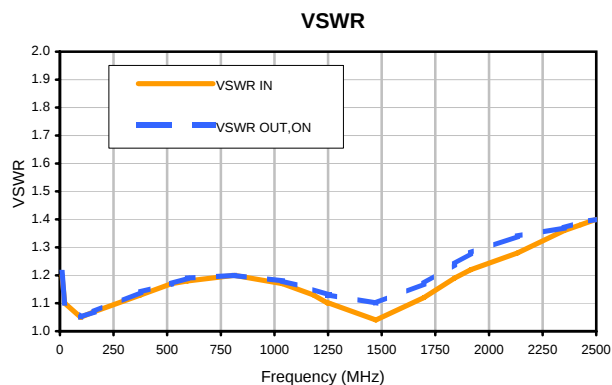
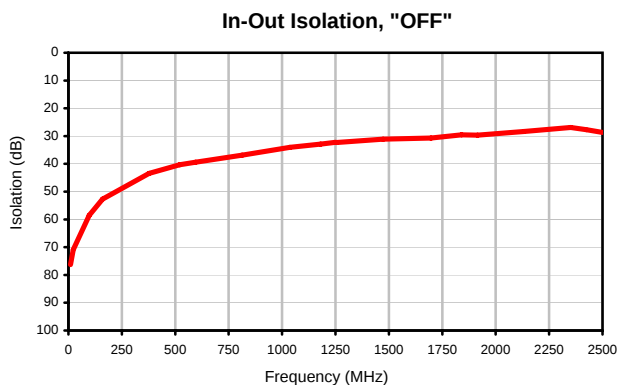
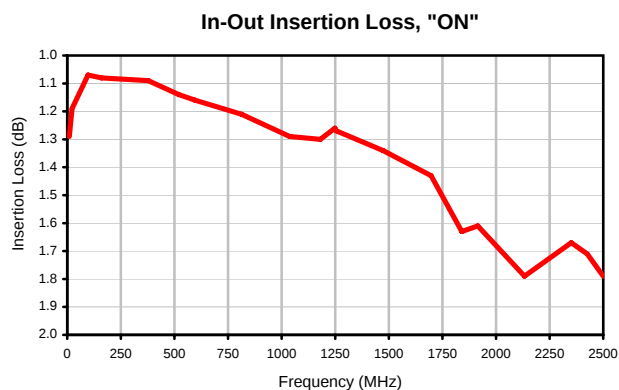
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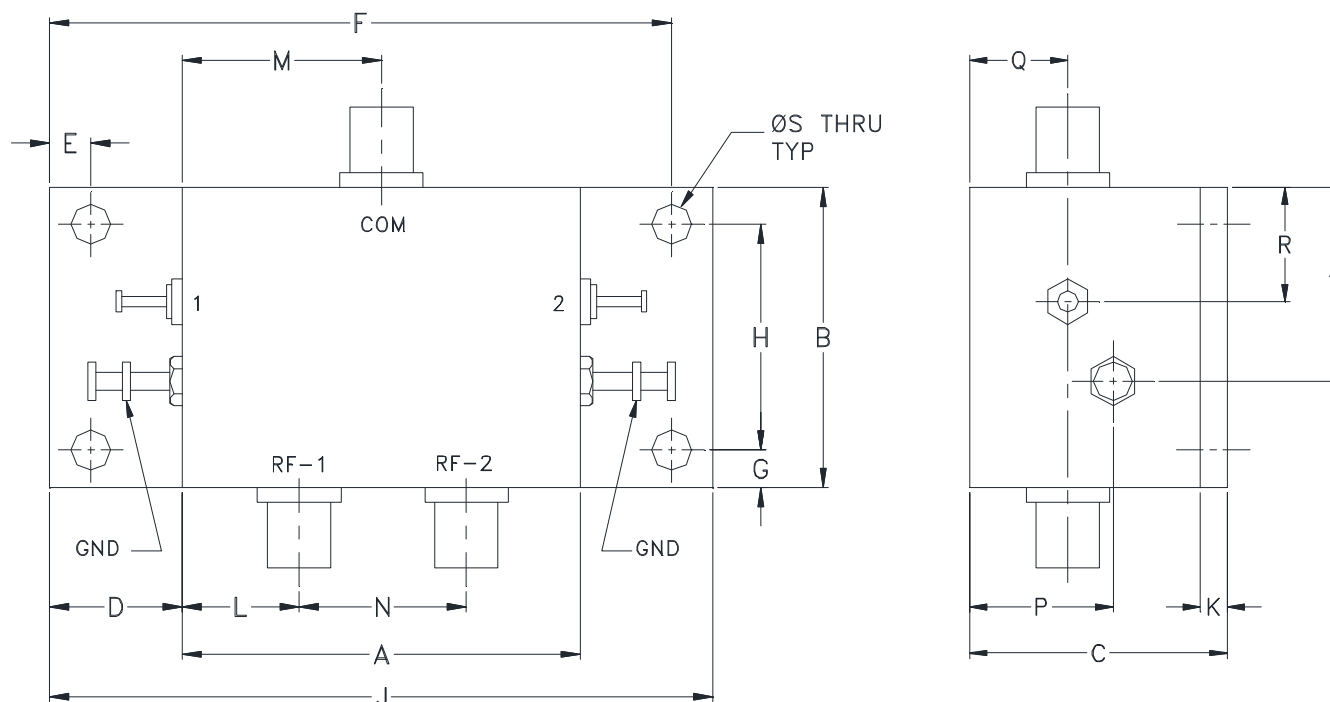
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS C1=0V,C2=5V (dB) IN-OUT , "ON"	ISOLATION C1=5V,C2=0V (dB) IN-OUT , "OFF"	VSWR		
			IN	(:1) OUT , "ON"	OUT , "OFF"
10	1.29	76.25	1.20	1.21	30.07
22	1.19	70.93	1.10	1.10	30.07
97	1.07	58.52	1.05	1.05	27.77
159	1.08	52.73	1.07	1.07	25.87
377	1.09	43.44	1.13	1.14	19.20
520	1.14	40.30	1.17	1.17	15.71
595	1.16	39.39	1.18	1.19	14.22
813	1.21	36.87	1.20	1.20	11.58
1037	1.29	34.02	1.17	1.18	10.27
1180	1.30	32.88	1.13	1.15	10.35
1249	1.26	32.28	1.10	1.13	10.47
1255	1.27	32.32	1.10	1.13	10.50
1473	1.34	31.11	1.04	1.10	12.99
1697	1.43	30.68	1.12	1.17	23.96
1840	1.63	29.53	1.19	1.24	76.42
1915	1.61	29.66	1.22	1.28	429.47
2133	1.79	28.33	1.28	1.34	42.78
2351	1.67	26.88	1.36	1.37	205.26
2425	1.71	27.69	1.38	1.39	152.56
2500	1.79	28.69	1.40	1.40	62.42

Typical Performance Curves



Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
JJ77	1.50 (38.10)	1.13 (28.70)	1.0 (25.40)	.50 (12.70)	.155 (3.94)	2.345 (59.56)	.14 (3.56)	.850 (21.59)	2.50 (63.50)	.13 (3.18)	.44 (11.18)	.75 (19.05)	.63 (16.00)

CASE#	P	Q	R	S	T	WT. GRAMS
JJ77	.57 (14.35)	.39 (9.78)	.43 (10.92)	.150 (3.81)	.73 (18.54)	50.0

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

Notes:

- Case material: Aluminum alloy.
- Case finish:

For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



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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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I