

50Ω SPDT, Absorptive DC<sup>3</sup> to 2.0 GHz

CASE STYLE: XX211

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input Power	see Note 1
Control Current	see Note 2
Permanent damage may occur if any of these limits are exceeded	

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

Suggested Layout,  
Tolerance to be within  $\pm 0.002$


A	B	C	D	E	F	G
.163	.210	.077	.250	.220	.050	.017
4.14	5.33	1.96	6.35	5.59	1.27	0.43


  

H	J	K	M	N	P	wt
.009	.025	.030	.050	.030	.270	grams
0.23	0.64	0.76	1.27	0.76	6.86	0.10

NOTE: (SEE NOTE BELOW)

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020"  $\pm$  .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

**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/MCStore/terms\\_iso](http://www.minicircuits.com/MCStore/terms_iso)

- wideband, DC to 2.0 GHz
- low video leakage, 8 mVp-p typ.
- very fast switching, 5ns typ.

- cellular
- PCN
- 2-way radio
- receiver antenna switching

FREQ. <sup>3</sup> (GHz)		INSERTION LOSS (dB)								1dB COMPR. (dBm)				IN-OUT ISOLATION (dB)											
		DC-100 MHz		100-500 MHz		500-1000 MHz		1000-2000 MHz		DC-100 MHz		100-500 MHz		500-1000 MHz		1000-2000 MHz		DC-100 MHz		100-500 MHz		500-1000 MHz		1000-2000 MHz	
f <sub>c</sub>	f <sub>u</sub>	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
DC	2.0	0.65	0.9	0.9	1.2	0.95	1.3	1.20	1.5	20	24	27	29	60	50	45	37	40	32	30	25				

Control Voltage	-8/0 for compression spec, -8 to -5/0 for all other specs	
Control Current, mA	0.2 max to -8V, 0.02 max at 0 to -0.2V	
VSWR(:1)	DC-1GHz 1.2 typ.	1-2GHz 1.4 typ.
Rise/Fall time (10%-90%), ns	3 typ.	
Switching time, 50% of Control to 90% RF(Turn-on), ns	9 typ	
10% RF(Turn-off), ns	3 typ	
**Video Leakage, mVp-p 0/-5V Control	19 typ.	

Control Ports		RF outputs	
1	2	1	2
0	-V	Off	On
-V	0	On	Off

1. RF Power Input (dBm), Max. DC-100MHz	100-500 MHz	500-2000MHz
• Steady State Control 0/-8V	24	33
• As a Modulator	12	23

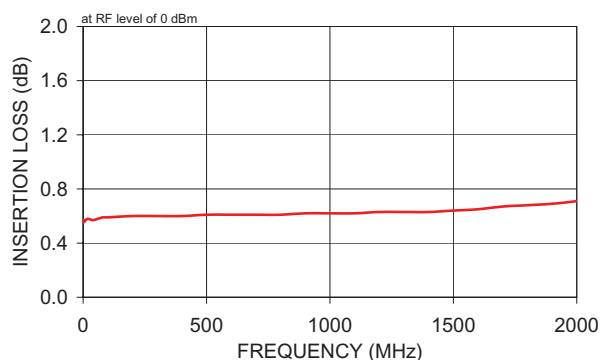
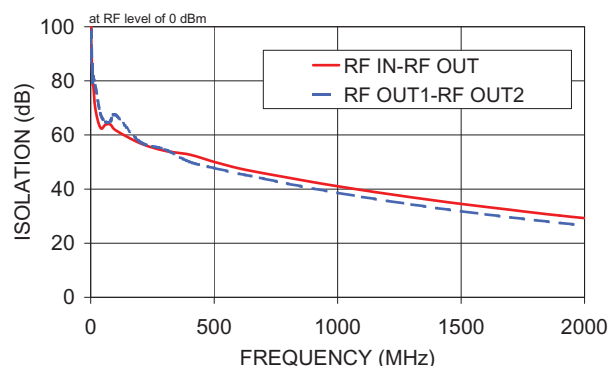
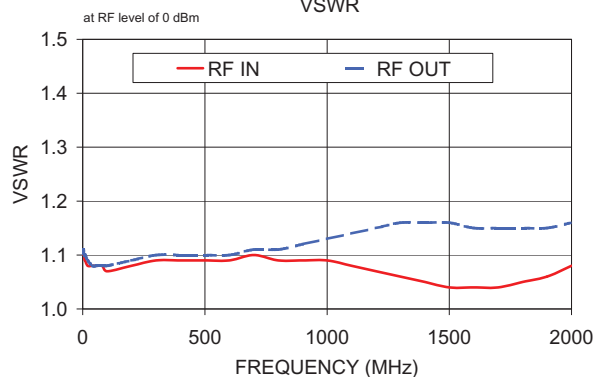
2. Control Current, 500µA (occurs at -9V to -12V typ.)

3. All RF connections must be DC blocked or held at 0V DC.

The diagram shows a 2-way switch circuit. An RF IN signal enters from the top. The circuit branches into two paths, RF OUT1 and RF OUT2. Each path includes a 50 OHM resistor connected to ground. The circuit is controlled by two lines, CONTROL1 and CONTROL2, which are connected to the switch mechanism. The RF IN signal is routed to either RF OUT1 or RF OUT2 based on the control signals.

## Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) Control @ 0V/-5V)	OFF ISOLATION (dB) Control @ 0V/-5V)		VSWR	
		RF IN - RF OUT	RF OUT 1-RF OUT 2	RF IN	RF OUT
0.3	0.55	86.64	87.15	1.11	1.11
10.0	0.57	78.95	81.46	1.09	1.10
100.0	0.59	61.84	67.44	1.07	1.08
200.0	0.60	56.95	57.49	1.08	1.09
300.0	0.60	54.13	54.74	1.09	1.10
400.0	0.60	52.77	50.08	1.09	1.10
500.0	0.61	50.05	47.79	1.09	1.10
600.0	0.61	47.67	45.68	1.09	1.10
700.0	0.61	45.86	43.87	1.10	1.11
800.0	0.61	44.23	41.94	1.09	1.11
900.0	0.62	42.57	40.21	1.09	1.12
1000.0	0.62	41.06	38.64	1.09	1.13
1100.0	0.62	39.61	37.10	1.08	1.14
1200.0	0.63	38.25	35.67	1.07	1.15
1300.0	0.63	36.95	34.30	1.06	1.16
1400.0	0.63	35.70	33.02	1.05	1.16
1500.0	0.64	34.52	31.82	1.04	1.16
1600.0	0.65	33.41	30.67	1.04	1.15
1700.0	0.67	32.34	29.57	1.04	1.15
1800.0	0.68	31.24	28.52	1.05	1.15
1900.0	0.69	30.21	27.51	1.06	1.15
2000.0	0.71	29.26	26.54	1.08	1.16

MSWA-2-20+  
INSERTION LOSSMSWA-2-20+  
ISOLATIONMSWA-2-20+  
VSWR

## Notes

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