Surface Mount

Switch

50Ω SPDT, Absorptive DC[3] to 2.0 GHz

MSWA-2-20+

CASE STYLE: XX211
PRICE: $2.95 ea. QTY(20)

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000

Maximum Ratings

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.

Pin Connections

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

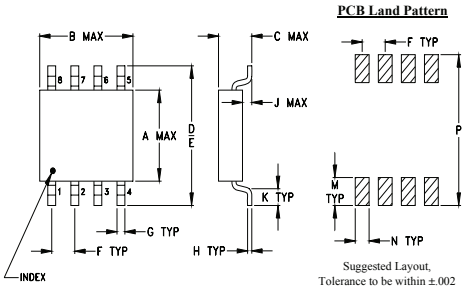
Features

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

Applications

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

Outline Drawing



Outline Dimensions (inch / mm)

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	0.19

Electrical Specifications

FREQ.[3] (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_L	f_U	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Typ.	Typ.	Typ.	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

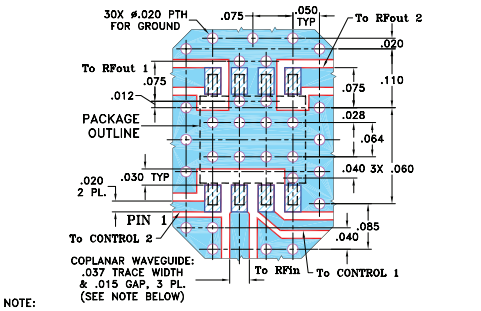
Additional Specifications		
Control Voltage	**-8/0 for compression spec, -8 to -5/0 for all other specs**	
Control Current, mA	**0.2 max to -8V, 0.02 max at 0 to -0.2V**	
VSWR(:1)	**DC-1GHz 1.2 typ.**	**1-2GHz 1.4 typ.**
Rise/Fall time (10%-90%), ns	**3 typ.**	
Switching time, 50% of Control to		
90%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

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

** Video leakage or break through is defined as leakage of switching signal to RF output ports.

1. RF Power Input (dBm), Max. DC-100MHz 100-500 MHz 500-2000MHz
   - Steady State Control 0/-8V 24 27 33
   - As a Modulator 12 17 23
2. Control Current, 500µA (occurs at -9V to -12V typ.)
3. All RF connections must be DC blocked or held at 0V DC.

Demo Board MCL P/N: TB-205
Suggested PCB Layout (PL-219)

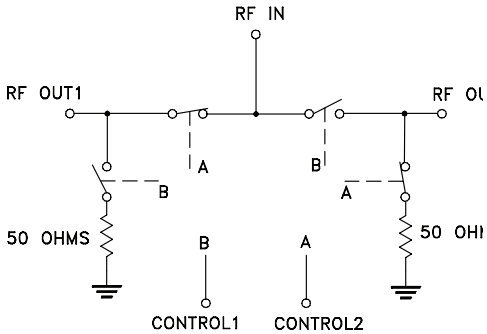


NOTE:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Schematic



Notes

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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.
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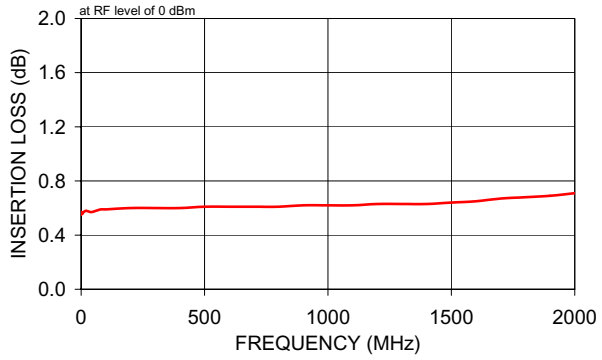
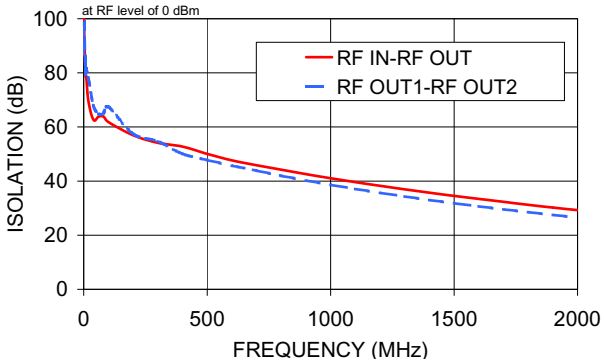
Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) Control @ 0V/-5V)	OFF ISOLATION (dB) Control @ 0V/-5V)		VSWR	
				RF IN	RF OUT
	RF IN-RF OUT	RF IN - RF OUT	RF OUT 1-RF OUT 2		
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

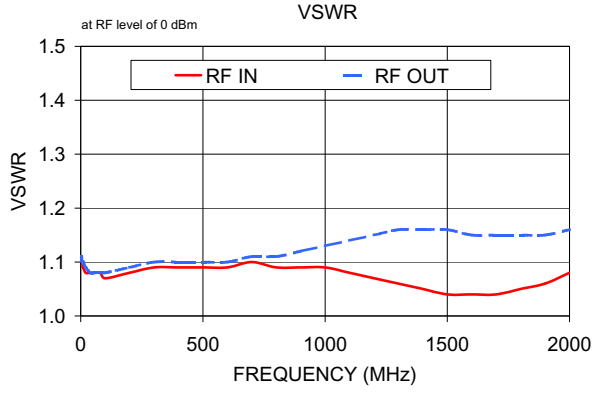
MSWA-2-20+
INSERTION LOSS



MSWA-2-20+
ISOLATION



MSWA-2-20+
VSWR



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