Surface Mount

Switch

50Ω SPDT, Reflective DC to 2.0 GHz

MSW-2-20+
MSW-2-20

CASE STYLE: XX211-1

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

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

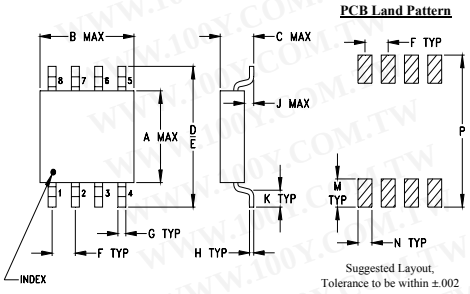
Features

- wideband, DC to 2.0 GHz
- very fast switching, 4ns typ.
- low insertion loss, 0.5 dB typ.
- low video leakage, 15 mVp-p 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	0.10

Electrical Specifications

FREQ. (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	0.30	0.6	0.4	0.7	0.50	1.0	0.75	1.3	22	23	24	25	55	50	43	36	34	28	24	20

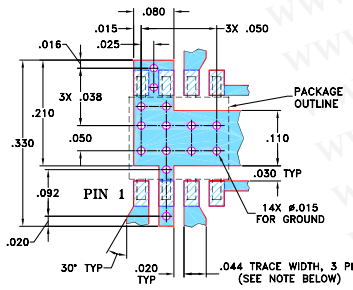
Additional Specifications		
Control Voltage	-8/0 for compression spec, -8 to -5/0 for all other specs	
Control Current, mA	0.2 max to -8V, 0.02 max at 0 to -0.2V	
VSWR(:1)	DC-1GHz 1.2 typ.	1-2GHz 1.4 typ.
Rise/Fall time (10%-90%), ns Switching time, 50% of Control to 90% RF(Turn-on), ns 10% RF(Turn-off), ns	2 typ. 4 typ 4 typ	
**Video Leakage, mVp-p 0/-5V Control	15 typ.	

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

1. RF Power Input(dBm), Max.DC-100MHz100-500MHz500-2000MHz
   - Steady State Control 0/-8V 23 27 31
   - As a Modulator 11 17 21
2. Control Current, 500µA (occurs at -9V to -12V typ)
3. OFF state of RF output is low impedance
4. All RF pins must be DC blocked or held at 0V DC.

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

Demo Board MCL P/N: TB-203
Suggested PCB Layout (PL-108)

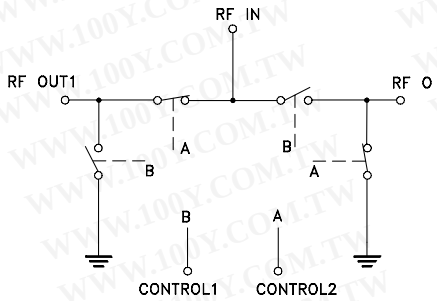


NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

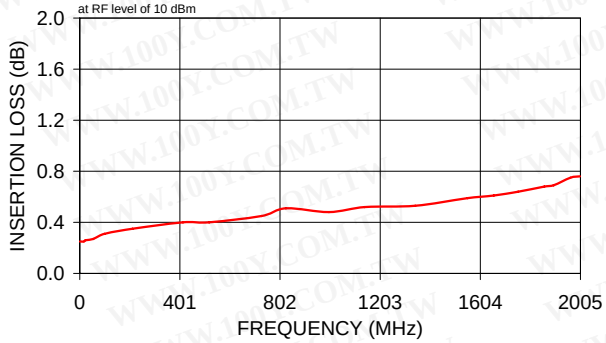
Electrical Schematic



Typical Performance Data

FREQ. (MHz)	ON	INSERTION LOSS (dB) Control @ 0V/-5V) IN-OUT		OFF ISOLATION (dB) Control @ 0V/-5V) IN-OUT		VSWR IN	VSWR OUT
		$\overline{x}$	σ	$\overline{x}$	σ	$\overline{x}$	ON $\overline{x}$
1.00		0.25	0.00	80.61	2.40	1.05	1.05
15.99		0.25	0.01	72.05	0.66	1.05	1.05
23.49		0.26	0.01	67.53	1.14	1.05	1.05
53.48		0.27	0.00	61.77	0.91	1.05	1.04
98.46		0.31	0.01	54.45	0.63	1.04	1.04
210.93		0.35	0.01	46.92	0.43	1.04	1.05
413.36		0.40	0.02	41.26	0.42	1.06	1.06
518.32		0.40	0.02	38.51	0.24	1.06	1.06
728.25		0.45	0.02	35.06	0.35	1.07	1.07
825.72		0.51	0.03	33.99	0.36	1.07	1.07
998.16		0.48	0.02	31.58	0.44	1.08	1.08
1140.62		0.52	0.03	29.73	0.45	1.08	1.08
1343.05		0.53	0.02	27.93	0.39	1.10	1.11
1552.98		0.59	0.01	26.40	0.31	1.16	1.17
1657.94		0.61	0.01	25.46	0.34	1.20	1.20
1755.41		0.64	0.02	24.84	0.31	1.25	1.24
1860.38		0.68	0.02	24.05	0.31	1.30	1.29
1897.86		0.69	0.02	23.79	0.27	1.33	1.31
1965.34		0.75	0.03	23.68	0.29	1.36	1.34
2002.83		0.76	0.02	23.33	0.28	1.38	1.36

MSW-2-20
INSERTION LOSS



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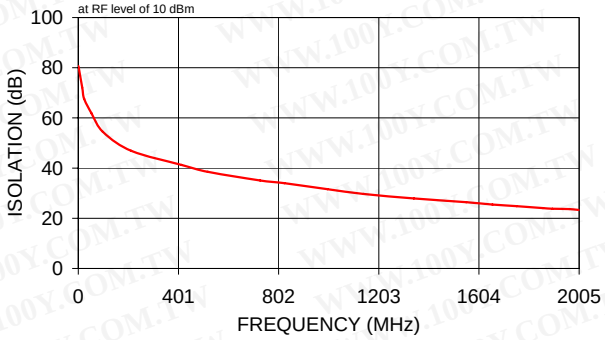
ISOLATION



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VSWR