

Surface Mount Switch

50Ω SPDT, Reflective DC to 2.0 GHz

MSW-2-20+ MSW-2-20



CASE STYLE: XX211-1
PRICE: \$2.45 ea. QTY (10)

+ 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.

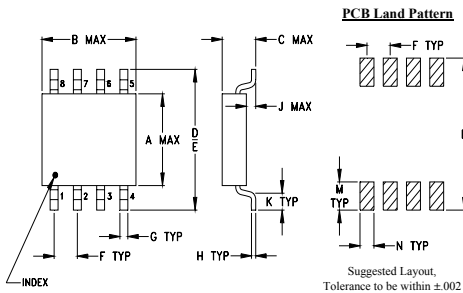
Maximum Ratings

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

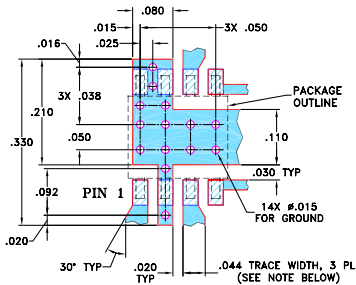
Outline Drawing



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

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



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

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.
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

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	1-2GHz
	1.2 typ.	1.4 typ.
Rise/Fall time (10%-90%), ns	2 typ.	
Switching time, 50% of Control to 90% RF(Turn-on), ns	4 typ	
10% RF(Turn-off), ns	4 typ	
**Video Leakage, mVp-p 0/-5V Control	15 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-100MHz100-500MHz500-2000MHz

• Steady State Control 0/-8V 23 27 31

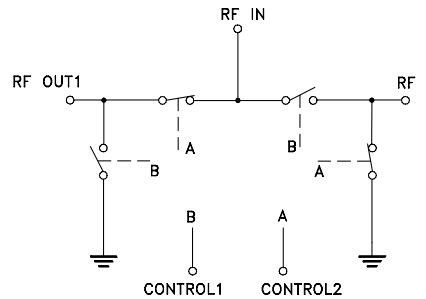
• As a Modulator 11 17 21

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.

Electrical Schematic



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp.

Typical Performance Data

FREQ. (MHz)	ON INSERTION LOSS (dB) Control @ 0V/-5V IN-OUT		OFF ISOLATION (dB) Control @ 0V/-5V IN-OUT		VSWR	
	\bar{x}	σ	\bar{x}	σ	IN	OUT
					\bar{x}	$\frac{ON}{x}$
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

