

Surface Mount High Isolation Switch

50Ω SPDT, Reflective DC to 4500 MHz

M3SW-2-50DR+



CASE STYLE: DL805
PRICE: \$4.95 ea. QTY (10-49)

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

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Supply V, Input Power	see Note 1
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

RF IN	6
RF OUT 1	1
RF OUT 2	4
TTL IN	2
+5V	5
-5V	7
TTL GND	3
GND	8
GND	PADDLE

Features

- high isolation, 65 dB typ. at 1 GHz
- low insertion loss, 0.7 dB typ.
- integral TTL driver
- miniature case style DL805

Applications

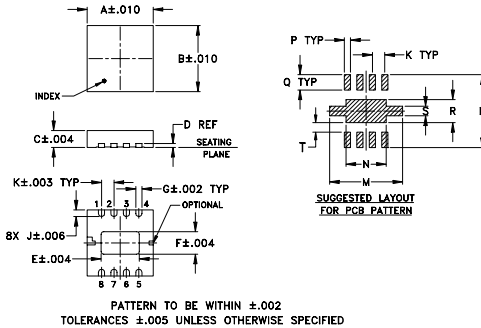
- automated switching networks
- transmitters/receivers

Electrical Specifications (T_{AMB}=25°C)

FREQ. (MHz)	INSERTION LOSS (dB)								1dB COMPR. (dBm)				IN-OUT ISOLATION (dB)										
	DC-100 MHz		100-1000 MHz		1000-2000 MHz		2000-4500 MHz		DC-100 MHz		100-1000 MHz		1000-2000 MHz		2000-4500 MHz		DC-100 MHz		100-1000 MHz		1000-2000 MHz		2000-4500 MHz
f _L	f _U	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
DC	4500	0.6	1.0	0.7	1.2	0.9	1.4	1.5	1.9	20 ¹	25	25	20	85	70	60	53	50	44	35	30		

¹drops to 17.0 dBm at 10 MHz

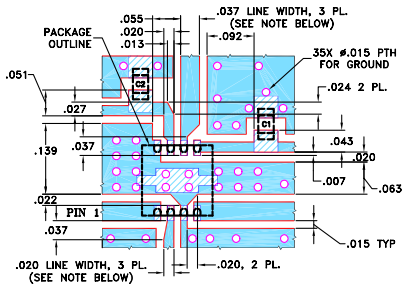
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
0.128	0.128	0.035	0.008	0.080	0.047	0.013	--	0.014	0.026
3.25	3.25	0.89	0.20	2.03	1.19	0.33	--	0.36	0.66
L	M	N	P	Q	R	S	T	wt	
0.158	0.158	0.084	0.013	0.030	0.048	0.020	0.025	grams	
4.01	4.01	2.13	0.33	0.76	1.22	0.51	0.64	0.02	

Demo Board MCL P/N: TB-159 Suggested PCB Layout (PL-120)



- 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

Additional Specifications

Power Supply Voltage @ -40°C to 85°C	@ -55°C to 100°C	Current, mA
+4.80 to +5.25V	+4.90 to +5.25V	9 max.
-5.25 to -4.80V	-5.25 to -4.90V	9 max.
TTL Control low threshold	Voltage, V	Current, mA
high threshold	0 min., 0.8 max.	0.2 max.
	2 min., 5 max.	5 max.
VSWR* (:1)	1.1 Typ. to 2GHz, 1.25 Typ. to 4.5 GHz	
Rise/Fall Time, ns	5 Typ., 10 Max.	
Switching Time, ns turn on/off	10 Typ., 15 Max.	
Video Leakage*, mVp-p	30 Typ.	

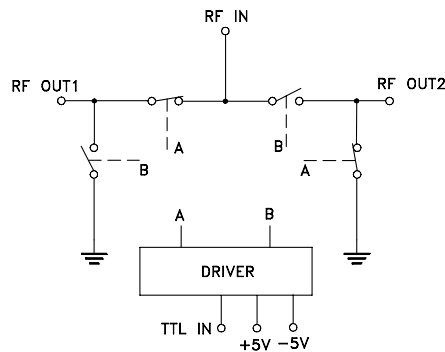
* For all states of reflective switch in "ON" condition; "OFF port": 5:1 VSWR typ.

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

1. Absolute maximum power and voltage rating:
RF input power, 250mW
Supply voltage: ±6V DC
2. OFF state of RF output is low impedance.
3. All RF pins must be DC blocked or held at 0V DC.

TTL	CONTROL LOGIC	
	RF1	RF2
LOW	ON	OFF
HIGH	OFF	ON

Electrical Schematic



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IF/RF MICROWAVE COMPONENTS

REV. F
M111924
M3SW-2-50DR+
ED-9656A
RS/TD/CP
080408
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Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB) IN-OUT		OFF ISOLATION (dB) IN-OUT		IN \bar{x}	VSWR	
	\bar{x}	σ	\bar{x}	σ		ON \bar{x}	OUT \bar{x}
0.03	0.46	0.01	90.55	2.57	1.12	1.12	5.61
0.10	0.47	0.01	89.66	3.24	1.12	1.12	5.61
1.00	0.54	0.01	102.38	5.74	1.12	1.12	5.41
10.00	0.54	0.01	93.55	1.66	1.11	1.11	5.39
20.00	0.56	0.01	88.66	1.05	1.11	1.11	5.37
60.00	0.58	0.01	79.56	0.62	1.10	1.10	5.31
100.00	0.59	0.01	74.67	0.50	1.10	1.10	5.27
400.00	0.65	0.01	61.97	0.33	1.11	1.10	5.19
600.00	0.68	0.01	58.10	0.29	1.11	1.10	5.22
1000.00	0.71	0.01	53.36	0.28	1.09	1.12	5.23
1400.00	0.75	0.01	49.71	0.24	1.07	1.17	5.10
1600.00	0.78	0.01	48.08	0.24	1.09	1.20	4.98
1800.00	0.81	0.01	46.53	0.22	1.12	1.23	4.85
2000.00	0.85	0.01	45.10	0.21	1.14	1.27	4.75
2500.00	0.90	0.01	42.61	0.21	1.16	1.32	4.80
3000.00	0.96	0.01	39.91	0.19	1.11	1.22	5.06
3500.00	1.05	0.01	38.53	0.20	1.03	1.16	5.26
4000.00	1.31	0.02	36.88	0.20	1.10	1.20	5.04
4250.00	1.45	0.02	35.73	0.18	1.15	1.27	4.86
4500.00	1.57	0.02	34.73	0.14	1.18	1.33	4.74

