

Surface Mount Switch GaAs

50Ω SP4T, TTL Driver, Absorptive DC¹ to 3 GHz

Maximum Ratings

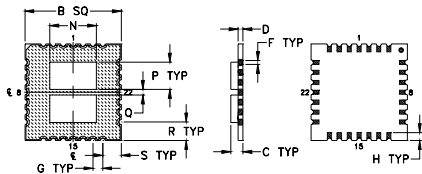
Operating Temperature	-30°C to 85°C
Storage Temperature	-55°C to 100°C
Input Power	see table
Vcontrol	(V+) +0.4V

Permanent damage may occur if any of these limits are exceeded.

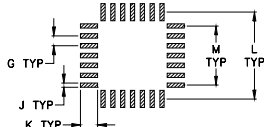
Pin Connections

RF IN	1
RF OUT 1	25
RF OUT 2	21
RF OUT 3	9
RF OUT 4	5
CONTROL 1	15
CONTROL 2	16
CONTROL 3	13
CONTROL 4	14
+5V (V+)	12
-5V (V-)	18
GROUND	all other pins

Outline Drawing



PCB Land Pattern

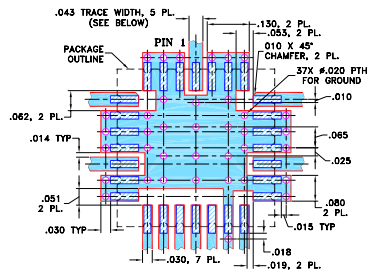


Suggested Layout,
Tolerance to be within ±0.02

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J
—	.487	.06	.025	—	.020	.050	.040	.022
—	12.37	1.55	0.64	—	0.51	1.27	1.02	0.56
K	L	M	N	P	Q	R	S	wt
.087	.441	.300	.236	.138	.03	.094	.094	grams
2.21	11.20	7.62	5.99	3.51	0.76	2.39	2.39	0.71

Demo Board MCL PIN: TB-91 Suggested PCB Layout (PL-221)



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020 ± .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

Notes

- 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.
- 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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Features

- wideband, DC to 3 GHz
- high isolation, 37 dB typ.
- low video leakage, 30 mVp-p typ.
- integral TTL driver
- aqueous washable

Applications

- cellular, PCN
- satellite communication
- receiver antenna switching

GSWA-4-30DR+



CASE STYLE: AN1102

+RoHS Compliant

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

Electrical Specifications

FREQ. ¹ (GHz)	INSERTION LOSS (dB)						1dB COMPR. (dBm)			IN-OUT ISOLATION (dB)					
	f _L	f _U	DC-500 MHz		500-2000 MHz		2000-3000 MHz			DC-500 MHz		500-2000 MHz		2000-3000 MHz	
			Typ.	Max.	Typ.	Max.	Typ.	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.
DC 3			1.25	1.8	2.0	3.0	2.75	3.9	23*	25	25	50	40	37	32

*1dB compression gradually decreases to 10 dBm @ 1 MHz

Additional Specifications

*Control Voltage	0/V+		
Low Threshold	0.8 max.		
High Threshold	3.5 min.		
Control Current, mA	High V: 0.2 max.; Low V: 0.02 max.		
Positive Supply V. (V+)	+5±0.5		
Negative Supply V. (V-)	-5±0.25		
Positive Supply Current, mA	4 max		
Negative Supply Current, mA	20 max.		
VSWR(:1)	1.28 typ., ON DC-2 GHz 1.24 typ., OFF DC-2 GHz		
Rise/Fall time (10%-90%), ns	25 typ.		
Switching time, 50% of Control to 90% RF (Turn-on), ns	45 typ.		
10% RF (Turn-off), ns	30 typ.		
**Video Leakage, mVp-p	30 typ.		
0/+5V Control	30X10 ⁶		
MTBF, hrs @85°C case	30X10 ⁶		
Max. Input Power, dBm	DC-100 MHz	100-500 MHz	500-3000 MHz
Steady state control	+20	+24	+30
As modulator	+8	+14	+20

* Do not apply control voltage high prior to applying V+

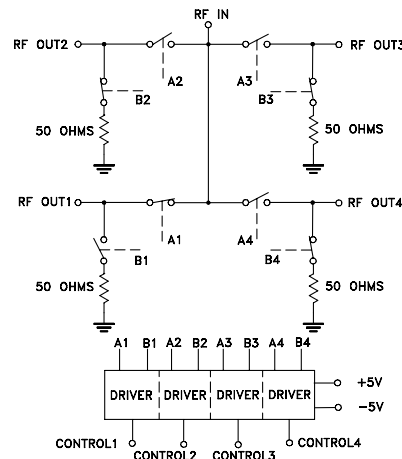
** Video leakage or break through is defined as leakage of TTL switching signal to RF output ports.

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

CONTROL LOGIC

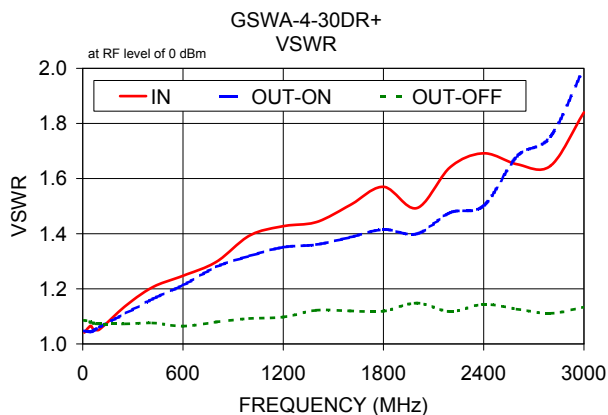
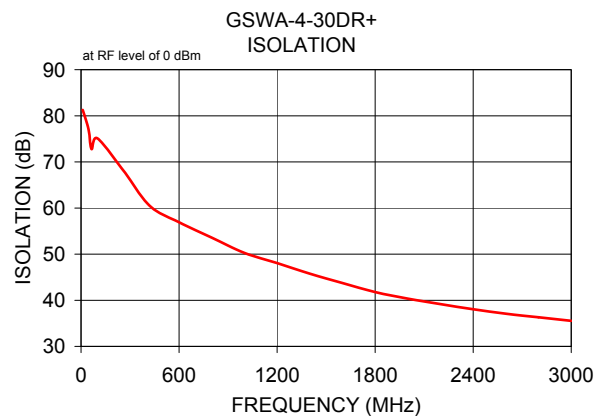
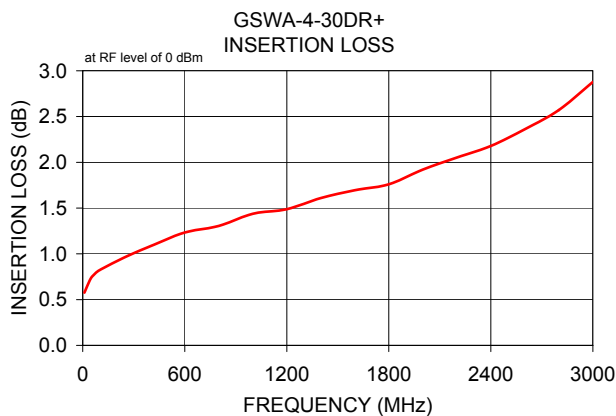
Control Ports				RF outputs			
1	2	3	4	1	2	3	4
Low	High	High	High	On	Off	Off	Off
High	Low	High	High	Off	On	Off	Off
High	High	Low	High	Off	Off	On	Off
High	High	High	Low	Off	Off	Off	On

Electrical Schematic



Typical Performance Data

FREQ. (MHz)	ON		OFF ISOLATION (dB)		VSWR		
	TTL Low @ 0V		TTL High @ 5V		IN	OUT	
	IN-OUT		IN-OUT			ON	OFF
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	$\bar{x}$	$\bar{x}$
10	0.58	0.025	81.27	4.21	1.04	1.05	1.09
28	0.66	0.018	73.11	4.37	1.06	1.04	1.08
64	0.77	0.017	72.78	6.25	1.05	1.05	1.08
100	0.82	0.015	75.11	4.71	1.05	1.06	1.07
260	0.97	0.010	68.08	5.57	1.14	1.11	1.07
420	1.10	0.012	60.51	1.69	1.21	1.16	1.08
600	1.23	0.014	56.91	1.13	1.25	1.21	1.06
800	1.31	0.011	53.59	1.34	1.30	1.28	1.08
1000	1.44	0.018	50.26	0.95	1.39	1.32	1.09
1200	1.49	0.019	48.06	0.56	1.43	1.35	1.10
1400	1.61	0.023	45.78	0.44	1.44	1.36	1.12
1600	1.70	0.025	43.73	0.35	1.50	1.39	1.12
1800	1.76	0.018	41.79	0.33	1.57	1.42	1.12
2000	1.92	0.025	40.34	0.40	1.49	1.40	1.15
2200	2.05	0.025	39.17	0.37	1.64	1.48	1.12
2400	2.18	0.026	38.05	0.41	1.69	1.50	1.14
2600	2.36	0.030	37.08	0.32	1.65	1.68	1.13
2800	2.57	0.037	36.32	0.30	1.65	1.75	1.11
3000	2.88	0.048	35.55	0.34	1.84	2.00	1.13



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