

Surface Mount Switch GaAs

GSWA-4-30DR+ GSWA-4-30DR

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

Maximum Ratings

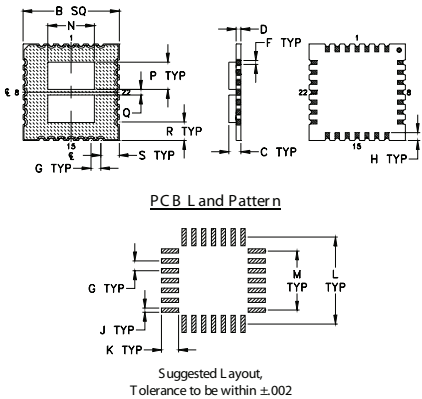
| | |
|-----------------------|----------------|
| Operating Temperature | -30°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Input Power | see table |
| Vcontrol | (V+) +0.4V |

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 |

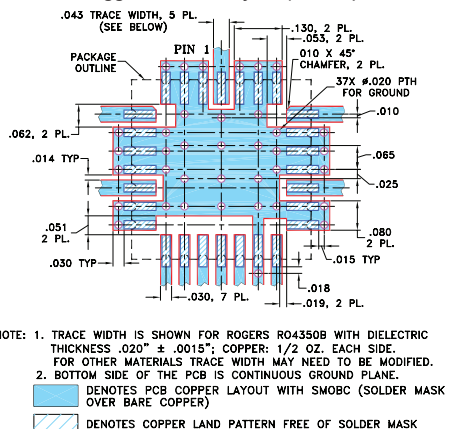
Outline Drawing



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)



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



CASE STYLE: AN1102
PRICE: \$19.95 ea. QTY (1-9)

+RoHS Compliant

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

Electrical Specifications

| FREQ. (GHz) | INSERTION LOSS (dB) | | | | | | 1dB COMPR. (dBm) | | | IN-OUT ISOLATION (dB) | | | | | | |
|----------------|---------------------|------|--------------|------|---------------|------|------------------|--------------|---------------|-----------------------|------|--------------|------|---------------|------|------|
| | DC-500 MHz | | 500-2000 MHz | | 2000-3000 MHz | | DC-500 MHz | 500-2000 MHz | 2000-3000 MHz | DC-500 MHz | | 500-2000 MHz | | 2000-3000 MHz | | |
| f _L | f _H | Typ. | Max. | Typ. | Max. | Typ. | Max. | Typ. | Typ. | Typ. | 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 | 31 | 26 |

*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 0/+5V Control | 30X10 ⁶ |
| MTBF, hrs @85°C case | 30X10 ⁶ |
| Max. Input Power, dBm | DC-100 MHz: +20 100-500 MHz: +24 500-3000 MHz: +30 |
| Steady state control | +8 |
| As modulator | +14 |

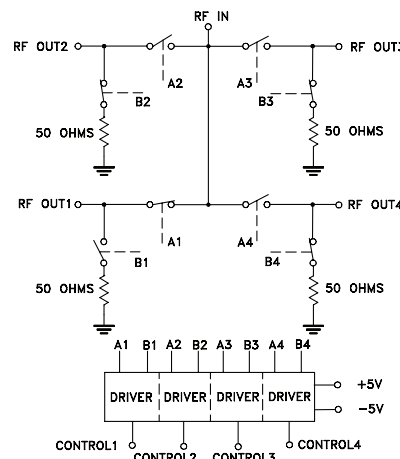
* Do not apply control voltage high prior to applying V+

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



Mini-Circuits®
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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IF/RF MICROWAVE COMPONENTS

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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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

Typical Performance Data

| FREQ. (MHz) | ON INSERTION LOSS (dB) TTL Low @ 0V IN-OUT | | OFF ISOLATION (dB) TTL High @ 5V IN-OUT | | VSWR | | |
|----------------|--|----------|---|----------|-----------|-----------|-----------|
| | \bar{x} | σ | \bar{x} | σ | IN | OUT | OFF |
| | | | | | \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 |

