

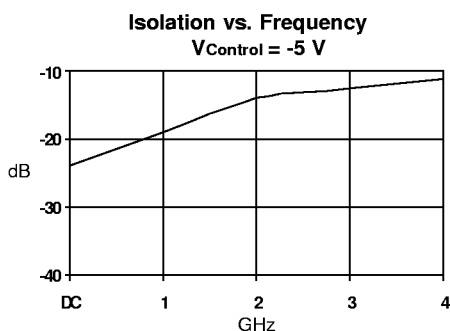


## Product Description

Stanford Microdevices' SSW-407 is a high performance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable miniature small outline plastic package.

This single-pole, double-throw, non-reflective switch consumes less than 50uA and can operate with positive or negative 3V to 10V supply voltages making it suitable for use in both infrastructure and subscriber equipment. This switch can be used in both analog and digital wireless communication systems including AMPS, PCS, DECT, and GSM.

At +5V or -5V bias, typical output power at 1dB compression is 3 watts. 1dB output power over 4 watts and IP3 over +55dBm may be achieved with higher control voltage.



## Electrical Specifications at $T_a = 25^\circ C$

| Symbol    | Parameters & Test Conditions:<br>$Z_0 = 50 \Omega$ $V = +5$ or $-5V$ |  | Units          | Min.     | Typ.              | Max.       |
|-----------|--|--|----------------|----------|-------------------|------------|
| Ins       | Insertion Loss   | $f = 0.05 - 1.0 GHz$<br>$f = 1.00 - 2.0 GHz$<br>$f = 2.00 - 4.0 GHz$ | dB<br>dB<br>dB |          | 0.9<br>0.9<br>1.5 | 1.3<br>1.5 |
| Isol      | Isolation  | $f = 0.05 - 1.0 GHz$<br>$f = 1.00 - 2.0 GHz$<br>$f = 2.00 - 4.0 GHz$ | dB<br>dB<br>dB | 24<br>18 | 28<br>22<br>18    |            |
| VSW Ron   | Input & Output VSW R<br>(on port)                                    | $f = 0.05 - 2.0 GHz$<br>$f = 2.00 - 4.0 GHz$                         |                |          | 1.2<br>1.5        |            |
| VSW R off | Input & Output VSW R<br>(off port)                                   | $f = 0.05 - 2.0 GHz$<br>$f = 2.00 - 4.0 GHz$                         |                |          | 1.2<br>1.5        |            |
| P1dB      | Output Power @ 2.0 GHz<br>at 1 dB Compression                        | $V = +8V$ or $-8V$<br>$V = +5V$ or $-5V$<br>$V = +3V$ or $-3V$       | dB<br>dB<br>dB |          | +36<br>+34<br>+31 |            |
| TOIP      | Third Order Intercept  | $V = +8V$ or $-8V$<br>$V = +5V$ or $-5V$<br>$V = +3V$ or $-3V$       | dB<br>dB<br>dB |          | +55<br>+53<br>+50 |            |
| Id        | Device Current   |  | uA             |          | 40                |            |
| Isw       | Switching Speed<br>10% to 90% or 90% to 10%                          |  | nsec           |          | 10                |            |

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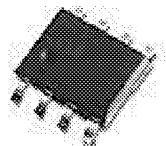
522 Almanor Ave., Sunnyvale, CA 94086

Phone: (800) SMI-MMIC

<http://www.stanfordmicro.com>

## SSW-407

## DC-4 GHz High Power GaAs MMIC SPDT Switch



## Product Features

- High Compression Point : up to 4 Watts
- High Linearity : TOIP +55dBm @2GHz
- Low DC Power Consumption
- Low Insertion Loss : 0.9dB at 2GHz
- Operates from Positive or Negative 3V to 10V Supplies
- Low Cost Small Outline Plastic Package

## Applications

- Analog/Digital Cellular
- Spread Spectrum
- GPS

## SSW-407 DC-6 GHz High Power GaAs MMIC SPDT Switch

### Absolute Maximum Ratings

|                        |               |
|------------------------|---------------|
| RF Input Power         | 6W Max>500MHz |
| Device/Control Voltage | -10V or +10V  |
| Operating Temperature  | -45C to +85C  |
| Storage Temperature    | -65C to +150C |
| Thermal Resistance     | 20 deg C/W    |

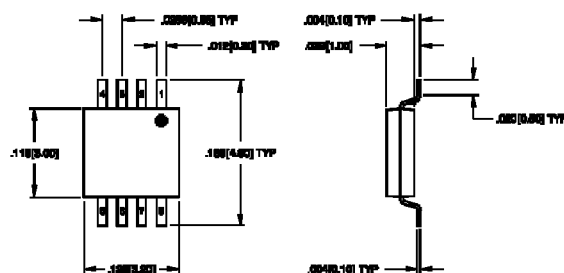
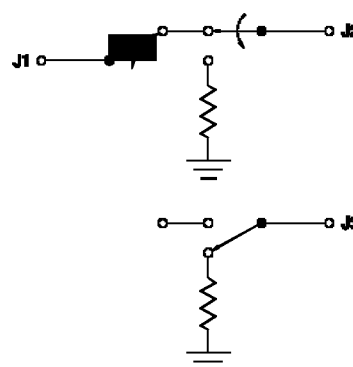
### Truth Table

| V1  | V2  | J1-J2     | J1-J3     |
|-----|-----|-----------|-----------|
| 0   | -5  | Low Loss  | Isolation |
| -5  | 0   | Isolation | Low Loss  |
| 0   | Vdd | Low Loss  | Isolation |
| Vdd | 0   | Isolation | Low Loss  |

### Pin Out

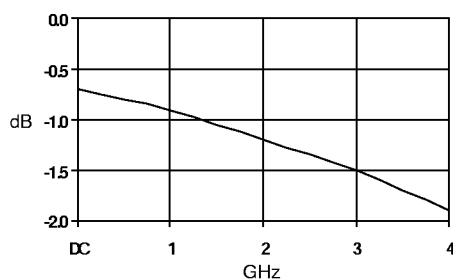
| Pin | Function |
|-----|----------|
| 1   | GND      |
| 2   | V1       |
| 3   | J1       |
| 4   | V2       |
| 5   | J3       |
| 6   | Vdd      |
| 7   | GND      |
| 8   | J2       |

### Switch Schematic



Dimensions are in inches [mm]

Insertion Loss vs. Frequency  
V<sub>Control</sub> = -5 V



On Port Input/Output VSWR vs. Frequency  
V<sub>Control</sub> = -5 V

