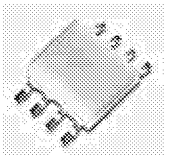
Stanford Microdevices

SSW-424

DC-6 GHz High Power GaAs MMIC SPDT Switch



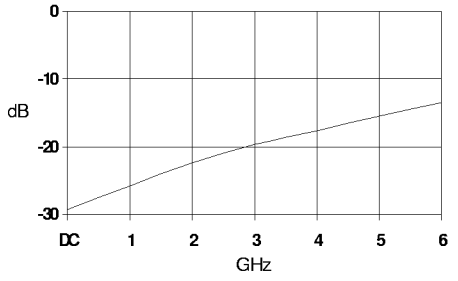
Product Description

Stanford Microdevices' SSW-424 is a high performance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable 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, DEC, 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 voltages.

Isolation vs. Frequency
$V_{Control}$ = -5 V



Product Features

- **High Compression Point : up to 4 Watts**
- **HIgh LInearity : TOIP +55dBm at 2GHz**
- **Low DC Power Consumption**
- **Low Insertion Loss : 0.7dB at 2GHz**
- **Operates from Positive or Negative 3V to 10V Supplies**
- **Low Cost Surface-Mountable Ceramic Package**

Applications

- **Analog/Digital Wireless Communications**
- **AMPS, PCS, DEC and GSM**

Switches

Electrical Specifications at Ta = 25C

Symbol	Parameters & Test Conditions: Z_0=50 ohms V= +5 or -5V		Units	Min.	Typ.	Max.
Ins	Insertion Loss	f = 0.05-2.0 GHz f = 2.00-4.0 GHz f = 4.00-6.0 GHz	dB dB dB		0.7 0.9 1.2	1.0 1.3
Isol	Isolation	f = 0.05-2.0 GHz f = 2.00-4.0 GHz f = 4.00-6.0 GHz	dB dB dB	20 15	25 20 15	
VSWRon	Input & Output VSWR (on port)	f = 0.05-2.0 GHz f = 2.00-6.0 GHz	- -		1.1 1.3	
VSWRoff	Input & Output VSWR (off port)	f = 0.05-2.0 GHz f = 2.00-6.0 GHz	- -		1.1 1.3	
P_{1dB}	Output Power @ 2.0 GHz at 1dB Compression	V = +8V or -8V V = +5V or -5V V = +3V or -3V	dBm dBm dBm		+36 +34 +31	
TOIP	Third Order Intercept Point	V = +8V or -8V V = +5V or -5V V = +3V or -3V	dBm dBm dBm		+55 +53 +50	
ID	Device Current		uA		40	
Isw	Switching Speed 10% to 90% or 90% to 10%		nsec		10	

SSW-424 DC-6GHz High Power GaAs MMIC SPDT Switch

Absolute Maximum Ratings

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

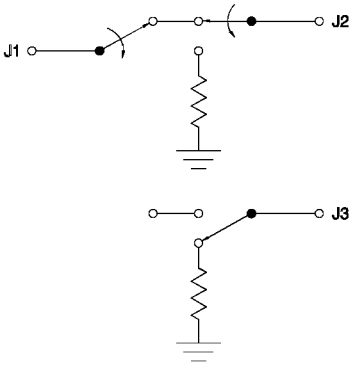
Truth Table

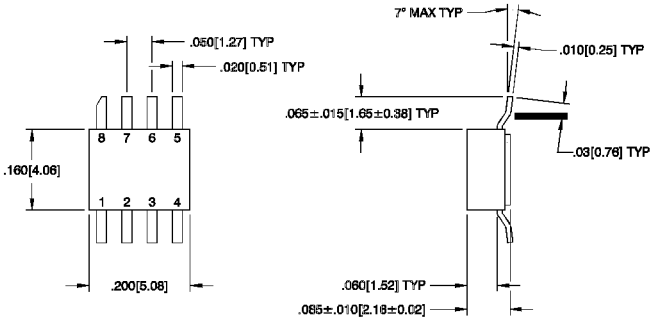
V1	V2	J1-J2	J1-J3
-5	0	Low Loss	Isolation
0	-5	Isolation	Low Loss
Vdd	0	Low Loss	Isolation
0	Vdd	Isolation	Low Loss

Pin Out

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

Switch Schematic





Pin numbers shown for reference only, not marked on part

Insertion Loss vs. Frequency

$V_{Control}$ = -5 V

On Port Input/Output VSWR vs. Frequency

$V_{Control}$ = -5 V