SSW-508

DC-4 GHz GaAs MMIC SPST Switch

Product Description

Stanford Microdevices' SSW-508 is a high performance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable 8-pin small outline plastic package.

This single-pole, single-throw, non-reflective switch consumes less than 50uA and operates at -5V and 0V for control bias. P1dB at -5V is +25dBm typical and can be increased to +28dBm with -8V supply.

The die is fabricated using 0.5 micron FET process with gold metallization and silicon nitride passivation to achieve excellent performance and reliability.

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

Product Features

- **High Isolation : 40dB at 1GHz, 30dB at 2GHz**
- **Low DC Power Consumption**
- **Low Insertion Loss : 1.0dB at 2GHz**
- **Non-Reflective**
- **Low Cost Small Outline Plastic Package**

Applications

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

Electrical Specifications at Ta = 25C

Symbol	Parameters & Test Conditions: Z_0=50 ohms V= -5V		Units	Min.	Typ.	Max.
Ins.	Insertion Loss	f = 0.05-1.0 GHz f = 1.00-2.0 GHz f = 2.00-4.0 GHz	dB dB dB		0.8 1.0 1.2	1.2 1.4
Isol.	Isolation	f = 0.05-1.0 GHz f = 1.00-2.0 GHz f = 2.00-4.0 GHz	dB dB dB	35 25	45 35 30	
VSWRon	Input & Output VSWR (on or low loss state)	f = 0.05-2.0 GHz f = 2.00-4.0 GHz	- -		1.3 1.7	
VSWRoff	Input & Output VSWR (off or isolated state)	f = 0.05-2.0 GHz f = 2.00-4.0 GHz	- -		1.3 1.7	
P_{1dB}	1dB Compression at 2.0 GHz	V = -5V V = -8V	dBm dBm		+25 +28	
TOIP	Third Order Intercept Point	V = -5V V = -8V	dBm dBm		+44 +47	
ID	Device Current		uA		40	
Isw	Switching Speed 10% to 90% or 90% to 10%		nS		10	

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Absolute Maximum Ratings

RF Input Power	2W Max>500MHz
Device Voltage	-10V
Operating Temperature	-45C to +85C
Storage Temperature	-65C to +150C
Thermal Resistance	20 deg C/W

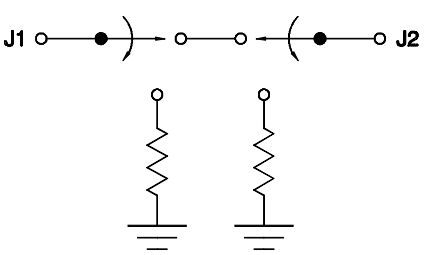
Truth Table

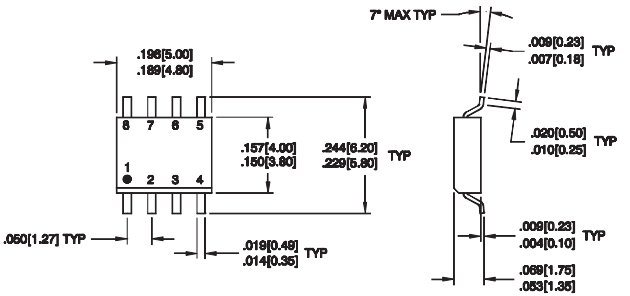
V1	V2	J1-J2	J1-J3
-5	0	Low Loss	Isolation
0	-5	Isolation	Low Loss

Pin Out

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

Switch Schematic

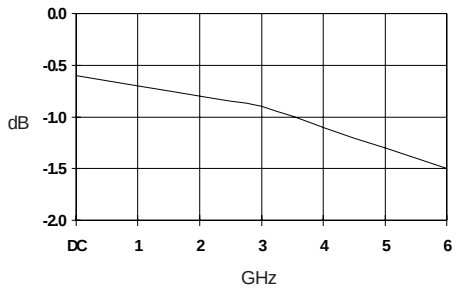




Pin numbers shown for reference only, not marked on part

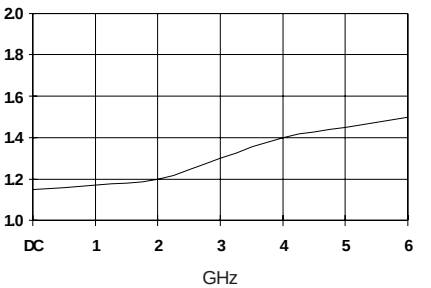
Insertion Loss vs. Frequency

$V_{Control}$ = -5 V



On Port Input/Output VSWR vs. Frequency

$V_{Control}$ = -5 V



Switches