Stanford Microdevices

Product Description

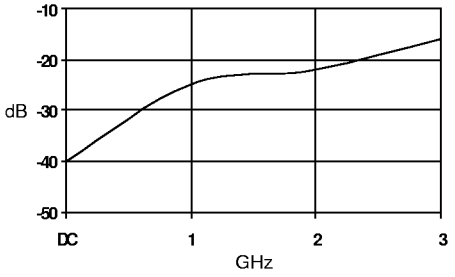
Stanford Microdevices' SSW-307 is a high perfomance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable miniature small outline plastic package.

This single-pole, double-throw, reflective switch consumes less than 40uA and operates with 0V/-5V control voltages. This switch can be used in both analog and digital wireless communication systems including AMPS, PCS, DECT, and GSM.

Typical output power at 1dB compression is +28dBm. 1dB output power over 1 watt may be achieved with higher control voltages.

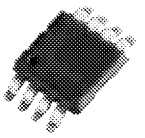
The die is fabricated using 0.5 micron FET process with gold metallization and silicon nitride passivation to achieve excellent performance and reliability.

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



SSW-307

DC-3 GHz Low Cost GaAs MMIC SPDT Switch



Product Features

- **Fast Switching Speed : 3nS**
- **HIgh LInearity : +47dBm IP3**
- **Ultra Low DC Power Consumption**
- **Low Insertion Loss : 0.6dB at 2GHz**
- **Low Cost Small Outline Plastic Package**

Applications

- **Digital Cellular**
- **Spread Spectrum**

Switches

Electrical Specifications at Ta = 25C

Symbol	Parameters: Test Conditions: Z_o=50 ohms		Units	Min.	Typ.	Max.
Ins	Insertion Loss	f = 0.05-1.0GHz f = 1.00-2.0GHz f = 1.00-3.0GHz	dB dB dB		0.6 0.6 1.2	0.9 0.9
Isol	Isolation	f = 0.05-1.0GHz f = 1.00-2.0GHz f = 1.00-3.0GHz	dB dB dB	20 17	25 22 16	
VSWRon	Input & Output VSWR (low loss state)	f = 0.05-1.0GHz f = 1.00-2.0GHz f = 1.00-3.0GHz		- - -	1.2:1 1.4:1 1.7:1	
P_{1dB}	1dB Compression at 0.5-2.0GHz	V = -8V V = -5V	dBm dBm		+31 +28	
IP_3	Third Order Intercept	V = -8V V = -5V	dBm dBm		+50 +47	
I_D	Device Current		uA		35	
Isw	Switching Speed 50% control to 10%/90%RF		nsec		3	

522 Almanor Ave., Sunnyvale, CA 94086 Phone: (800) SMI-MMIC http://www.stanfordmicro.com

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SSW-308 DC-3 GHz GaAs MMIC SPDT Switch

Absolute Maximum Ratings

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

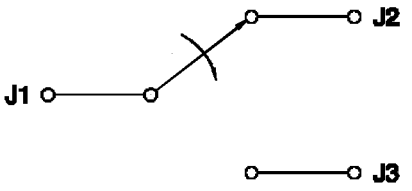
Truth Table

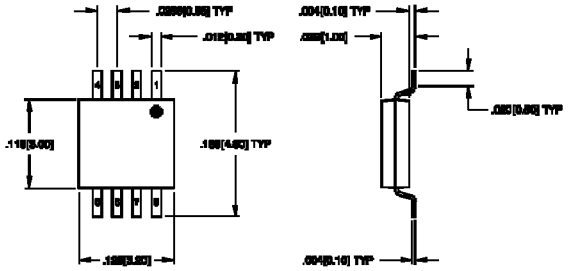
V1	V2	J1-J2	J1-J3
0	-5	Low Loss	Isolation
-5	0	Isolation	Low Loss

Pin Out

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

Switch Schematic

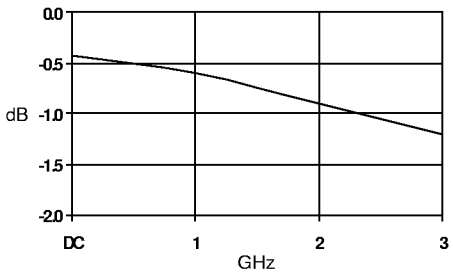




Dimensions are in inches [mm]

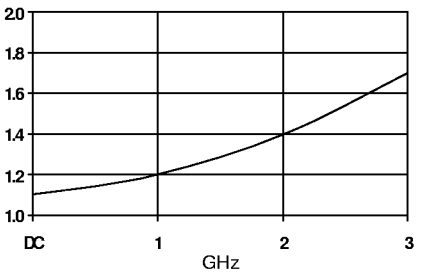
Insertion Loss vs. Frequency

$V_{Control}$ = -5 V



On Port VSWR vs. Frequency

$V_{Control}$ = -5 V



Switches