SSW-124

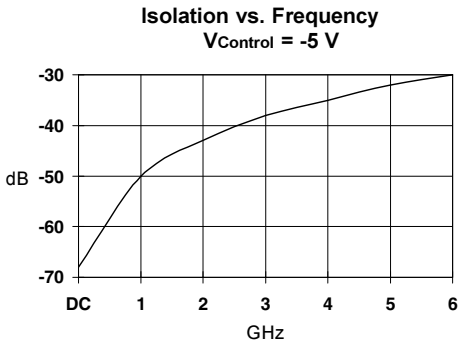
DC-6 GHz High Isolation SPDT GaAs MMIC Switch

Product Description

Stanford Microdevices' SSW-124 is a high perfomance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable 8-pin ceramic package.

This single-pole, double-throw, non-reflective switch consumes less than 50uA and operates at -5V and 0V for control bias. Its high isolation and low insertion loss, makes it ideal for T/R switching in analog and digital wireless communication systems.

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



Product Features

- **High Isolation: 42dB at 2GHz, 30dB at 6GHz**
- **Low DC Power Consumption**
- **Non-reflective (50 Ohm termination) when Isolated**
- **Broadband Performance - True DC Operation**
- **Low Cost Surface-Mountable Ceramic Package**

Applications

- **Analog/Digital Wireless System**
- **Spread Spectrum**
- **GPS**

Electrical Specifications at Ta = 25C

Symbol	Parameters: Test Conditions		Units	Min.	Typ.	Max.
Ins	Insertion Loss	f = 0.05-2.0GHz f = 2.00-4.0GHz f = 4.00-6.0GHz	dB dB dB		0.7 1.0 1.4	1.1 1.5
Isol	Isolation	f = 0.05-2.0GHz f = 2.00-4.0GHz f = 4.00-6.0GHz	dB dB dB	40 30 25	50 40 30	
VSWR on	Input & Output VSWR (on or low loss state)	f = 0.05-2.0GHz f = 2.00-4.0GHz f = 4.00-6.0GHz			1.15 1.25 1.50	
VSWR off	Input & Output VSWR (off or isolated state)	f = 0.05-1.0GHz f = 1.00-2.0GHz f = 2.00-4.0GHz			1.15 1.25 1.50	
P1dB	Output Power at 1dB Compression f= 0.5-6.0GHz	V = -5V V = -8V	dBm dBm		+26 +29	
TOIP	Third Order Intercept Point f= 0.5-6.0GHz	V = -5V V = -8V	dB dB		+45 +48	
Id	Device Current		uA		40	
Isw	Switching Speed 50% control to 10%/90%RF		nsec		3	

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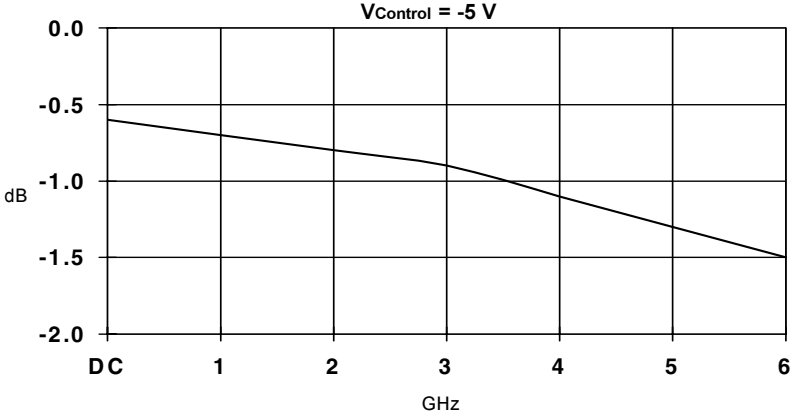
Absolute Maximum Ratings

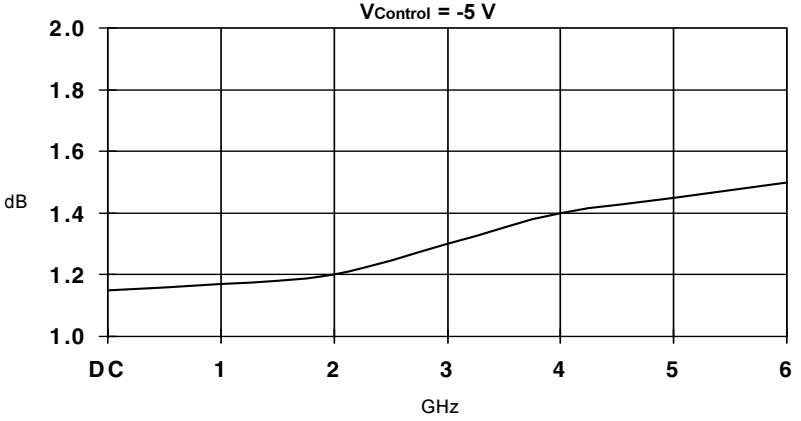
Operation of this device above any one of these parameters may cause permanent damage.

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

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



On Port Input/Output VSWR vs. Frequency
$V_{Control}$ = -5 V



SSW-124 DC-6.0 GHz GaAs MMIC Switches

Caution ESD Sensitive:
Appropriate precautions in handling, packaging and testing devices must be observed.

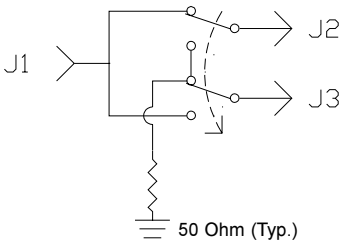
Part Number Ordering Information

Part Number	Devices Per Reel	Reel Size
SSW-124	500	7"

Truth Table

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

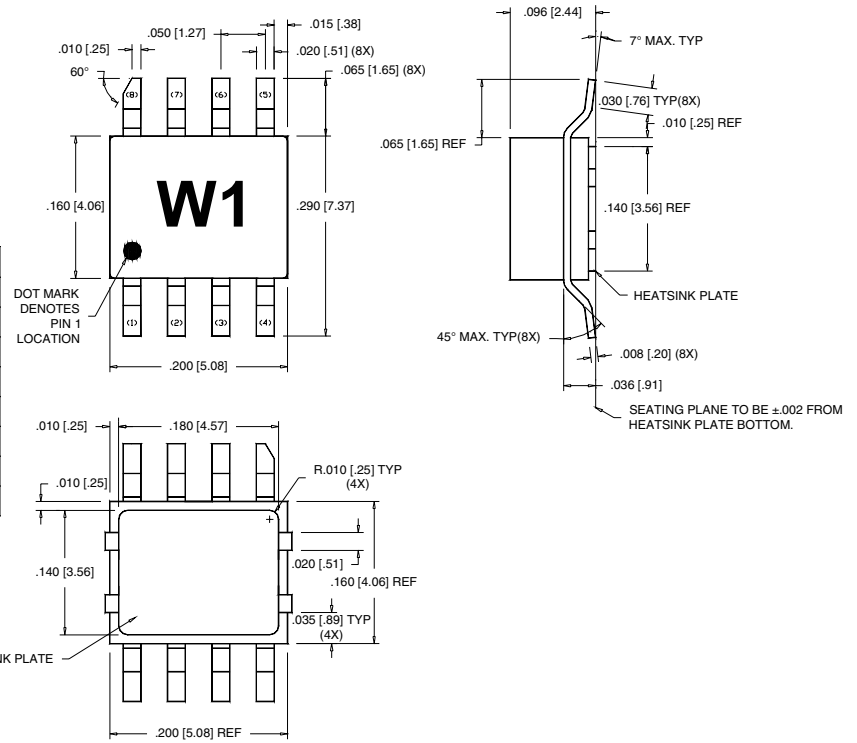
Switch Schematic



Part Symbolization

The part will be symbolized with a "W1" designator on the top surface of the package.

Package Dimensions



Pin Out

Pin	Function	Description
1	GND	Ground
2	J1	RF in
3	GND	Ground
4	GND	Ground
5	J2	RF out 1
6	V1	Control 1
7	V2	Control 2
8	J3	RF out 2

DIMENSIONS ARE IN INCHES [MM]