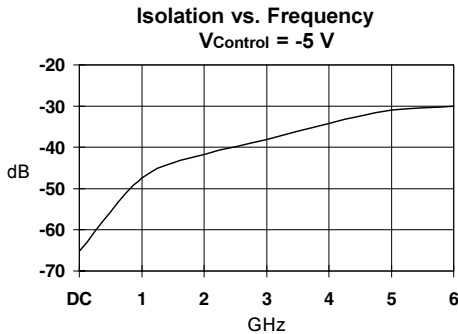


Product Description

Stanford Microdevices' SSW-224 is a high performance Gallium Arsenide Field Effect Transistor MMIC switch housed in a low-cost surface-mountable 8-pin ceramic package.

This single-pole, double-throw, 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.



SSW-224

DC-6 GHz High Isolation SPDT GaAs MMIC Switch



Product Features

- High Isolation : 40dB at 2GHz, 30dB at 6GHz
- Low DC Power Consumption
- Broadband Performance - True DC Operation
- Low Cost Surface-Mountable Ceramic Package

Applications

- Analog/Digital Wireless System
- Spread Spectrum
- GPS

Electrical Specifications at $T_a = 25C$

| Symbol | Parameters: Test Conditions: $Z_0=50\text{ohms}$ | | Units | Min. | Typ. | Max. |
|---------|---|---|----------------|----------------|----------------------|------------|
| Ins | Insertion Loss | $f = 0.05\text{-}2.0\text{GHz}$ $f = 2.00\text{-}4.0\text{GHz}$ $f = 4.05\text{-}6.0\text{GHz}$ | dB dB dB | | 0.7 1.1 1.5 | 1.1 1.5 |
| Isol | Isolation | $f = 0.05\text{-}2.0\text{GHz}$ $f = 2.00\text{-}4.0\text{GHz}$ $f = 4.00\text{-}6.0\text{GHz}$ | dB dB dB | 37 30 27 | 47 40 35 | |
| VSWR on | Input & Output VSWR (on or low loss state) | $f = 0.05\text{-}2.0\text{GHz}$ $f = 2.00\text{-}4.0\text{GHz}$ $f = 4.00\text{-}6.0\text{GHz}$ | | | 1.15 1.25 1.50 | |
| P1dB | Output Power at 1dB Compression $f = 0.5\text{-}6.0\text{GHz}$ | $V = -5V$ $V = -8V$ | dBm dBm | | +26 +29 | |
| TOIP | Third Order Intercept Point $f = 0.5\text{-}6.0\text{GHz}$ | $V = -5V$ $V = -8V$ | dBm dBm | | +45 +48 | |
| I_d | Device Current | | μA | | 40 | |
| IsW | Switching Speed 50% control to 10%/90%RF | | nsec | | 3 | |

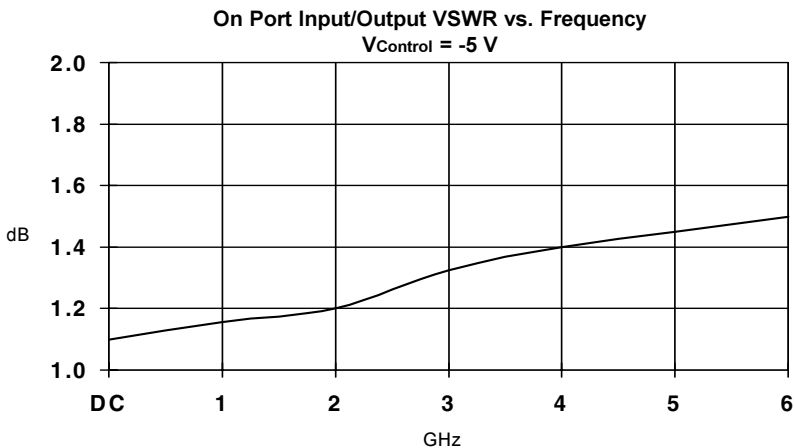
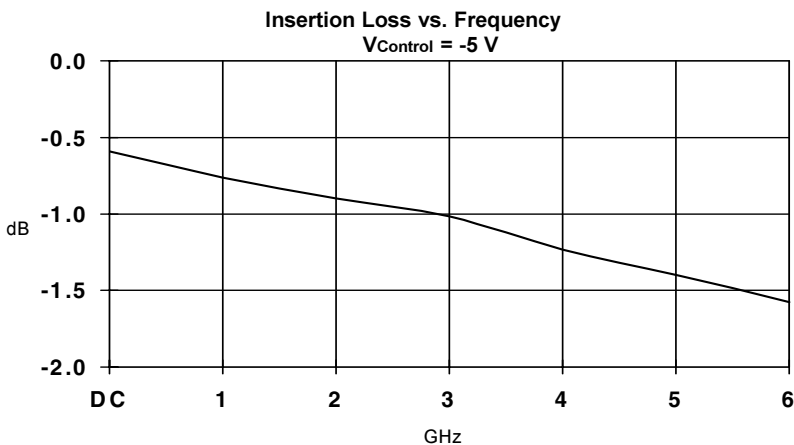
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SSW-224 DC-6.0 GHz GaAs MMIC Switches

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 |



SSW-224 DC-6.0 GHz GaAs MMIC Switches

Part Number Ordering Information

| Part Number | Devices Per Reel | Reel Size |
|-------------|------------------|-----------|
| SSW-224 | 500 | 7" |

Truth Table

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

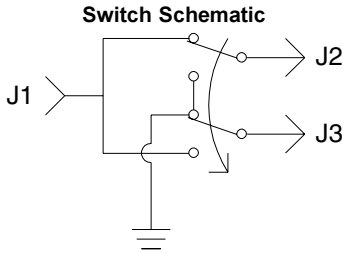
Part Symbolization

The part will be symbolized with a "W2" designator on the top surface of the package.



Caution ESD Sensitive:

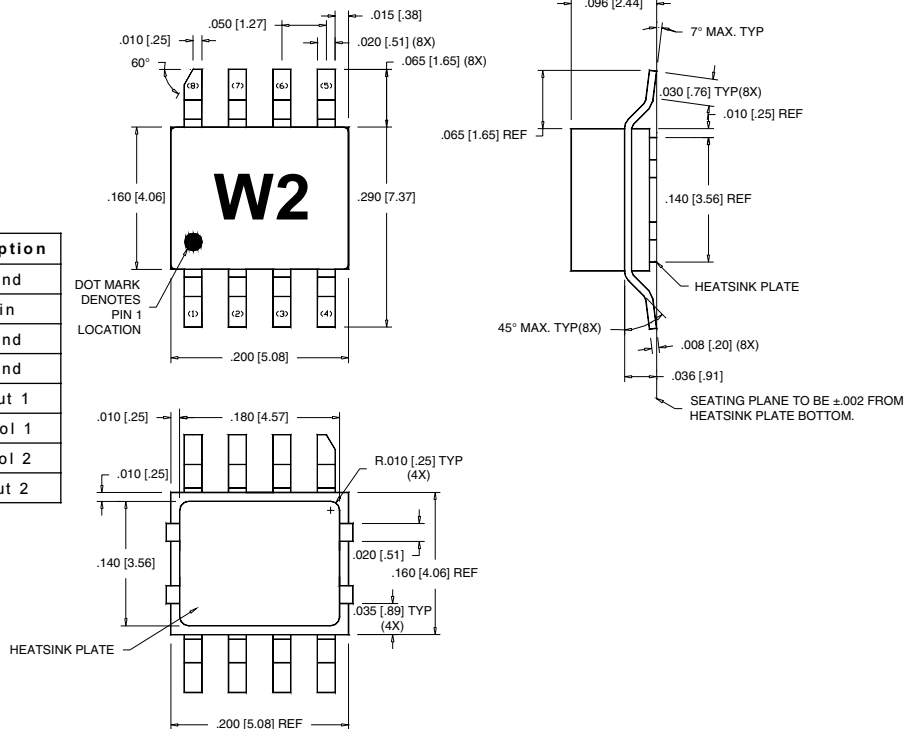
Appropriate precautions in handling, packaging and testing devices must be observed.



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]