## Matched GaAs SPST Switch, 5-4000 MHZ

## Features

- Low Insertion Loss: 1.0 dB Typical
- Fast Switching Speed: 20 ns Typical
- Ultra Low DC Power Consumption: 0.07 mA Typical
- Integral TTL
- 50 Ohm Nominal Impedance
- MIL-STD-883 Screening Available


## Description

## Ordering Information

| Part Number | Package |
| :---: | :---: |
| SW-231-PIN | FP-16 |

Note: Reference Application Note M513 for reel size information.
Note: Die quantity varies.

## Functional Block Diagram



## Truth Table

| "TL Control Input <br> "1 Logic High <br> TTL | Condition of Switch |
| :---: | :---: |
|  | RF1 to RF2 |
| 1 | ON |
| 2 | OFF |

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5-4000 MHZ
Electrical Specifications: $\mathrm{T}_{\mathrm{A}}=-55^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}{ }^{1}$

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Insertion Loss | - | $\begin{gathered} 5-4000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | dB <br> dB <br> dB <br> dB | — — — | — — — | $\begin{aligned} & 2.8 \\ & 1.5 \\ & 1.2 \\ & 1.1 \end{aligned}$ |
| VSWR | - | $\begin{gathered} 5-4000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | Ratio <br> Ratio <br> Ratio <br> Ratio | - - - | — — | $\begin{aligned} & 2.3: 1 \\ & 1.9: 1 \\ & 1.5: 1 \\ & 1.4: 1 \end{aligned}$ |
| Isolation | - | $\begin{gathered} 5-4000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | dB <br> dB <br> dB <br> dB | $\begin{aligned} & 22 \\ & 37 \\ & 50 \\ & 60 \end{aligned}$ | — — | — — — |
| Ton, Toff Ton, Toff Transients | 50\% CTL to 90/10\% RF In-band | — | $\begin{aligned} & \mathrm{nS} \\ & \mathrm{nS} \\ & \mathrm{mV} \end{aligned}$ | — | $\begin{gathered} 7 \\ 20 \\ 70 \end{gathered}$ | — |
| 1 dB Compression | Input Power | $\begin{gathered} 500-4000 \mathrm{MHz} \\ 50 \mathrm{MHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +27 \\ & +21 \end{aligned}$ | — |
| $\mathrm{IP}_{2}$ | For two tone input power up to +13 dBm | $\begin{gathered} 500-4000 \mathrm{MHz} \\ 50 \mathrm{MHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +68 \\ & +60 \end{aligned}$ | — |
| $\mathrm{IP}_{3}$ | For two tone input power up to +13 dBm | $\begin{gathered} 500-4000 \mathrm{MHz} \\ 50 \mathrm{MHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +46 \\ & +40 \end{aligned}$ | — |
| Bias Power | +5 VDC @ 0.07 mA Typical | - | mA | - | - | 1 |

1. All specifications apply when operated with bias voltages of +5 VDC and 50 ohm impedance at all RF ports.

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and/or prototype measurements. Commitment to develop is not guaranteed.

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## Typical Performance Curves

Insertion Loss


## VSWR



## Isolation



## Schematic



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