## Matched GaAs SPST Switch, 5-3000 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 (SW-215) or CMOS (SW-216) Driver
- 50 Ohm Nominal Impedance
- MIL-STD-883 screening available


## Description

## Ordering Information

| Part Number | Package |
| :---: | :---: |
| SW-215-PIN | DI-1 |
| SW-216-PIN | DI-1 |

[^0]Note: Die quantity varies.

## Functional Block Diagram



## Truth Table

$\left.$| TTL Control Input | Condition of Switch |
| :---: | :---: |
| "1" = Logic High |  |
| TTL (SW-215)/ |  |
| CMOS (SW-216) |  |$\quad$| RF Common to Each RF Port |
| :---: | :---: | \right\rvert\, RF1 to RF2

[^1][^2]- India Tel: +91.80.4155721 - China Tel: +86.21.2407.1588

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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 | - | $\begin{gathered} 5-3000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | $\begin{aligned} & \mathrm{dB} \\ & \mathrm{~dB} \\ & \mathrm{~dB} \\ & \mathrm{~dB} \end{aligned}$ | $\begin{aligned} & 2.9 \\ & 1.5 \\ & 1.2 \\ & 1.1 \end{aligned}$ | $\begin{aligned} & - \\ & \text { - } \end{aligned}$ | - |
| VSWR | - | $\begin{gathered} 5-3000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | Ratio <br> Ratio <br> Ratio <br> Ratio | $\begin{aligned} & - \\ & - \\ & \hline \end{aligned}$ | $\begin{aligned} & - \\ & - \\ & - \end{aligned}$ | $\begin{aligned} & 2.0: 1 \\ & 1.9: 1 \\ & 1.4: 1 \\ & 1.25: 1 \end{aligned}$ |
| Isolation | - | $\begin{gathered} 5-3000 \mathrm{MHz} \\ 5-2000 \mathrm{MHz} \\ 5-1000 \mathrm{MHz} \\ 5-500 \mathrm{MHz} \end{gathered}$ | dB <br> dB <br> dB <br> dB | $\begin{aligned} & 27 \\ & 45 \\ & 55 \\ & 60 \end{aligned}$ | $\begin{aligned} & - \\ & - \\ & - \end{aligned}$ | - |
| $1 \mathrm{P}_{2}$ | 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 | $\begin{gathered} 500-4000 \mathrm{MHz} \\ 50 \mathrm{MHz} \end{gathered}$ | $\begin{aligned} & \mathrm{dBm} \\ & \mathrm{dBm} \end{aligned}$ | - | $\begin{aligned} & +46 \\ & +40 \end{aligned}$ | - |

1. All specifications apply when operated with bias voltages of $+5 \mathrm{VDC}(\mathrm{SW}-205)$ or +8 VDC (SW-206) and 50 ohm impedance at all RF ports.

## SW-215

| Parameter | Test Conditions | Frequency | Units | Min | Typ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Trise, Tfall | Max |  |  |  |  |
| Ton, Toff |  |  |  |  |  |
| Transients | 50\% CTL to 90/10\% RF |  |  |  |  |
| In-band | Input Power | - | nS <br> nS <br> mV | - | - |
| 1 dB Compression |  | - | - | 7 |  |

## SW-216

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Trise, Tfall Ton, Toff Transients | 50\% CTL to 90/10\% RF In-band | $\begin{aligned} & - \\ & - \end{aligned}$ | nS <br> nS <br> mV | — | $\begin{aligned} & 20 \\ & 40 \\ & 35 \end{aligned}$ | — |
| 1 dB Compression | Input Power | $\begin{gathered} 500-4000 \mathrm{MHz} \\ 50 \mathrm{MHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +33 \\ & +26 \end{aligned}$ | $-$ |
| Bias Power | +5 to +8 VDC @ 0.07 to 0.22 mA Typ | - | mA | - | - | 1 |

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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## Typical Performance Curves

## Insertion Loss



VSWR


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

Schematic


## Isolation



[^3]
[^0]:    Note: Reference Application Note M513 for reel size
    information.

[^1]:    * Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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