## Matched GaAs SPST Switch

## Features

- Fast Switching Speed, 6 nS Typical
- Ultra Low DC Power Consumption
- Small Package Size, 0.180 " (4.6mm) Sq.


## Description

## Ordering Information

| Part Number | Package |
| :---: | :---: |
| SW-209 PIN | Ceramic (CR-3) |
| SW-209B PIN | Screened to MIL-STD-883C, Method <br> 5008.4, Table VII, Class B Hybrid |
| SW-209G PIN | Ceramic Gull Winged (CR-10) |

## Absolute Maximum Ratings ${ }^{\mathbf{1 , 2}}$

| Parameter | Absolute Maximum |
| :---: | :---: |
| Max Input Power |  |
| 0.05 GHz | +27 dBm |
| $0.5-2.0 \mathrm{GHz}$ | +34 dBm |
| Control Voltage | $+5 \mathrm{~V},-8.5 \mathrm{~V}$ |
| Operating Temperature | $-55^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$ |
| Storage Temperature | $-65^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$ |

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. M/A-COM does not recommend sustained operation near these survivability limits.

## Functional Schematic



## Pin Configuration

## Truth Table

| Control Inputs |  | Condition of Switch |
| :---: | :---: | :---: |
| A | B | RF1 to RF2 |
| 1 | 0 | ON |
| 0 | 1 | OFF |

- North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400
- India Tel: +91.80.43537383 - China Tel: +86.21.2407.1588

Visit mww.macomtech.com for additional data sheets and product information.
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

## Matched GaAs SPST Switch <br> DC-3.0 GHz

## Electrical Specifications: $-55^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$

| Parameter | Test Conditions | Units | Min. | Тур. | Max. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Insertion Loss | $\begin{aligned} & \mathrm{DC}-3.0 \mathrm{GHz} \\ & \mathrm{DC}-2.0 \mathrm{GHz} \\ & \mathrm{DC}-1.0 \mathrm{GHz} \\ & \mathrm{DC}-0.5 \mathrm{GHz} \end{aligned}$ | dB <br> dB <br> dB <br> dB | $\begin{aligned} & - \\ & - \\ & - \end{aligned}$ | - - - | $\begin{aligned} & 1.5 \\ & 1.2 \\ & 1.1 \\ & 0.9 \end{aligned}$ |
| Isolation | $\begin{aligned} & \mathrm{DC}-3.0 \mathrm{GHz} \\ & \mathrm{DC}-2.0 \mathrm{GHz} \\ & \mathrm{DC}-1.0 \mathrm{GHz} \\ & \mathrm{DC}-0.5 \mathrm{GHz} \end{aligned}$ | dB <br> dB <br> dB <br> dB | $\begin{aligned} & 27 \\ & 32 \\ & 40 \\ & 55 \end{aligned}$ | $\begin{aligned} & - \\ & - \end{aligned}$ | $\begin{aligned} & - \\ & - \\ & - \end{aligned}$ |
| VSWR | $\begin{aligned} & \mathrm{DC}-3.0 \mathrm{GHz} \\ & \mathrm{DC}-2.0 \mathrm{GHz} \\ & \mathrm{DC}-1.0 \mathrm{GHz} \\ & \mathrm{DC}-0.5 \mathrm{GHz} \end{aligned}$ | Ratio <br> Ratio <br> Ratio <br> Ratio | $\begin{aligned} & - \\ & - \end{aligned}$ | — — | $\begin{aligned} & 1.6: 1 \\ & 1.5: 1 \\ & 1.2: 1 \\ & 1.2: 1 \end{aligned}$ |
| Trise, Tfall | 10\% to $90 \%$ RF, $90 \%$ to $10 \%$ RF | nS | - | 3 | - |
| Ton, Toff | 50\% Control to 90\% RF, 50\% Control to 10\% RF | nS | - | 6 | - |
| Transients | In-Band | mV | - | 30 | - |
| 1 dB Compression Point | $\begin{gathered} 0.5 \text { to } 3.0 \mathrm{GHz}, 0 /-5 \mathrm{~V} \\ 0.05 \mathrm{GHz}, 0 /-5 \mathrm{~V} \\ 0.5 \text { to } 3.0 \mathrm{GHz}, 0 /-8 \mathrm{~V} \\ 0.05 \mathrm{GHz}, 0 /-8 \mathrm{~V} \end{gathered}$ | dBm dBm dBm dBm | - - | $\begin{aligned} & +27 \\ & +21 \\ & +33 \\ & +26 \end{aligned}$ | — — - |
| IP2 | $\begin{gathered} 0.5 \text { to } 3.0 \mathrm{GHz} \\ 0.05 \mathrm{GHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +62 \\ & +68 \end{aligned}$ | — |
| IP3 | $\begin{gathered} 0.5 \text { to } 3.0 \mathrm{GHz} \\ 0.05 \mathrm{GHz} \end{gathered}$ | dBm dBm | — | $\begin{aligned} & +40 \\ & +46 \end{aligned}$ | - |
| Control Current | $\begin{gathered} \mathrm{V}_{\text {IN }} \text { Low (0 to -0.2 V) } \\ \left.\mathrm{V}_{\mathrm{IN}} \text { High (-5 V @ } 50 \mu \mathrm{~A} \text { Typ. to }-8 \mathrm{~V}\right) \end{gathered}$ | $\mu \mathrm{A}$ $\mu \mathrm{A}$ | — | — | $\begin{gathered} 20 \\ 300 \end{gathered}$ |

3. All specification apply with $50 \Omega$ impedance connected to all RF ports with 0 and -5 Vdc control voltages.

## CR-3



## CR-10



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.
PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology
Solutions has under development. Performance is based on engineering tests. Specifications are
typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400
- India Tel: +91.80.43537383 - China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

## Matched GaAs SPST Switch

## DC-3.0 GHZ

## Typical Performance Curves

## Insertion Loss



VSWR


## Isolation



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.
PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology
Solutions has under development. Performance is based on engineering tests. Specifications are
typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available Commitment to produce in volume is not guaranteed.

- North America Tel: 800.366.2266 - Europe Tel: +353.21.244.6400
- India Tel: +91.80.43537383 - China Tel: +86.21.2407.1588

Visit mwn.macomtech.com for additional data sheets and product information.

