



# GaAs SP3T Absorptive Switch with ASIC Driver

## DC - 3.0 GHz

### Features

- Typical Isolation: 32 dB (2,000 MHz)
- Typical Insertion Loss: 2.0 dB (2,000 MHz)
- Integral ASIC TTL/CMOS Driver
- Plastic, 50 mil Pitch, SOW-24 Lead, Wide Body
- Low DC Power Consumption
- 50 Ohm Nominal Impedance
- Tape and Reel Packaging Available
- Test Boards Available

### Description

M/A-COM's SW65-0214 is a GaAs MMIC absorptive SP3T switch with an integral silicon ASIC driver. This device is in a 24-lead plastic package. This switch offers excellent broadband performance and repeatability from DC to 3 GHz, while maintaining low DC power dissipation. The SW65-0214 is ideally suited for wireless infrastructure applications. Also available in ceramic package with improved performance.

### Ordering Information

| Part Number  | Package                     |
|--------------|-----------------------------|
| SW65-0214    | Bulk Packaging              |
| SW65-0214-TR | Tape and Reel <sup>1</sup>  |
| SW65-0214-TB | Units Mounted on Test Board |

1. Check with factory for available quantities and reel size.

### Electrical Specifications: T<sub>A</sub> = +25°C

| Parameter                           | Test Conditions               | Units | Min | Typical                       | Max   |
|-------------------------------------|-------------------------------|-------|-----|-------------------------------|-------|
| Insertion Loss                      | DC - 3.0 GHz                  | dB    | —   | 2.0                           | 2.3   |
| Isolation<br>(All arms off)         | DC - 3.0 GHz                  | dB    | 30  | 32                            | —     |
| VSWR                                | DC - 3.0 GHz                  | —     | —   | On<br>1.7:1      Off<br>2.2:1 | 2.4:1 |
| T <sub>rise</sub> T <sub>fall</sub> | 10%/90%, 90%/10% <sup>2</sup> | nS    | —   | 15                            | 50    |
| T <sub>on</sub> T <sub>off</sub>    | 50% TTL to 90%/10% RF         | nS    | —   | 50                            | 150   |
| Transients                          | In-band (peak to peak)        | mV    | —   | 50                            | 150   |

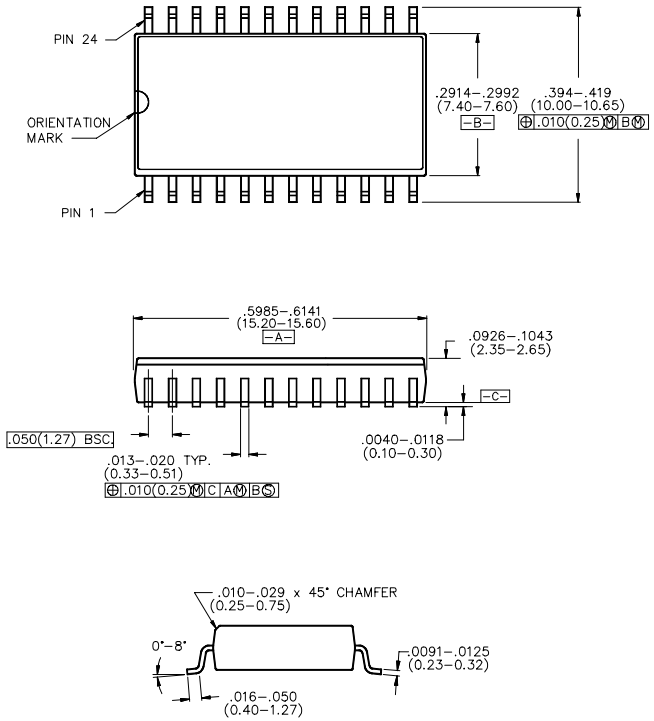
Specifications subject to change without notice.

V 3.00

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Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

### SOW-24



Package outline conforms to JEDEC standard MS-013AD.

**Electrical Specifications:  $T_A = +25^\circ\text{C}$** 

| Parameter        | Test Conditions              | Units | Min  | Typical | Max   |
|------------------|------------------------------|-------|------|---------|-------|
| 1 dB Compression | .05 GHz                      | dBm   | —    | +20     | —     |
|                  | .5 - 3.0 GHz                 | dBm   | —    | +27     | —     |
| Input $IP_3$     | Two tone inputs 0.05 GHz     | dBm   | —    | +35     | —     |
|                  | up to +5 dBm 0.5 - 3.0 GHz   | dBm   | —    | +46     | —     |
| $V_{CC}$         | —                            | V     | +4.5 | +5.0    | +5.5  |
| $V_{EE}$         | —                            | V     | -8.0 | -5.0    | -4.75 |
| $I_{CC}$         | $V_{CC} = +5.0\text{V}$      | mA    | —    | —       | 4     |
| $I_{EE}$         | $V_{EE} = -5.0\text{V}$      | mA    | —    | —       | -1    |
| Logic "0"        | $I_{in} = 20\mu\text{A max}$ | V     | 0.0  | —       | 0.8   |
| Logic "1"        | $I_{in} = 20\mu\text{A max}$ | V     | 2.0  | —       | 5.0   |

**Absolute Maximum Ratings<sup>3,4</sup>**

| Parameter             | Absolute Maximum                |
|-----------------------|---------------------------------|
| Max. Input Power      |                                 |
| 0.05 GHz              | +27 dBm                         |
| 0.5 - 3.0 GHz         | +34 dBm                         |
| Bias Voltages         |                                 |
| $V_{EE}$              | -8.5V                           |
| $V_{CC}$              | +5.5V                           |
| Control Voltage       | -0.5V to $V_{CC} + 0.5\text{V}$ |
| Operating Temperature | -40°C to +85°C                  |
| Storage Temperature   | -65°C to +125°C                 |

**Pin Configuration**

| Pin # | Function | Pin # | Function |
|-------|----------|-------|----------|
| 1     | RFC      | 13    | C1       |
| 2     | GND      | 14    | C3       |
| 3     | GND      | 15    | GND      |
| 4     | GND      | 16    | GND      |
| 5     | GND      | 17    | GND      |
| 6     | RF2      | 18    | GND      |
| 7     | GND      | 19    | RF1      |
| 8     | $V_{EE}$ | 20    | GND      |
| 9     | GND      | 21    | GND      |
| 10    | $V_{CC}$ | 22    | RF3      |
| 11    | GND      | 23    | GND      |
| 12    | C2       | 24    | GND      |

**Truth Table**

| TTL Control Input |    |    | RF Common To: |     |     |
|-------------------|----|----|---------------|-----|-----|
| C1                | C2 | C3 | RF1           | RF2 | RF3 |
| 1                 | 0  | 0  | On            | Off | Off |
| 0                 | 1  | 0  | Off           | On  | On  |
| 0                 | 0  | 1  | Off           | Off | On  |

- Decoupling capacitors (.01  $\mu\text{F}$ ) are required on the power supply lines.
- Operation of this device above any one of these parameters may cause permanent damage.
- When the RF input is applied to the terminated port, the absolute maximum power is +30 dBm.

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