3 V GaAs SPDT Switch
DC - 2 GHz

Features
- Low Insertion Loss: <0.5 dB @ 900 MHz
- Low Power Consumption: <1.0 µA @ 3 VDC
- Very High Intercept Point: 52 dBm IP3
- Both Positive and Negative 3 to 8 V Control
- Lead-Free SOT-26 Package
- Halogen-Free “Green” Mold Compound
- 260°C Reflow Compatible
- RoHS* Compliant Version of SW-395

Description
The MASWSS0179 is a GaAs single pole, double throw switch in a lead-free SOT-26 surface mount plastic package and is ideally suited for applications where very low power consumption, low intermodulation products, very small size and low cost are required.

Typical application is an internal / external antenna select switch for portable telephones and data radios. In addition, because of its low loss, good isolation and inherent speed, this device can be used as a conventional T/R switch or as an antenna diversity switch. The MASWSS0179 can be used in power applications up to 0.5 watts in systems such as cellular, PCS, GSM and other analog / digital wireless communications systems.

This switch is fabricated using a mature 0.5-micron gate length GaAs pHEMT process. The process features full chip passivation for increased performance and reliability.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASWSS0179</td>
<td>Bulk Packaging</td>
</tr>
<tr>
<td>MASWSS0179TR-3000</td>
<td>3000 piece reel</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.

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Electrical Specifications: $T_A = +25^\circ C$, $V_C = 0 \text{ V} / -3 \text{ V}$, $Z_0 = 50 \Omega^3$

### Absolute Maximum Ratings$^{4,5}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power</td>
<td>33 dBm</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>8.5 Volts</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

### Truth Table$^{6,7,8}$

<table>
<thead>
<tr>
<th>Control A</th>
<th>Control B</th>
<th>RFC to RF1</th>
<th>RFC to RF2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>On</td>
<td>Off</td>
</tr>
</tbody>
</table>

6. For positive voltage control, external DC blocking capacitors are required on all RF ports.
7. $0 = -8 \text{ V} \text{ to } 0 \text{ V}, 1 = 0 \text{ V} \text{ to } +8 \text{ V}$.
8. Differential voltage, $V \text{ (state 1) - V \text{ (state 0)}$, must be $+2.8 \text{ V}$ minimum and must not exceed $+8 \text{ V}$.

### Handling Procedures

Please observe the following precautions to avoid damage:

#### Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.
Typical Performance Curves

**Insertion Loss**

![Insertion Loss Graph](image1)

**Isolation**

![Isolation Graph](image2)

**VSWR**

![VSWR Graph](image3)
**Lead-Free SOT-26†**

Reference Application Note M538 for lead-free solder reflow recommendations. Meets JEDEC moisture sensitivity level 1 requirements. Plating is 100% matte tin over copper.