MASWSS0130

GaAs Broadband DPDT Diversity Switch
0.5 - 3.0 GHz

Features
- Ideal for 802.11 b/g Applications
- Broadband Performance: 0.5 - 3.0 GHz
- Low Insertion Loss: 0.6 dB @ 2.4 GHz
- High Isolation: 25 dB @ 2.4 GHz
- Fast Switching Speed: 0.5 μm GaAs PHEMT Process
- High P1dB: 34 dBm @ 3 V
- Lead-Free 3 mm 12-Lead PQFN Package
- 100% Matte Tin Plating over Copper
- Halogen-Free “Green” Mold Compound
- RoHS* Compliant and 260°C Reflow Compatible

Description
M/A-COM’s MASWSS0130 is a broadband GaAs PHEMT MMIC DPDT diversity switch in a low cost, lead-free 3 mm 12-lead PQFN plastic package. The MASWSS0130 is ideally suited for applications where very small size and low cost are required.

Typical applications are for WLAN IEEE 802.11b/g systems that employ two antennas for transmit and receive diversity. Designed for high power, this DPDT switch is optimized for high linearity at 2.4 GHz.

The MASWSS0130 is fabricated using a 0.5 micron gate length GaAs PHEMT process. The process features full passivation for performance and reliability.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASWSS0130</td>
<td>Bulk Packaging</td>
</tr>
<tr>
<td>MASWSS0130TR</td>
<td>7 inch, 1000 piece reel</td>
</tr>
<tr>
<td>MASWSS0130TR-3000</td>
<td>13 inch, 3000 piece reel</td>
</tr>
<tr>
<td>MASWSS0130SMB</td>
<td>Sample Test Board (Includes 5 Samples)</td>
</tr>
</tbody>
</table>

1. Reference Application Note M513 for reel size information.

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Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50\ \Omega$, $V_C = 0\ \text{V}/3\ \text{V}$, 8 pF Capacitor

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power @ 3 V Control</td>
<td>+35 dBm</td>
</tr>
<tr>
<td>Input Power @ 5 V Control</td>
<td>+35 dBm</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>+8.5 volts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
</tbody>
</table>

2. External DC blocking capacitors are required on all RF ports.
3. Insertion loss can be optimized by varying the DC blocking capacitor value.

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

### Qualification


### 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.
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Typical Performance Curves

**Insertion Loss**

**Isolation**

**Input Return Loss**

**Output Return Loss**

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

For further information and support please visit: [https://www.macom.com/support](https://www.macom.com/support)
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Evaluation Board

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Capacitor, 8 pF, 0402, SMT, 5% (C1 - C4)</td>
</tr>
</tbody>
</table>

Truth Table

<table>
<thead>
<tr>
<th>Control Vc1</th>
<th>Control Vc2</th>
<th>ANT 1-Rx</th>
<th>ANT 1-Tx</th>
<th>ANT 2-Tx</th>
<th>ANT 2-Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>On</td>
<td>Off</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
</tbody>
</table>

6. 1 = +2.9 to +5V, 0 = 0 ± 0.2V

Lead-Free 3 mm 12-Lead PQFN

† Reference Application Note M538 for lead-free solder reflow recommendations.
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