**Features**
- MM116-PD and MM116R-PD is Left and right mirror relation
- Integrated TTL driver can turn off all RF signals
- Isolation: 42dB @ 20GHz
- Insertion Loss: 2.6dB @ 20GHz
- Absorptive design
- Die Size: 2 x 1.5 x 0.1 mm³

**Typical Applications**
- TTL compatible driver included
- Fast Switching Speed
- Low Insertion Loss and High Isolation
- Customization available upon request

**Electrical Specifications**
TA = +25°C, Vctl = 0/+5V

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>DC - 20</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>2</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Isolation</td>
<td>50</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss (ON State)</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss (OFF State)</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Input 1dB Compression (P1dB)</td>
<td>25</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Switching Speed</td>
<td>30</td>
<td></td>
<td></td>
<td>ns</td>
</tr>
</tbody>
</table>
**MMS110**

**GaAs pHEMT MMIC SP4T Absorptive Switch**  
**DC-20 GHz**

**Insertion Loss**

**Isolation**

**Return Loss (Conducting State)**

**Return Loss (OFF State)**
## Pad Description

<table>
<thead>
<tr>
<th>PAD</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IN</td>
<td>The pad is DC coupled to 50 ohms. If the RF level is not 0V, then the blocking capacitor is required externally.</td>
</tr>
<tr>
<td>2, 3, 9, 10</td>
<td>OUT1, OUT2, OUT3, OUT4</td>
<td>The pad is DC coupled to 50 ohms. If the RF level is not 0V, then the blocking capacitor is required externally.</td>
</tr>
<tr>
<td>5, 6, 8</td>
<td>K1, K2, K3</td>
<td>When K1=0V, K2=0V, K3=0V, the OUT1 is “ON” state; When K1=5V, K2=0V, K3=0V, the OUT2 is “ON” state; When K1=0V, K2=5V, K3=0V, the OUT3 is “ON” state; When K1=5V, K2=5V, K3=0V, the OUT4 is “ON” state; When K3=5V, the OUT1--OUT4 are all “OFF” state</td>
</tr>
<tr>
<td>4</td>
<td>VSS</td>
<td>This pad is TTL drive circuit power supply, and then -5V power supply.</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>The pad is the TTL drive circuit ground end, which can be grounded or suspended when used.</td>
</tr>
</tbody>
</table>

**Die Bottom**

The pad is the TTL drive circuit ground end, which can be grounded or suspended when used. Die bottom must be connected to RF/DC ground.
**MM116-**
**GaAs pHEMT MMIC SP4T Absorptive Switch**
**DC-20 GHz**

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**Assembly Drawing**

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**Notes:**
1. Die thickness: 100um
2. Typical bond pad is 100*100 μm²
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

**Maximum Ratings:**
1. Power supply voltage: -6V
2. RF input power: +27dBm
3. Storage temperature: -65°C to +175°C
4. Operating temperature: -55°C to +85°C

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