**Features**
- Phase Shift Range: 360°
- Minimum Phase Shift: 5.625°
- Phase Shift Accuracy RMS: 2.5°
- Insertion Loss: 7dB
- Phase-shifting Amplitude Modulation: ±0.6dB
- Impedance: 50Ω
- Die Size: 2.5 x 2 x 0.1 mm

**Typical Applications**
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

**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>14-15</td>
<td></td>
<td></td>
<td>GHz</td>
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<tr>
<td>Insertion Loss</td>
<td>7</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Phase Shift Accuracy RMS</td>
<td>2.5</td>
<td></td>
<td></td>
<td>°</td>
</tr>
<tr>
<td>Phase-shifting Amplitude Modulation</td>
<td>±0.6</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Return Loss</td>
<td>10</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Input 1dB Compression (P1dB)</td>
<td>24</td>
<td></td>
<td></td>
<td>dBm</td>
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<tr>
<td>Switching Speed</td>
<td>30</td>
<td></td>
<td></td>
<td>ns</td>
</tr>
</tbody>
</table>
MM6006

GaAs pHEMT MMIC
6-Bit Digital Control Phase Shifter
14-15GHz

Phase Shift Accuracy (Basic State)

Amplitude Modulation (Basic State)

Insertion Loss

Return Loss (Basic State)
### Pad Description

<table>
<thead>
<tr>
<th>PAD</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RF1</td>
<td>This pad is RF port and matches to 50Ω impedance</td>
</tr>
<tr>
<td>2</td>
<td>RF2</td>
<td>This pad is RF port and matches to 50Ω impedance</td>
</tr>
<tr>
<td>3,4</td>
<td>180° Control</td>
<td>-5V, 0V is 180° “ON”; 0V, -5V is 180° “OFF”</td>
</tr>
<tr>
<td>5,6</td>
<td>90° Control</td>
<td>-5V, 0V is 90° “ON”; 0V, -5V is 90° “OFF”</td>
</tr>
<tr>
<td>7,8</td>
<td>45° Control</td>
<td>-5V, 0V is 45° “ON”; 0V, -5V is 45° “OFF”</td>
</tr>
<tr>
<td>9,10</td>
<td>22.5° Control</td>
<td>-5V, 0V is 22.5° “ON”; 0V, -5V is 22.5° “OFF”</td>
</tr>
<tr>
<td>11,12</td>
<td>11.25° Control</td>
<td>-5V, 0V is 11.25° “ON”; 0V, -5V is 11.25° “OFF”</td>
</tr>
<tr>
<td>13,14</td>
<td>5.625° Control</td>
<td>-5V, 0V is 5.625° “ON”; 0V, -5V is 5.625° “OFF”</td>
</tr>
<tr>
<td>Die Bottom</td>
<td>GND</td>
<td>Die bottom must be connected to RF/DC ground</td>
</tr>
</tbody>
</table>
Assembly Drawing

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. RF input power: +24dBm
2. Storage temperature: -65°C to +175°C
3. Operating temperature: -55°C to +85°C