**Features**
- Phase Shift Range: 360°
- Minimum Phase Shift: 5.625°
- Phase Shift Accuracy RMS: 2.5°
- Insertion Loss: 8dB
- Phase-shifting Amplitude Modulation: ±0.6dB
- Impedance: 50Ω
- Die Size: 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>8 -12</td>
<td>GHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>8</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<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>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss</td>
<td>10</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input 1dB Compression (P1dB)</td>
<td>24</td>
<td>dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switching Speed</td>
<td>30</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MM6005
GaAs pHEMT MMIC
6-Bit Digital Control Phase Shifter
8-12GHz

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>1,10</td>
<td>RF1, RF2</td>
<td>This pad is RF port and matches to 50Ω impedance</td>
</tr>
<tr>
<td>2</td>
<td>VSS</td>
<td>This pad is 6-bit TTL power supply, connect to -5V voltage</td>
</tr>
</tbody>
</table>
| 3 | P6 | P6=5V, 180° cell “OFF”  
P6=0V, 180° cell “ON” |
| 4 | P5 | P5=5V, 90° cell “OFF”  
P5=0V, 90° cell “ON” |
| 5 | P4 | P4=5V, 45° cell “OFF”  
P4=0V, 45° cell “ON” |
| 6 | P3 | P3=5V, 22.5° cell “OFF”  
P3=0V, 22.5° cell “ON” |
| 7 | P2 | P2=5V, 11.25° cell “OFF”  
P2=0V, 11.25° cell “ON” |
| 8 | P1 | P1=5V, 5.625° cell “OFF”  
P1=0V, 5.625° cell “ON” |
| 9 | GND | This pad is 6-bit TTL ground |
| Die Bottom | GND | Die bottom must be connected to RF/DC ground |
**Assembly Drawing**

1 mil gold wire

3mil assembling clearance

1 mil gold wire

**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