**Features**
- Attenuation Range: 5dB - 35dB
- Attenuation Accuracy: ±0.2dB
- Insertion Loss: 4.5dB
- Attenuation Additional Phase Shift: ±6°
- Impedance: 50Ω
- Die Size: 2.0 x 1.0 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>0.5-18</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>4.5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Attenuation Range</td>
<td>5</td>
<td></td>
<td>35</td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss (Direct State)</td>
<td>16</td>
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<td></td>
<td>dB</td>
</tr>
<tr>
<td>Return Loss (Attenuation State)</td>
<td>15</td>
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<td></td>
<td>dB</td>
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<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>
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</table>
MM5005

MM234
GaAs pHEMT MMIC
0.5-18 GHz

3-Bit Digital Control Attenuator

MM5005
GaAs pHEMT MMIC
3-Bit Digital Control Attenuator
0.5-18 GHz

Attenuation

Relative Phase vs. Frequency

Insertion Loss

Return Loss

Insertion Loss

RF1
RF2
### 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 matched to 50Ω Impedance</td>
</tr>
<tr>
<td>2</td>
<td>RF2</td>
<td>This pad is RF port and matched to 50Ω Impedance</td>
</tr>
<tr>
<td>3, 4</td>
<td>A6, A5</td>
<td>A6= -5 V, A5= 0 V, pass-through ; A6=0V, A5= -5V, decaying 20dB.</td>
</tr>
<tr>
<td>5, 6</td>
<td>A4, A3</td>
<td>A4= -5 V, A3= 0 V, pass-through ; A4=0V, A3= -5V, decaying 10dB.</td>
</tr>
<tr>
<td>7, 8</td>
<td>A2, A1</td>
<td>A2= -5 V, A1= 0 V, pass-through ; A2=0V, A1= -5V, decaying 5dB.</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