Features
- Attenuation Range: 0.25dB - 3.75dB
- Attenuation Accuracy: ±0.2dB
- Insertion Loss: 1.2dB
- Attenuation Additional Phase Shift: ±2°
- Impedance: 50Ω
- Die Size: 1.0 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></td>
<td>1.2</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Attenuation Range</td>
<td>0.25</td>
<td></td>
<td>3.75</td>
<td>dB</td>
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<tr>
<td>Return Loss (Direct State)</td>
<td>20</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Return Loss (Attenuation State)</td>
<td>16</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>
</tr>
<tr>
<td>Switching Speed</td>
<td>30</td>
<td></td>
<td></td>
<td>ns</td>
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</tbody>
</table>
MM5006

GaAs pHEMT MMIC
4-Bit Digital Control Attenuator
0.5-18GHz

Attenuation

Normalized Attenuation (dB)

FREQUENCY (GHz)

0.25dB 0.5dB 1dB 2dB

Relative Phase vs. Frequency

Relative Phase (deg)

FREQUENCY (GHz)

0.25dB 0.5dB 1dB 2dB

Insertion Loss

Insertion Loss (dB)

FREQUENCY (GHz)

S21

Return Loss

Input Return Loss (dB)

FREQUENCY (GHz)

S11 S22
### Pad Description

<table>
<thead>
<tr>
<th>PAD</th>
<th>Function</th>
<th>Description</th>
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</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>2dB Damping Control</td>
<td>0V, -5V, pass-through ; -5V,0V, decaying 2dB</td>
</tr>
<tr>
<td>5</td>
<td>0.25dB Damping Control</td>
<td>-5V, pass-through ; 0V, decaying 0.25dB</td>
</tr>
<tr>
<td>6</td>
<td>0.5dB Damping Control</td>
<td>-5V, pass-through ; 0V, decaying 0.5dB</td>
</tr>
<tr>
<td>7</td>
<td>1dB Damping Control</td>
<td>-5V, pass-through ; 0V, decaying 1dB</td>
</tr>
<tr>
<td>Die Bottom</td>
<td>GND</td>
<td>Die bottom must be connected to RF/DC ground</td>
</tr>
</tbody>
</table>

**Outline Drawing:**

All Dimensions in mm

---

**Outline Drawing Image**

![Outline Drawing Image](image-url)
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

Assembly Drawing

- 50 0hm microstrip
- 3mil assembling clearance
- 1 mil gold wire