**Features**
- Two operating modes: high power consumption and low power consumption
- Frequency: 2-18GHz
- Noise Figure: 1.0dB
- Gain: 25dB@37mA, 23dB@24mA
- P1dB: 13dBm@37mA, 9.5dBm@24mA
- Power Supply: +5V@37mA, VG is floating
- +5V@24mA, VG connected to GND
- Input/Output: 50Ω
- Die Size: 1.5 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, VDD=+5V

<table>
<thead>
<tr>
<th>Parameters</th>
<th>VG is floating</th>
<th>VG connected to GND</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2-18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>25</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td>±0.8</td>
<td></td>
<td>±0.5</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>15</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>14</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Output 1dB Compression (P1dB)</td>
<td>13</td>
<td></td>
<td>9.5</td>
</tr>
<tr>
<td>Psat</td>
<td>15</td>
<td></td>
<td>11.5</td>
</tr>
<tr>
<td>Output IP3</td>
<td>22</td>
<td></td>
<td>18.5</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>1.0</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Operating current</td>
<td>25</td>
<td>37</td>
<td>50</td>
</tr>
</tbody>
</table>
MM241PD
GaAs MMIC
0.5 – 18 GHz

V1.0.0
MMIC 0.5 – 18GHz

- 1 BIT DIGITAL CONTROL ATTENUATOR
- LOW NOISE AMPLIFIER
- MMIC 2 – 18GHz

GaAs MMIC

Return Loss (VG is floating)

Gain (VG is floating)

Return Loss (VG connected to GND)

Gain (VG connected to GND)

Noise Figure (VG is floating)

P1dB (VG is floating)

Gain (VG is floating)

Return Loss (VG is floating)

Gain (VG connected to GND)

Return Loss (VG connected to GND)
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>This pad is AC coupling, 50 ohm matched.</td>
</tr>
<tr>
<td>2</td>
<td>VG</td>
<td>This pad determines the die’s operating mode. When floating, it’s high power consumption mode. When connected to RF/DC GND, it’s low power consumption mode.</td>
</tr>
<tr>
<td>3</td>
<td>VD</td>
<td>This pad provides power supply for the amplifier. It should be connected to extra 100pF bypass capacitor.</td>
</tr>
<tr>
<td>4</td>
<td>OUT</td>
<td>This pad is AC coupling, 50 ohm matched.</td>
</tr>
<tr>
<td>Die Bottom</td>
<td>GND</td>
<td>Die backside must connect to RF/DC GND.</td>
</tr>
</tbody>
</table>
Notes:
1. Die thickness: 100um
2. Typical bond pad is 100*80 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. Maximum drain voltage: +6V
2. Maximum input power: +15dBm
3. Operating temperature: -55°C to +85°C
4. Storage temperature: -65°C to +150°C