**Features**
- Noise Figure: 2.6dB
- Gain: 10dB
- P1dB: +11dBm
- Biasing +5V @ 22 mA
- Impedance: 50Ω
- Die Size: 1.3 x 0.7 x 0.1 mm

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

**Electrical Specifications**

<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>2 - 4 GHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>10</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td>±0.3</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output 1dB Compression (P1dB)</td>
<td>11</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Saturated Output Power (Psat)</td>
<td>13</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Output Third Order Intercept (IP3)</td>
<td>19</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>2.6</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Current</td>
<td>10</td>
<td>22</td>
<td>40</td>
<td>mA</td>
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</tbody>
</table>
MML002
GaAs pHEMT MMIC
Low Noise Amplifier
2-4GHz

Gain

Return Loss

Noise Figure

Output Power $P_{1}$

Gain vs Frequency (GHz)

Return Loss vs Frequency (GHz)

Noise Figure vs Frequency (GHz)

Output Power $P_{1}$ vs Frequency (GHz)
**Outline Drawing:**
All Dimensions in mm

---

**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>Input AC coupling 50Ω Impedance</td>
</tr>
<tr>
<td>2</td>
<td>VD</td>
<td>The pad provides the power supply voltage of the amplifier and needs to be externally connected with the 100pF bypass capacitor.</td>
</tr>
<tr>
<td>3</td>
<td>OUT</td>
<td>Output AC coupling 50Ω Impedance</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. Power supply voltage: +6V
2. RF input power: +17dBm
3. Storage temperature: -65°C to +175°C
4. Operating temperature: -55°C to +85°C