Features
- Frequency: 6GHz to 20GHz
- Small Signal Gain: 25.5dB
- Gain Flatness: $\pm 2$dB@6-18GHz
- Noise Figure: $\leq 1.4$ dB
- P1dB: $>9$dBm, $15$dBm at 12GHz
- Psat: $>11$dBm, $16.5$dBm at 10GHz
- Power Supply: +3.5V/85mA
- Input/Output: 50Ω
- Die Size: 1.63 x 1.2 x 0.1 mm

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

Electrical Specifications
TA = +25°C, VG1 = -0.35V, VD1 = 3.5V, ID = 85mA

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Typical Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>6 – 10</td>
</tr>
<tr>
<td>Small Signal Gain</td>
<td>23.7 – 26.7</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td>$\pm 1.5$</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>1.4</td>
</tr>
<tr>
<td>Output 1dB Compression (P1dB)</td>
<td>14.5</td>
</tr>
<tr>
<td>Saturated Output Power (Psat)</td>
<td>16.0</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>5.8</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>15</td>
</tr>
</tbody>
</table>

* Adjust VG1 slightly to obtain device current of 85mA.
### Pad Description

<table>
<thead>
<tr>
<th>No</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RF IN</td>
<td>Signal input terminal, connected to 50Ω circuit; blocking capacitor included on chip.</td>
</tr>
<tr>
<td>2</td>
<td>RF OUT</td>
<td>Signal output terminal, connected to 50Ω circuit; blocking capacitor included on chip.</td>
</tr>
<tr>
<td>3</td>
<td>VG1</td>
<td>Amplifier gate bias; connect to external 1000pF and 0.1uF bypass capacitors.</td>
</tr>
<tr>
<td>4</td>
<td>VD2</td>
<td>Amplifier drain bias; connect to external 1000pF and 0.1uF bypass capacitors.</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>Ground pad.</td>
</tr>
</tbody>
</table>

Outline Drawing:
All Dimensions in μm
Measurement Plots: S-parameters

![S-parameter plots for MML048T, VD = 3.5V, ID = 85mA](image)

Measurement Plots: P1dB

![P1dB plots for MML048T, VD = 3.5V, ID = 85mA](image)
Measurement Plots: Noise Figure

![Noise Figure Plot](image)

Measurement Plots: OIP3

![OIP3 Plot](image)
Notes:
1. Die thickness: 100μm
2. DC bond pad is 100 x 100 μm²
3. RF IN/OUT bond pad is 100 x 160 μm²
4. Bond pad metalization: Gold
5. Backside metalization: Gold
6. Backside of the die (GND)

Maximum Ratings:
1. Maximum drain voltage: +10V
2. Maximum gate bias: -3V
3. Maximum input power: +20dBm
4. Operating temperature: -55°C to +85°C
5. Storage temperature: -65°C to +150°C