Features
- Frequency: DC-20GHz
- Small Signal Gain: 16dB
- Gain Flatness: ≤± 0.5dB@DC-20GHz
- Noise Figure: ≤4dB
- P1dB: 22dBm
- Psat: 23dBm
- Power Supply: +8V/100mA
- Input/Output: 50Ω
- Die Size: 2.94 x 1.35 x 0.1 mm

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

Electrical Specifications
TA = +25°C, Vd = +8V, *Ids=100mA

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<tbody>
<tr>
<td>Frequency</td>
<td>DC-6</td>
<td>6-12</td>
<td>12-20</td>
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<td>GHz</td>
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<tr>
<td>Small Signal Gain</td>
<td>15.9</td>
<td>16</td>
<td>16.2</td>
<td>16</td>
<td>16</td>
<td>16.2</td>
<td>16.3</td>
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<td>dB</td>
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<tr>
<td>Gain Flatness</td>
<td>±0.2</td>
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<tr>
<td>Noise Figure</td>
<td>2.1</td>
<td>3.5</td>
<td>4.5</td>
<td>1.7</td>
<td>2.0</td>
<td>2.1</td>
<td>2.5</td>
<td>3.5</td>
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<td>dB</td>
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<tr>
<td>Output 1dB Compression (P1dB)</td>
<td>21.3</td>
<td>21.5</td>
<td>21.8</td>
<td>21.5</td>
<td>22</td>
<td>22.4</td>
<td>20.5</td>
<td>22</td>
<td>22.5</td>
<td>dBm</td>
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<tr>
<td>Saturated Output Power (Psat)</td>
<td>22.7</td>
<td>23</td>
<td>23.3</td>
<td>23.1</td>
<td>23.5</td>
<td>23.7</td>
<td>22.7</td>
<td>23</td>
<td>23.8</td>
<td>dBm</td>
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<tr>
<td>Input Return Loss</td>
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<td>18</td>
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<tr>
<td>Output Return Loss</td>
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<td>16</td>
<td>13</td>
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<td>dB</td>
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</tbody>
</table>

* Adjust VG (-2V-0V) to obtain device current of 100mA. (Approximately -0.7V)
MMW002
GaAs MMIC
Wide-band Amplifier
DC-20GHz

Gain vs. Frequency

Noise Figure vs. Frequency

Gain & Return Loss vs. Frequency

Reverse Isolation vs. Frequency

P1dB vs. Frequency

Psat vs. Frequency
**Pad Description**

<table>
<thead>
<tr>
<th>Pad</th>
<th>Function</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>RF IN</td>
<td>Signal input terminal, connected to 50Ω circuit; blocking capacitor required.</td>
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<tr>
<td>5</td>
<td>RF OUT</td>
<td>Signal output terminal, connected to 50Ω circuit; blocking capacitor required; external DC biasing network required; drain current provided. Refer to following assembly drawing or contact manufacturer*.</td>
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<tr>
<td>7</td>
<td>Vg</td>
<td>Amplifier gate bias; external 100pF bypass capacitor required.</td>
</tr>
<tr>
<td>8</td>
<td>Vd</td>
<td>Amplifier drain bias; external 100pF bypass capacitor required.</td>
</tr>
<tr>
<td>2, 3, 4, 6, die bottom</td>
<td>GND</td>
<td>Die bottom must be connected to RF/DC ground</td>
</tr>
</tbody>
</table>

*Manufacturer contact information is required for this pad. Please refer to the manufacturer's contact details for more information.
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. Maximum drain voltage: +14V
2. Maximum gate bias: -3V
3. Maximum input power: +20dBm
4. Operating temperature: -40°C to +70°C
5. Storage temperature: -65°C to +150°C