**FEATURES**

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**  
  $P_{1dB} = 42.5 \text{dBm at } 6.4 \text{GHz to 7.2GHz}$
- **HIGH GAIN**  
  $G_{1dB} = 9.5 \text{dB at } 6.4 \text{GHz to 7.2GHz}$
- **LOW INTERMODULATION DISTORTION**  
  $IM3 = -44 \text{dBc(Min.) at } P_{out} = 31.5 \text{dBm (Single Carrier Level)}$
- **HERMETICALLY SEALED PACKAGE**

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**RF PERFORMANCE SPECIFICATIONS  ( Ta= 25°C )**

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>SYMBOL</th>
<th>CONDITIONS</th>
<th>UNIT</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Power at 1dB</td>
<td>$P_{1dB}$</td>
<td>$V_{DS}= 10V$</td>
<td>dBm</td>
<td>41.5</td>
<td>42.5</td>
<td>—</td>
</tr>
<tr>
<td>Gain Compression Point</td>
<td>$G_{1dB}$</td>
<td>$IDS_{set}= 3.6A$</td>
<td>dB</td>
<td>8.5</td>
<td>9.5</td>
<td>—</td>
</tr>
<tr>
<td>Drain Current</td>
<td>$IDS_1$</td>
<td>$f= 6.4$ to 7.2GHz</td>
<td>A</td>
<td>—</td>
<td>4.4</td>
<td>5.0</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td>$\Delta G$</td>
<td></td>
<td>dB</td>
<td>—</td>
<td>—</td>
<td>±0.6</td>
</tr>
<tr>
<td>Power Added Efficiency</td>
<td>$\eta_{add}$</td>
<td></td>
<td>%</td>
<td>—</td>
<td>36</td>
<td>—</td>
</tr>
<tr>
<td>3rd Order Intermodulation Distortion</td>
<td>$IM3$</td>
<td>Two-Tone Test</td>
<td>dBc</td>
<td>—</td>
<td>-44</td>
<td>-47</td>
</tr>
<tr>
<td>Drain Current</td>
<td>$IDS_2$</td>
<td>$P_{o}= 31.5 \text{dBm, } \Delta f= 5 \text{MHz}$ (Single Carrier Level)</td>
<td>A</td>
<td>—</td>
<td>4.4</td>
<td>5.0</td>
</tr>
<tr>
<td>Channel Temperature Rise</td>
<td>$\Delta T_{ch}$</td>
<td>$\left(V_{DS} \times IDS + P_{1dB}\right) \times R_{th(c-c)}$</td>
<td>°C</td>
<td>—</td>
<td>—</td>
<td>80</td>
</tr>
</tbody>
</table>

**ELECTRICAL CHARACTERISTICS  ( Ta= 25°C )**

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>SYMBOL</th>
<th>CONDITIONS</th>
<th>UNIT</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transconductance</td>
<td>$gm$</td>
<td>$V_{DS}= 3V$</td>
<td>S</td>
<td>—</td>
<td>3.6</td>
<td>—</td>
</tr>
<tr>
<td>Pinch-off Voltage</td>
<td>$V_{GS_{off}}$</td>
<td>$V_{IDS}= 3V$</td>
<td>V</td>
<td>-1.0</td>
<td>-2.5</td>
<td>-4.0</td>
</tr>
<tr>
<td>Saturated Drain Current</td>
<td>$ID_{SS}$</td>
<td>$V_{IDS}= 3V$</td>
<td>A</td>
<td>—</td>
<td>10.5</td>
<td>—</td>
</tr>
<tr>
<td>Gate-Source Breakdown Voltage</td>
<td>$V_{GS_{O}}$</td>
<td>$IGS= -200 \mu A$</td>
<td>V</td>
<td>-5</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>$R_{th(c-c)}$</td>
<td>Channel to Case</td>
<td>°C/W</td>
<td>—</td>
<td>1.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>

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ABSOLUTE MAXIMUM RATINGS  (Ta= 25°C)

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>SYMBOL</th>
<th>UNIT</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Voltage</td>
<td>VDS</td>
<td>V</td>
<td>15</td>
</tr>
<tr>
<td>Gate-Source Voltage</td>
<td>VGS</td>
<td>V</td>
<td>-5</td>
</tr>
<tr>
<td>Drain Current</td>
<td>IDS</td>
<td>A</td>
<td>14.0</td>
</tr>
<tr>
<td>Total Power Dissipation (Tc=25°C)</td>
<td>PT</td>
<td>W</td>
<td>83.3</td>
</tr>
<tr>
<td>Channel Temperature</td>
<td>Tch</td>
<td>°C</td>
<td>175</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>°C</td>
<td>-65 to +175</td>
</tr>
</tbody>
</table>

PACKAGE OUTLINE (2-16G1B)

Unit in mm

1. Gate
2. Source
3. Drain

HANDLING PRECAUTIONS FOR PACKAGE MODEL

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.
TYPICAL RF PERFORMANCE

- Pout, Gain, PAE, IDS vs. Pin

VDS= 10 V, IDSset= 3.6 A, f= 6.4, 6.8, 7.2 GHz, Ta= +25 °C

![Pout vs Pin](image)

![Gain vs Pin](image)

![PAE vs Pin](image)

![IDS vs Pin](image)
- Pout, Gain, PAE, IDS vs. Pin vs. IDSset

VDS= 10 V, IDSset= 3.1, 3.6, 4.1 A, f= 6.8 GHz, Ta= +25 °C

**Pout vs Pin**
VDS=10V, f=6.8GHz

**Gain vs Pin**
VDS=10V, f=6.8GHz

**PAE vs Pin**
VDS=10V, f=6.8GHz

**IDS vs Pin**
VDS=10V, f=6.8GHz
IM3, IM5 vs. Pout

VDS= 10 V, IDSset= 3.6 A, f= 6.4, 6.8, 7.2 GHz, Δf= 5 MHz , Ta= +25 ℃

IM3 vs Pout
VDS=10V, IDS=3.6A

IM5 vs Pout
VDS=10V, IDS=3.6A

VDS= 10 V, IDSset= 3.1, 3.6, 4.1 A, f= 6.8 GHz, Δf= 5 MHz , Ta= +25 ℃
- Pout, Gain, PAE, IDS vs. Pin vs. Temperature

\[ \text{VDS} = 10 \text{ V}, \text{IDSset} = 3.6 \text{ A}, f = 6.8 \text{ GHz}, \text{Ta} = -25, +25, +75 \text{ °C} \]
- **S-Parameters**

  VDS= 10 V, IDSset= 3.6 A, f= 5.55 to 8.05 GHz, Ta= +25 °C

  ![Graph 1](image1.png)

  ![Graph 2](image2.png)

  ![Graph 3](image3.png)

  ![Graph 4](image4.png)
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