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

### 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 Gain Compression Point</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>Power Gain at 1dB Gain Compression Point</td>
<td>$G_{1dB}$</td>
<td>$V_{IDS}= 3.6A$</td>
<td>dB</td>
<td>8.5</td>
<td>9.5</td>
<td>___</td>
</tr>
<tr>
<td>Drain Current</td>
<td>$IDS1$</td>
<td>$f= 6.4$ to $7.2, \text{GHz}$</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>$P_{o}= 31.5, \text{dBm}$, $\Delta f = 5, \text{MHz}$ (Single Carrier Level)</td>
<td>dBc</td>
<td>-44</td>
<td>-47</td>
<td>___</td>
</tr>
<tr>
<td>Drain Current</td>
<td>$IDS2$</td>
<td>$V_{DS} = 3V$</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>$(V_{DS} \times IDS + Pin \div P_{1dB}) \times R_{th(c-c)}$</td>
<td>°C</td>
<td>___</td>
<td>___</td>
<td>80</td>
</tr>
</tbody>
</table>

Recommended Gate Resistance (Rg): 68 Ω

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

<table>
<thead>
<tr>
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<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>$V_{GSoff}$</td>
<td>$V_{DS} = 6.0A$</td>
<td>V</td>
<td>-1.0</td>
<td>-2.5</td>
<td>-4.0</td>
</tr>
<tr>
<td>Saturated Drain Current</td>
<td>$IDSS$</td>
<td>$V_{DS} = 3V$</td>
<td>A</td>
<td>___</td>
<td>10.5</td>
<td>___</td>
</tr>
<tr>
<td>Gate-Source Breakdown Voltage</td>
<td>$V_{GSO}$</td>
<td>$V_{GS} = 0V$</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>1.5</td>
<td>1.8</td>
<td>___</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)

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, IDS_set = 3.6 A, f = 6.4, 6.8, 7.2 GHz, Ta = +25 °C

[Graphs showing Pout, Gain, PAE, and IDS vs. Pin for different frequencies.]
- 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 = 10 V, f = 6.8 GHz

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

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

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

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

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

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

VDS = 10 V, IDSset = 3.1, 3.6, 4.1 A, f = 6.8 GHz, Δf = 5 MHz, Ta = +25 °C

IM3 vs. Pout
VDS = 10 V, f = 6.8 GHz

IM5 vs. Pout
VDS = 10 V, f = 6.8 GHz
- Pout, Gain, PAE, IDS vs. Pin vs. Temperature

\[ V_{DS} = 10 \text{ V}, \, I_{DS\text{set}} = 3.6 \text{ A}, \, f = 6.8 \text{ GHz}, \, T_a = -25, +25, +75 ^\circ \text{C} \]

**Pout vs Pin**

-25°C

+25°C

+75°C

**Gain vs Pin**

-25°C

+25°C

+75°C

**PAE vs Pin**

-25°C

+25°C

+75°C

**IDS vs Pin**

-25°C

+25°C

+75°C
S-Parameters

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