FEATURES

- BROAD BAND INTERNALLY MATCHED FET
- HIGH POWER
  \( P_{1dB} = 39.5\text{dBm} \) at \( 7.1\text{GHz} \) to \( 7.9\text{GHz} \)
- HIGH GAIN
  \( G_{1dB} = 9.0\text{dB} \) at \( 7.1\text{GHz} \) to \( 7.9\text{GHz} \)
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS \((\text{Ta} = 25^\circ\text{C})\)

<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>
</table>
| Output Power at 1dB Gain Compression Point    | P1dB   | \( V_{DS} = 10\text{V} \)  
\( I_{DS\text{set}} = 1.8\text{A} \)  
\( f = 7.1 \text{GHz} \) to \( 7.9\text{GHz} \) | dBm  | 38.5 | 39.5 |     |
| Power Gain at 1dB Gain Compression Point      | G1dB   |                                             | dB   | 8.0  | 9.0  |     |
| Drain Current                                | IDS1   |                                             | A    | 2.2  | 2.6  |     |
| Gain Flatness                                | \( \Delta G \) |                                             | dB   |     |      | ±0.6 |
| Power Added Efficiency                        | \( \eta_{\text{add}} \) |                                             | %    | 35  |     |     |
| 3rd Order Intermodulation Distortion         | IM3    | Two Tone Test  
\( P_{0} = 28.5\text{dBm} \)  
\( \Delta f = 5\text{MHz} \) (Single Carrier Level) | dBC  | -44 | -47  |     |
| Drain Current                                | IDS2   | \( (V_{DS} \times I_{DS} + P_{1dB}) \)  
\( X R_{th(c-c)} \) | A    | 2.2  | 2.6  |     |
| Channel Temperature Rise                     | \( \Delta T_{ch} \) |                                            | °C   | 80  |     |     |

Recommended Gate Resistance (Rg): 150 \( \Omega \)

ELECTRICAL CHARACTERISTICS \((\text{Ta} = 25^\circ\text{C})\)

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</tr>
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</table>
| Transconductance                             | \( gm \) | \( V_{DS} = 3\text{V} \)  
\( I_{DS} = 3.0\text{A} \) | S    | 1.8  |     |     |
| Pinch-off Voltage                            | VGSoff | \( V_{DS} = 3\text{V} \)  
\( I_{DS} = 30\text{mA} \) | V    | -1.0 | -2.5 | -4.0 |
| Saturated Drain Current                      | IDSS   | \( V_{DS} = 3\text{V} \)  
\( V_{GS} = 0\text{V} \) | A    | 5.2  |     |     |
| Gate-Source Breakdown Voltage                | VGSO   | IGS = -100\text{\uA}                  | V    | -5   |     |     |
| Thermal Resistance                           | Rth(c-c) | Channel to Case                             | °C/W | 2.5  | 3.5  |     |

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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>7.0</td>
</tr>
<tr>
<td>Total Power Dissipation (Tc= 25°C)</td>
<td>PT</td>
<td>W</td>
<td>42.9</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 (2-11D1B)

![Package Outline Diagram](image)

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.
**Output Power vs. Frequency**

- **Conditions**: $V_{DS} = 10V$, $I_{DS} = 2.2A$, $P_{in} = 30.5\,dBm$
- **Graph**: Shows the output power ($P_o$) in dBm vs. frequency (GHz) from 6.8 GHz to 8.2 GHz.

**Output Power vs. Input Power**

- **Conditions**: $f = 7.5GHz$, $V_{DS} = 10V$, $I_{DS} = 2.2A$
- **Graph**: Shows the output power ($P_o$) in dBm vs. input power ($P_{in}$) in dBm from 24 dBm to 34 dBm.
Power Dissipation vs. Case Temperature

IM3 vs. Output Power Characteristics

- $V_{DS} = 10V$
- $I_{DS} = 2.2A$
- $f = 7.5GHz$
- $\Delta f = 5MHz$