FEATURES
- BROAD BAND INTERNALLY MATCHED FET
- HIGH POWER
  \( P_{1dB} = 46.5\,\text{dBm} \) at 4.4GHz to 5.0GHz
- HIGH GAIN
  \( G_{1dB} = 9.5\,\text{dB} \) at 4.4GHz to 5.0GHz
- LOW INTERMODULATION DISTORTION
  \( \text{IM}3 = -45\,\text{dBc} \) at \( P_{\text{out}} = 35.5\,\text{dBm} \)
  Single Carrier Level
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS \( (T_a = 25^\circ C) \)

<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              | \( P_{1dB} \) | \( VDS = 10\,\text{V} \)
  Gain Compression Point           |        | \( f = 4.4\,\text{to}\,5.0\,\text{GHz} \) | dBm  | 46.0 | 46.5 |      |
| Power Gain at 1dB                | \( G_{1dB} \) | \( VDS = 10\,\text{V} \)
  Gain Compression Point           |        | \( f = 4.4\,\text{to}\,5.0\,\text{GHz} \) | dB   | 8.5  | 9.5  |      |
| Drain Current                    | \( I_{DS1} \) |                              | A    | 9.6  | 10.8 |      |
| Gain Flatness                    | \( \Delta G \) |                              | dB   |      |      | \pm 0.8 |
| Power Added Efficiency           | \( \eta_{\text{add}} \) | Two Tone Test
  3rd Order Intermodulation       |        | \( P_{o} = 35.5\,\text{dBm}, \Delta f = 5\,\text{MHz} \)
  Distortion                      |        | \( \text{(Single Carrier Level)} \) | dBc  | -42  | -45  |      |
| Drain Current                    | \( I_{DS2} \) |                              | A    | 9.6  | 10.8 |      |
| Channel Temperature Rise         | \( \Delta T_{\text{ch}} \) | \( (VDS \times I_{DS} + P_{1dB}) \)
  \( X R_{th(c-c)} \)              |        |                                  | °C   |      |      | 100  |

Recommended Gate Resistance \( R_{g} \): 28 Ω

ELECTRICAL CHARACTERISTICS \( (T_a = 25^\circ C) \)

<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>
| Transconductance                 | \( g_m \) | \( VDS = 3\,\text{V} \)
  IDS = 11.0A                      |        | S                                |      | 8.0  |      |      |
| Pinch-off Voltage                | \( V_GS_{\text{off}} \) | \( VDS = 3\,\text{V} \)
  IDS = 170mA                      |        | V                                | -1.0 | -2.5 | -4.0 |      |
| Saturated Drain Current          | \( I_{DSS} \) | \( VDS = 3\,\text{V} \)
  \( V_GS = 0\,\text{V} \)         |        | A                                |      | 24   |      |      |
| Gate-Source Breakdown Voltage    | \( V_{GS} \) | IGS = -500\,\mu\text{A}          | V    | -5   |      |      |
| Thermal Resistance               | \( R_{th(c-c)} \) | Channel to Case                  | °C/W | 0.8  | 1.2  |      |

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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>20</td>
</tr>
<tr>
<td>Total Power Dissipation (Tc= 25°C)</td>
<td>PT</td>
<td>W</td>
<td>125</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)

![Diagram of package outline]

**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.
**RF PERFORMANCE**

**Output Power (Pout) vs. Frequency**

- VDS = 10V
- IDS = 9.6A
- Pin = 37.0 dBm

**Output Power (Pout) vs. Input Power (Pin)**

- freq. = 5.0 GHz
- VDS = 10V
- IDS = 9.6A

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MICROWAVE SEMICONDUCTOR TECHNICAL DATA

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Power Dissipation (PT) vs. Case Temperature (Tc)

IM3 vs. Output Power Characteristics

VDS=10V  
IDS=9.6A  
freq.=5.0GHz  
Δf=5MHz
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