FEATURES
- BROAD BAND INTERNALLY MATCHED FET
- HIGH POWER
  \( P_{1dB} = 45.0\,\text{dBm} \) at 9.5GHz to 10.5GHz
- HIGH GAIN
  \( G_{1dB} = 7.0\,\text{dB} \) at 10.5GHz to 10.5GHz
- LOW INTERMODULATION DISTORTION
  \( \text{IM3} = -25\,\text{dBc} \) (Min.) at \( P_{out} = 38\,\text{dBm} \) (Single Carrier Level)
- HERMETICALLY SEALED PACKAGE

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

<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>
</table>
| Output Power at 1dB              | \( \text{P}_{1dB} \) | V\( \text{DS} = 10\,\text{V} \)
  Gain Compression Point          |         | IDS\( \text{set} = 7.0\,\text{A} \)
  f= 9.5 to 10.5GHz               | \( \text{dBm} \) | 44.0  | 45.0  |   |     |
| Power Gain at 1dB               | \( \text{G}_{1dB} \) | V\( \text{DS} = 10\,\text{V} \)
  Gain Compression Point          |         | IDS\( \text{set} = 7.0\,\text{A} \)
  f= 9.5 to 10.5GHz               | \( \text{dB} \) | 6.0   | 7.0   |   |     |
| Drain Current                   | \( \text{IDS}_1 \) | \( \Delta G \) (Two-Tone Test)
  Po= 38dBm, \( \Delta f = 5\,\text{MHz} \)
  (Single Carrier Level)          | \( \text{A} \) | 10.0  | 11.5  |   |     |
| Gain Flatness                   | \( \Delta G \) | \( \text{dB} \) |     |     |     |     |
| Power Added Efficiency          | \( \eta_{\text{add}} \) | % |     |     |     |     |
| 3rd Order Intermodulation       | \( \text{IM}_3 \) | \( \text{dBC} \) (Min.)
  Distortion                      |         | Po= 38dBm, \( \Delta f = 5\,\text{MHz} \)
  (Single Carrier Level)          |     | -25   |   |     |
| Drain Current                   | \( \text{IDS}_2 \) | \( \text{A} \) |     |     |     |     |
| Channel Temperature Rise        | \( \Delta T_{\text{ch}} \) | \( \text{°C} \) |     |     |     | 100  |

Recommended Gate Resistance (\( \text{Rg} \)): 10 \( \Omega \)

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

<table>
<thead>
<tr>
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<th>CONDITIONS</th>
<th>UNIT</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
</tr>
</thead>
</table>
| Transconductance                 | \( \text{gm} \) | V\( \text{DS} = 3\,\text{V} \)
  IDS\( = 9.6\,\text{A} \)     | S     |       | 5.5   |   |     |
| Pinch-off Voltage                | \( \text{VGSoff} \) | V\( \text{DS} = 3\,\text{V} \)
  IDS\( = 290\,\text{mA} \)    | V     | -0.7  | -2.0  | -4.5 |
| Saturated Drain Current          | \( \text{IDSS} \) | V\( \text{DS} = 3\,\text{V} \)
  VGS\( = 0\,\text{V} \)       | A     |       | 20.0  |   |     |
| Gate-Source Breakdown Voltage    | \( \text{VGSO} \) | IGS\( = -290\,\mu\text{A} \) | V     | -5    |   |     |
| Thermal Resistance               | \( \text{Rth(c-c)} \) | Channel to Case \( ^{\circ}\text{C/W} \) | 1.0   | 1.1   |   |     |

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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>136</td>
</tr>
<tr>
<td>Channel Temperature</td>
<td>Tch</td>
<td>°C</td>
<td>175</td>
</tr>
<tr>
<td>Storage</td>
<td>Tstg</td>
<td>°C</td>
<td>-65 to +175</td>
</tr>
</tbody>
</table>

### PACKAGE OUTLINE (7-AA03B)

![Package Outline Diagram](image)

**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

- \( P_{\text{out}} \), Gain, PAE, IDS vs. Pin

\[ \text{VDS}= 10 \text{ V}, \text{IDS}_{\text{set}}= 7.0 \text{ A}, f \in 9.5, 10.0, 10.5 \text{ GHz}, \text{Ta}= +25 \text{ °C} \]

- **Pout vs Pin**
  - \( V_{DS}=10\text{V}, \text{IDS}=7.0\text{A} \)

- **Gain vs Pin**
  - \( V_{DS}=10\text{V}, \text{IDS}=7.0\text{A} \)

- **PAE vs Pin**
  - \( V_{DS}=10\text{V}, \text{IDS}=7.0\text{A} \)

- **IDS vs Pin**
  - \( V_{DS}=10\text{V}, \text{IDS}=7.0\text{A} \)

\( 9.5\text{GHz} \)
\( 10.0\text{GHz} \)
\( 10.5\text{GHz} \)
- **IM3 vs. Pout**

  VDS= 10 V, IDSset= 7.0 A, f= 9.5, 10.0, 10.5 GHz, Δf= 5 MHz, Ta= +25 ℃

![IM3 vs Pout](image-url)
- S-Parameters

VDS = 10 V, IDS = 7.0 A, f = 8.0 to 12.0 GHz, Ta = +25 °C
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