FEATURES
- BROAD BAND INTERNALLY MATCHED FET
- HIGH POWER
  - $P_{1dB}= 45.0 \text{dBm}$ at 5.9GHz to 6.4GHz
- HIGH GAIN
  - $G_{1dB}= 10.0 \text{dB}$ at 5.9GHz to 6.4GHz
- LOW INTERMODULATION DISTORTION
  - $IM3(\text{MIN.}) = -44 \text{dBc}$ at $\text{P}_{\text{out}}= 34 \text{dBm}$ (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 Gain Compression Point | $P_{1dB}$ | $V_{DS}= 10V$  
IDS$_{set}= 6.4A$  
f= 5.9 to 6.4GHz | dBm | 44.0 | 45.0 |  |
| Power Gain at 1dB Gain Compression Point | $G_{1dB}$ | $V_{DS}= 3V$  
IDS$_{set}= 10.0A$  
c= 10.0A  
IDS$_{set}= 80mA$  
f= 5MHz  
IDS$_{set}= 0V$ | dB | 9.0 | 10.0 |  |
| Drain Current | $IDS_1$ | $V_{DS}= 3V$  
IDS$_{set}= 10.0A$  
c= 5MHz  
IDS$_{set}= 0V$ | A | 7.0 | 8.0 |  |
| Gain Flatness | $\Delta G$ | $V_{DS}= 3V$  
IDS$_{set}= 10.0A$  
c= 5MHz  
IDS$_{set}= 0V$ | dB |  |  | ±0.6 |
| Power Added Efficiency | $\eta_{\text{add}}$ | Two-Tone Test  
$P_{\text{in}}= 34 \text{dBm}$  
$\Delta f= 5 \text{MHz}$  
(Single Carrier Level) | % |  |  |  |
| 3rd Order Intermodulation Distortion | $IM3$ | Two-Tone Test  
$P_{\text{in}}= 34 \text{dBm}$  
$\Delta f= 5 \text{MHz}$  
(Single Carrier Level) | dBc | -44 | -47 |  |
| Drain Current | $IDS_2$ | $V_{DS}= 3V$  
IDS$_{set}= 10.0A$  
c= 5MHz  
IDS$_{set}= 0V$ | A | 7.0 | 8.0 |  |
| Channel Temperature Rise | $\Delta T_{ch}$ | $(V_{DS} \times IDS + Pin - P_{1dB}) \times R_{th(c-c)}$ | °C |  |  | 100 |

Recommended Gate Resistance(Rg): 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              | $g_m$ | $V_{DS}= 3V$  
IDS$_{set}= 10.0A$ | S |  | 8.0 |  |
| Pinch-off Voltage             | $V_{GSoff}$ | $V_{DS}= 3V$  
IDS$_{set}= 80mA$ | V | -0.5 | -2.0 | -3.0 |
| Saturated Drain Current       | $ID_{SS}$ | $V_{DS}= 3V$  
VGS = 0V | A |  | 16.0 |  |
| Gate-Source Breakdown Voltage | $V_{GSO}$ | IGS = -240μA | V | -5 |  |  |
| Thermal Resistance            | $R_{th(c-c)}$ | Channel to Case | °C/W |  | 1.0 | 1.5 |

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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>18.0</td>
</tr>
<tr>
<td>Total Power Dissipation (Tc = 25°C)</td>
<td>PT</td>
<td>W</td>
<td>100</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-AA05A)

![Package Outline Diagram]

**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 = 6.4 A, f = 5.9, 6.15, 6.4 GHz, Ta = +25 °C
VDS= 10 V, IDSset= 6.4 A, f = 5.9, 6.15, 6.4 GHz, Δf= 5 MHz , Ta= +25 °C

IM3 vs Pout
VDS=10V, IDS=6.4A

IM5 vs Pout
VDS=10V, IDS=6.4A

Pout vs Frequency
VDS= 10 V, IDSset= 6.4 A, Ta= +25 °C

Pout vs Freq
Vds=10V  IDS=6.4Aset
Pout, Gain, PAE, IDS vs. Pin vs. IDS set

VDS = 10 V, IDS set = 5.4, 6.4, 7.4 A, f = 6.15 GHz, Ta = +25 °C
- Pout, Gain, PAE, IDS vs. Pin vs. Temperature

VDS = 10 V, IDSset = 6.4 A, f = 6.15 GHz, Ta = -25, +25, +75 °C
· S-Parameters

VDS = 10 V, IDS(set) = 6.4 A, f = 4.0 to 9.0 GHz, Ta = +25 ºC

S11, S22

S21, S12

S-Parameters

VDS = 10 V, IDS(set) = 6.4 A, f = 4.0 to 9.0 GHz, Ta = +25 ºC
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