**FEATURES**

- **BROAD BAND INTERNALLY MATCHED FET**
- **HIGH POWER**
  \[ P_{1dB} = 46.5\text{dBm} \text{ at } 5.9\text{GHz} \text{ to } 6.4\text{GHz} \]
- **HIGH GAIN**
  \[ G_{1dB} = 9.0\text{dB} \text{ at } 5.9\text{GHz} \text{ to } 6.4\text{GHz} \]
- **LOW INTERMODULATION DISTORTION**
  \[ I_{M3} = -45\text{dBc} \text{ at } P_{out} = 35.5\text{dBm} \text{ (Single Carrier Level)} \]
- **HERMETICALLY SEALED PACKAGE**

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

<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 | \( P_{1dB} \) | \( V_{DS} = 10\text{V} \)
\( I_{DS\text{set}} = 9.0\text{A} \)
\( f = 5.9 \text{ to } 6.4\text{GHz} \) | dBm | 46.0 | 46.5 | — |
| Power Gain at 1dB Gain Compression Point | \( G_{1dB} \) | | dB | 8.0 | 9.0 | — |
| Drain Current | \( I_{DS1} \) | | A | — | 9.6 | 10.8 |
| Gain Flatness | \( \Delta G \) | | dB | — | — | \( \pm 0.8 \) |
| Power Added Efficiency | \( \eta_{add} \) | | % | — | 41 | — |
| 3rd Order Intermodulation Distortion | \( IM3 \) | Two-Tone Test
\( P_o = 35.5\text{dBm}, \Delta f = 5\text{MHz} \)
(Single Carrier Level) | dBc | -42 | -45 | — |
| Drain Current | \( I_{DS2} \) | | A | — | 9.6 | 10.8 |
| Channel Temperature Rise | \( \Delta T_{ch} \) | \( (V_{DS} \times I_{DS} + P_{in} - P_{1dB}) \) \times R_{th(c-c)} | °C | — | — | 100 |

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

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

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MICROWAVE SEMICONDUCTOR TECHNICAL DATA

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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)**

![Package Outline Diagram]

**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

- $P_{out}$, Gain, PAE, $I_{DS}$ vs $P_{in}$

$V_{DS} = 10$ V, $I_{DS_{set}} = 9$ A, $f = 5.9, 6.15, 6.4$ GHz, $T_a = +25$ °C
- Pout vs. Frequency

VDS = 10 V, IDSset = 9.0 A, Ta = +25 °C

![Pout vs Freq](image)
- Pout, Gain, PAE, IDS vs. Pin vs. IDSset

VDS = 10 V, IDSset = 8.0, 9.0, 10.0 A, f = 6.15 GHz, Ta = +25 °C

**Pout vs Pin**
VDS = 10 V, f = 6.15 GHz

**Gain vs Pin**
VDS = 10 V, f = 6.15 GHz

**PAE vs Pin**
VDS = 10 V, f = 6.15 GHz

**IDS vs Pin**
VDS = 10 V, f = 6.15 GHz
- Pout, Gain, PAE, IDS vs. Pin vs. Temperature

VDS = 10 V, IDSset = 9.0 A, f = 6.15 GHz, Ta = -25, +25, +75 °C

Pout vs Pin
VDS = 10 V, IDSset = 9.0 A, f = 6.15 GHz

Gain vs Pin
VDS = 10 V, IDSset = 9.0 A, f = 6.15 GHz

PAE vs Pin
VDS = 10 V, IDSset = 9.0 A, f = 6.15 GHz

IDS vs Pin
VDS = 10 V, IDSset = 9.0 A, f = 6.15 GHz
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