Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- Common source configuration
- Lower noise floor
- RoHS Compliant
- 100 MHz to 500 MHz operation

**ABSOLUTE MAXIMUM RATINGS AT 25°C**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Voltage</td>
<td>V_DS</td>
<td>65</td>
<td>V</td>
</tr>
<tr>
<td>Gate-Source Voltage</td>
<td>V_GS</td>
<td>20</td>
<td>V</td>
</tr>
<tr>
<td>Drain-Source Current</td>
<td>I_DS</td>
<td>4.2</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>P_D</td>
<td>48.6</td>
<td>W</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>T_J</td>
<td>200</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T_STG</td>
<td>-55 to 150</td>
<td>°C</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>θ_JC</td>
<td>3.6</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

**TYPICAL DEVICE IMPEDANCES**

\[
\begin{align*}
\text{Z}_\text{IN} & = 6.4 - j25.0 \Omega, F = 100 \\
\text{Z}_\text{LOAD} & = 22.9 - j16.0 \Omega, F = 100 \\
\text{Z}_\text{IN} & = 6.5 - j12.0 \Omega, F = 300 \\
\text{Z}_\text{LOAD} & = 15.0 - j14.0 \Omega, F = 300 \\
\text{Z}_\text{IN} & = 1.7 - j10.5 \Omega, F = 500 \\
\text{Z}_\text{LOAD} & = 8.0 - j10.5 \Omega, F = 500 \\
\end{align*}
\]

\[V_{\text{DD}} = 28V, I_{\text{DQ}} = 150 mA, P_{\text{OUT}} = 15.0 W\]

\[Z_{\text{IN}}\] is the series equivalent input impedance of the device from gate to source.

\[Z_{\text{LOAD}}\] is the optimum series equivalent load impedance as measured from drain to ground.

**ELECTRICAL CHARACTERISTICS AT 25°C**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Breakdown Voltage</td>
<td>V_{GS}</td>
<td>65</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Drain-Source Leakage Current</td>
<td>I_{DSS}</td>
<td>-</td>
<td>3.0</td>
<td>mA</td>
</tr>
<tr>
<td>Gate-Source Leakage Current</td>
<td>I_{GSS}</td>
<td>-</td>
<td>3.0</td>
<td>μA</td>
</tr>
<tr>
<td>Gate Threshold Voltage</td>
<td>V_{GS(TH)}</td>
<td>2.0</td>
<td>6.0</td>
<td>V</td>
</tr>
<tr>
<td>Forward Transconductance</td>
<td>G_M</td>
<td>.240</td>
<td>-</td>
<td>S</td>
</tr>
<tr>
<td>Input Capacitance</td>
<td>C_{GSS}</td>
<td>-</td>
<td>21</td>
<td>pF</td>
</tr>
<tr>
<td>Output Capacitance</td>
<td>C_OSS</td>
<td>-</td>
<td>15</td>
<td>pF</td>
</tr>
<tr>
<td>Reverse Capacitance</td>
<td>C_RSS</td>
<td>-</td>
<td>7.2</td>
<td>pF</td>
</tr>
<tr>
<td>Power Gain</td>
<td>G_P</td>
<td>10</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Drain Efficiency</td>
<td>r_P</td>
<td>50</td>
<td>-</td>
<td>%</td>
</tr>
<tr>
<td>Load Mismatch Tolerance</td>
<td>VSWR-T</td>
<td>-</td>
<td>20:1</td>
<td>-</td>
</tr>
</tbody>
</table>
RF Power MOSFET Transistor
15W, 100-500 MHz, 28V

Typical Broadband Performance Curves

CAPACITANCES vs VOLTAGE
F=1.0MHz

POWER OUTPUT vs VOLTAGE
P_{IN}=1.0 W I_{DQ}=150 mA P_{OUT}=500 W

GAIN vs FREQUENCY
V_{DD}=28 V P_{OUT}=15 W I_{DQ}=100 mA

EFFICIENCY vs FREQUENCY
V_{DD}=28V I_{DQ}=150 mA P_{OUT}=15 W

POWER OUTPUT vs POWER INPUT
V_{DD}=28 V I_{DQ}=150 mA

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RF Power MOSFET Transistor
15W, 100-500 MHz, 28V

TEST FIXTURE SCHEMATIC

L1, L2: 8 TURNS OF NO. 22 AWG ON 0.12" 
L3: 20 TURNS OF NO. 22 AWG ON 0.12" 
BOARD TYPE: TELFON FIBERGLASS, 0.062" THICK, 1 OZ. COPPER ON BOTH SIDES

TEST FIXTURE ASSEMBLY
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