RF Power MOSFET Transistor
60 W, 2 - 175 MHz, 28 V

Features
- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than bipolar devices
- RoHS Compliant

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>12</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>P_{D}</td>
<td>159</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>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>θ_{JC}</td>
<td>1.1</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

TYPICAL DEVICE IMPEDANCE

<table>
<thead>
<tr>
<th>F (MHz)</th>
<th>Z_{IN} (Ω)</th>
<th>Z_{LOAD} (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>9.0 - j4.0</td>
<td>6.0 + j0.0</td>
</tr>
<tr>
<td>50</td>
<td>10.0 - j6.5</td>
<td>5.0 + j2.0</td>
</tr>
<tr>
<td>100</td>
<td>6.0 - j5.5</td>
<td>4.0 + j3.0</td>
</tr>
<tr>
<td>200</td>
<td>1.1 - j3.0</td>
<td>2.0 + j1.9</td>
</tr>
</tbody>
</table>

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

Z_{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>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Breakdown Voltage</td>
<td>V_{BDS}</td>
<td>65</td>
<td>-</td>
<td>V</td>
<td>V_{DS} = 0.0 V , I_{DS} = 15.0 mA</td>
</tr>
<tr>
<td>Drain-Source Leakage Current</td>
<td>I_{DSS}</td>
<td>-</td>
<td>3.0</td>
<td>mA</td>
<td>V_{DS} = 28.0 V , V_{GS} = 0.0 V</td>
</tr>
<tr>
<td>Gate-Source Leakage Current</td>
<td>I_{GSS}</td>
<td>-</td>
<td>3.0</td>
<td>μA</td>
<td>V_{DS} = 20.0 V , V_{DS} = 0.0 V</td>
</tr>
<tr>
<td>Gate Threshold Voltage</td>
<td>V_{GS(TH)}</td>
<td>2.0</td>
<td>6.0</td>
<td>V</td>
<td>V_{DS} = 10.0 V , I_{DSS} = 300.0 mA</td>
</tr>
<tr>
<td>Forward Transconductance</td>
<td>G_{M}</td>
<td>1.5</td>
<td>-</td>
<td>S</td>
<td>V_{DS} = 10.0 V , I_{DSS} = 3.0 A , Δ V_{GS} = 1.0 V, 80 μs Pulse</td>
</tr>
<tr>
<td>Input Capacitance</td>
<td>C_{ISS}</td>
<td>-</td>
<td>135</td>
<td>pF</td>
<td>V_{DS} = 28.0 V , F = 1.0 MHz</td>
</tr>
<tr>
<td>Output Capacitance</td>
<td>C_{OSS}</td>
<td>-</td>
<td>120</td>
<td>pF</td>
<td>V_{DS} = 28.0 V , F = 1.0 MHz</td>
</tr>
<tr>
<td>Reverse Capacitance</td>
<td>C_{RSS}</td>
<td>-</td>
<td>24</td>
<td>pF</td>
<td>V_{DS} = 28.0 V , F = 1.0 MHz</td>
</tr>
<tr>
<td>Power Gain</td>
<td>G_{p}</td>
<td>13</td>
<td>-</td>
<td>dB</td>
<td>V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz</td>
</tr>
<tr>
<td>Drain Efficiency</td>
<td>η_{D}</td>
<td>60</td>
<td>-</td>
<td>%</td>
<td>V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz</td>
</tr>
<tr>
<td>Load Mismatch Tolerance</td>
<td>VSWR-T</td>
<td>-</td>
<td>30.1</td>
<td>-</td>
<td>V_{DD} = 28.0 V, I_{DQ} = 300 mA, P_{OUT} = 60 W F =175 MHz</td>
</tr>
</tbody>
</table>

Package Outline

<table>
<thead>
<tr>
<th>LETTER</th>
<th>MILLIMETERS</th>
<th>INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIM</td>
<td>MIN</td>
<td>MAX</td>
</tr>
<tr>
<td>A</td>
<td>24.64</td>
<td>24.89</td>
</tr>
<tr>
<td>B</td>
<td>18.29</td>
<td>18.54</td>
</tr>
<tr>
<td>C</td>
<td>21.21</td>
<td>21.97</td>
</tr>
<tr>
<td>D</td>
<td>12.60</td>
<td>12.85</td>
</tr>
<tr>
<td>E</td>
<td>6.22</td>
<td>6.48</td>
</tr>
<tr>
<td>F</td>
<td>3.81</td>
<td>4.06</td>
</tr>
<tr>
<td>G</td>
<td>5.33</td>
<td>5.59</td>
</tr>
<tr>
<td>H</td>
<td>5.08</td>
<td>5.33</td>
</tr>
<tr>
<td>J</td>
<td>3.05</td>
<td>3.30</td>
</tr>
<tr>
<td>K</td>
<td>2.29</td>
<td>2.54</td>
</tr>
<tr>
<td>L</td>
<td>4.06</td>
<td>4.57</td>
</tr>
<tr>
<td>M</td>
<td>6.68</td>
<td>7.49</td>
</tr>
<tr>
<td>N</td>
<td>.10</td>
<td>.15</td>
</tr>
</tbody>
</table>
RF Power MOSFET Transistor
60 W, 2 - 175 MHz, 28 V

 Typical Broadband Performance Curves

GAIN vs FREQUENCY
V_{DD}=28 V I_{DO}=300 mA P_{OUT}=60 W

EFFICIENCY vs FREQUENCY
V_{DD}=28 V I_{DO}=300 mA P_{OUT}=60 W

POWER OUTPUT vs POWER INPUT
V_{DD}=28 V I_{DO}=300 mA