Features
- DMOS structure
- Lower capacitance for broadband operation
- Common source configuration

**ABSOLUTE MAXIMUM RATINGS**, 2, 3

<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>16*</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>( P_D )</td>
<td>389</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>( \Theta_{JC} )</td>
<td>0.45</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. M/A-COM does not recommend sustained operation near these maximum limits.
3. At 25°C Tcase, unless noted.

**ELECTRICAL SPECIFICATIONS: 25°C**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain-Source Breakdown Voltage</td>
<td>( V_{DS} = 0.0 , V, , I_{DS} = 20.0 , mA* )</td>
<td>( B_{VSS} )</td>
<td>65</td>
<td>—</td>
</tr>
<tr>
<td>Drain-Source Leakage Current</td>
<td>( V_{DS} = 28.0 , V, , V_{GS} = 0.0V* )</td>
<td>( I_{DSS} )</td>
<td>—</td>
<td>4.0</td>
</tr>
<tr>
<td>Gate-Source Leakage Current</td>
<td>( V_{DS} = 20 , V, , V_{DS} = 0.0V* )</td>
<td>( I_{GSS} )</td>
<td>—</td>
<td>4.0</td>
</tr>
<tr>
<td>Gate Threshold Voltage</td>
<td>( V_{DS} = 10.0 , V, , I_{DS} = 400.0 , mA* )</td>
<td>( V_{GS(TH)} )</td>
<td>2.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Forward Transconductance</td>
<td>( V_{DS} = 10.0 , V, , I_{DS} = 4000.0 , mA, , \Delta V_{GS} = 1.0 , V, , 80\mu s ) pulse*</td>
<td>( \Gamma )</td>
<td>2.0</td>
<td>—</td>
</tr>
<tr>
<td>Input Capacitance</td>
<td>( V_{DS} = 28.0V, , F = 1.0 , MHz* )</td>
<td>( C_{ISS} )</td>
<td>—</td>
<td>180</td>
</tr>
<tr>
<td>Output Capacitance</td>
<td>( V_{DS} = 28.0V, , F = 1.0 , MHz* )</td>
<td>( C_{OSS} )</td>
<td>—</td>
<td>120</td>
</tr>
<tr>
<td>Reverse Capacitance</td>
<td>( V_{DS} = 28.0V, , F = 1.0 , MHz* )</td>
<td>( C_{RSS} )</td>
<td>—</td>
<td>32</td>
</tr>
<tr>
<td>Power Gain</td>
<td>( V_{DD} = 28.0 , V, , I_{DQ} = 400.0 , mA, , P_{OUT} = 150.0 , W, , F = 500 , MHz )</td>
<td>( G_{P} )</td>
<td>8</td>
<td>—</td>
</tr>
<tr>
<td>Drain Efficiency</td>
<td>( V_{DD} = 28.0 , V, , I_{DQ} = 400.0 , mA, , P_{OUT} = 150.0 , W, , F = 500 , MHz )</td>
<td>( \eta_{D} )</td>
<td>55</td>
<td>—</td>
</tr>
<tr>
<td>Load Mismatch Tolerance</td>
<td>( V_{DD} = 28.0 , V, , I_{DQ} = 400.0 , mA, , P_{OUT} = 150.0 , W, , F = 500 , MHz )</td>
<td>( VSWR-T )</td>
<td>—</td>
<td>10:1**</td>
</tr>
</tbody>
</table>

Notes:
* Per side
** At all phase angles
UF28150J

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

Typical Broadband Performance Curves

Capacitance vs Voltage
F=1.0 MHz

Power Output vs Voltage
P_{IN} = 24 W  I_{DQ} = 400 mA  F = 500 MHz

Gain vs Frequency
V_{DD} = 28V  P_{OUT} = 100W  I_{DQ} = 400mA

Efficiency vs Frequency
V_{DD} = 28W  I_{DQ} = 400mA  P_{OUT} = 150W

Power Output vs Power Input
V_{DD} = 28W  I_{DQ} = 400mA

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UF28150J

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

Rev. V1

TYPICAL OPTIMUM DEVICE IMPEDANCES

<table>
<thead>
<tr>
<th>F (MHz)</th>
<th>$Z_{IN}$ (Ω)</th>
<th>$Z_{LOAD}$ (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>3.7 - j6.9</td>
<td>3.0 - j0.7</td>
</tr>
<tr>
<td>300</td>
<td>2.7 - j6.9</td>
<td>2.6 - j0.55</td>
</tr>
<tr>
<td>500</td>
<td>2.5 - j2.9</td>
<td>2.5 - j0.5</td>
</tr>
</tbody>
</table>

$V_{DD} = 28V$, $I_{DD} = 400mA$, $P_{OUT} = 150W$

HANDLING PROCEDURES: STATIC SENSITIVITY

Please observe the following precautions to avoid damage:
DMOS devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

PARTS LIST

- C23: 1.0pF
- C1: 9.1pF
- C12: 11pF
- C2, 3, 13, 22: 270pF
- C7,16: 680pF
- C4,6,15,17: 0.015uF
- C18: 50uF 50V
- R1: 11K OHM .25 W. 10%
- R2: 47 OHM .5 W. 10%
- R3: 12 OHM .25 W. 10%
- T1: 2.50' OF 50 OHM (.85' OD) SEMI-RIGID CABLE
- T2,3,4,5: 2.50' OF 10 OHM (.70' OD) SEMI-RIGID CABLE
- T6: 2.50' OF 50 OHM (.141' OD) SEMI-RIGID CABLE
- L1: 5uH 16 TURNS OF NO. 18 AWG ON TORID CORE
- (INDIANA GENERAL F6278-Q1)
- L2: 16 TURNS OF NO. 18 AWG ON .125 DIAMETER
- L3,4: 9 TURNS OF NO. 18 AWG ON 15 OHM 2 W. 10% RESISTOR
- Q1A, 1B: UF28150J

For further information and support please visit:
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RF Power MOSFET Transistor
150 W, 100 - 500 MHz, 28 V

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