Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than bipolar devices
- Specifically designed for 12 volt applications
- 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>40</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</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>P_D</td>
<td>87.5</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>2</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>3.0 - j25</td>
<td>4.0 - j3.0</td>
</tr>
<tr>
<td>100</td>
<td>3.0 - j15</td>
<td>3.5 - j1.5</td>
</tr>
<tr>
<td>175</td>
<td>5.0 - j8</td>
<td>4.0 - j0.0</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

For further information and support please visit: https://www.macom.com/support
RF Power MOSFET Transistor
15 W, 2 - 175 MHz, 12 V

Typical Broadband Performance Curves

**EFFICIENCY vs FREQUENCY**
\[ V_{DD} = 12 \text{ V} \quad I_{DD} = 100 \text{ mA} \quad P_{OUT} = 15 \text{ W} \]

**GAIN vs FREQUENCY**
\[ V_{DD} = 12 \text{ V} \quad I_{DD} = 100 \text{ mA} \quad P_{OUT} = 15 \text{ W} \]

**POWER OUTPUT vs POWER INPUT**
\[ V_{DD} = 12 \text{ V} \quad I_{DD} = 100 \text{ mA} \]

**POWER OUTPUT vs SUPPLY VOLTAGE**
\[ V_{DD} = 12 \text{ V} \quad F = 175 \text{ MHz} \quad P_{IN} = 1.0 \text{ W} \]
RF Power MOSFET Transistor
15 W, 2 - 175 MHz, 12 V

DU1215S

TEST FIXTURE SCHEMATIC

L1 = 1 TURN OF NO. 12 COPPER WIRE ON 0.30".
L2 = 2 TURNS OF NO. 12 COPPER WIRE ON 0.30".
L3 = 8 TURNS OF NO. 16 ENAMEL WIRE ON 0.25".
L4 = NO. 14 COPPER WIRE THRU FERRITE BEAD.
BOARD TYPE FR-4 0.062" THICK 1 OZ COPPER BOTH SIDES.

TEST FIXTURE ASSEMBLY

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.
RF Power MOSFET Transistor
15 W, 2 - 175 MHz, 12 V

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppeles or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.