

## RF Power MOSFET Transistor 2W, 500-1000MHz, 28V

M/A-COM Products  
Released; RoHS Compliant

### Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- Common source configuration
- Lower noise floor
- Applications
  - Broadband linear operation
  - 500 MHz to 1400 MHz

### ABSOLUTE MAXIMUM RATINGS AT 25° C

| Parameter            | Symbol        | Rating      | Units |
|----------------------|---------------|-------------|-------|
| Drain-Source Voltage | $V_{DS}$      | 65          | V     |
| Gate-Source Voltage  | $V_{GS}$      | 20          | V     |
| Drain-Source Current | $I_{DS}$      | 0.7         | A     |
| Power Dissipation    | $P_D$         | 8           | W     |
| Junction Temperature | $T_J$         | 200         | °C    |
| Storage Temperature  | $T_{STG}$     | -55 to +150 | °C    |
| Thermal Resistance   | $\theta_{JC}$ | 21.8        | °C/W  |

### TYPICAL DEVICE IMPEDANCE

| F (MHz) | $Z_{IN} (\Omega)$ | $Z_{LOAD} (\Omega)$ |
|---------|-------------------|---------------------|
| 500     | 10.0 - j41.5      | 40.0 + j53.0        |
| 1000    | 4.2 - j12.0       | 11.85 + j33.0       |
| 1400    | 3.5 - j1.0        | 7.5 + j23.3         |

$V_{DD} = 28V$ ,  $I_{DQ} = 25mA$ ,  $P_{OUT} = 2.0 W$

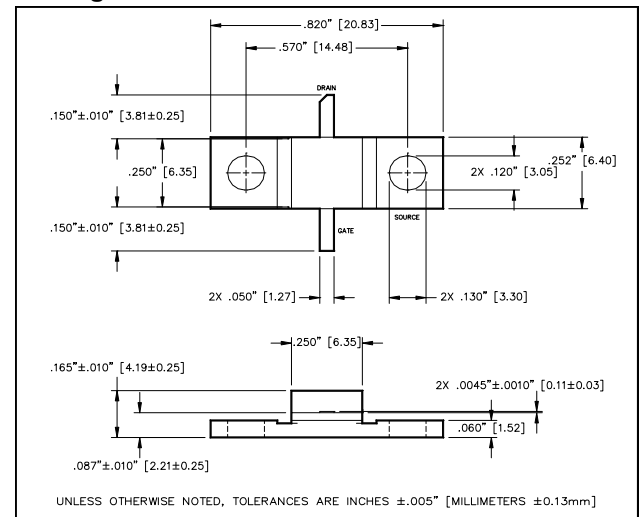
$Z_{IN}$  is the series equivalent input impedance of the device from gate to source.

$Z_{LOAD}$  is the optimum series equivalent load impedance as measured from drain to ground.

### ELECTRICAL CHARACTERISTICS AT 25°C

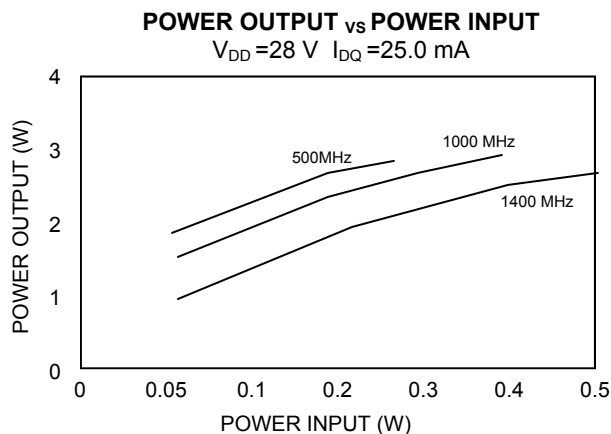
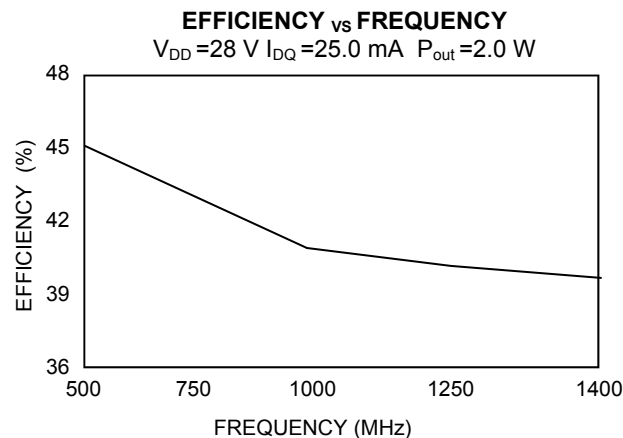
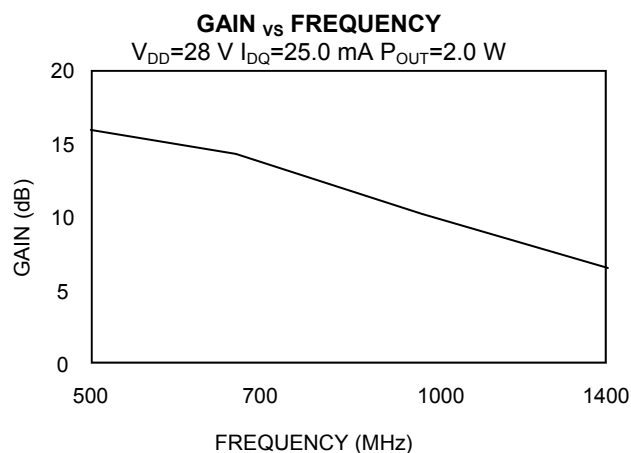
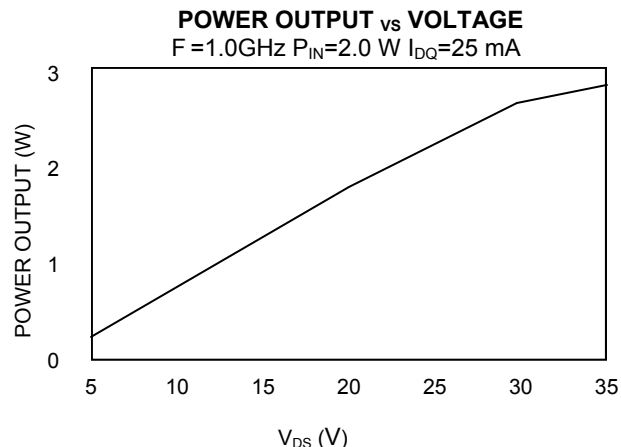
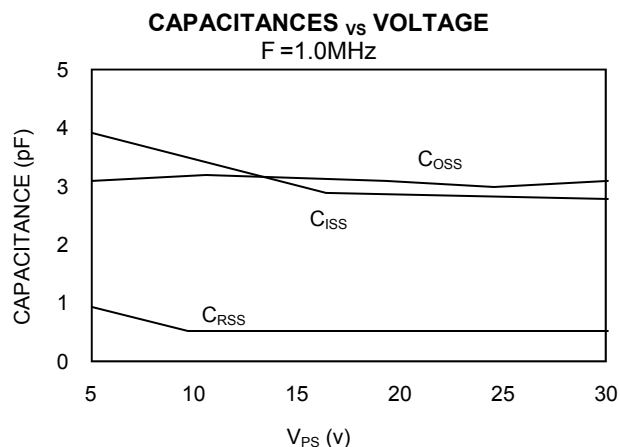
| Parameter                      | Symbol       | Min | Max  | Units   | Test Conditions  |
|--------------------------------|--------------|-----|------|---------|--|
| Drain-Source Breakdown Voltage | $BV_{DSS}$   | 65  | -    | V       | $V_{GS} = 0.0 V$ , $I_{DS} = 1.0 mA$   |
| Drain-Source Leakage Current   | $I_{DSS}$    | -   | 0.5  | mA      | $V_{GS} = 28.0 V$ , $V_{DS} = 0.0 V$   |
| Gate-Source Leakage Current    | $I_{GSS}$    | -   | 0.5  | $\mu A$ | $V_{GS} = 20.0 V$ , $V_{DS} = 0.0 V$   |
| Gate Threshold Voltage         | $V_{GS(TH)}$ | 2.0 | 6.0  | V       | $V_{DS} = 10.0 V$ , $I_{DS} = 5.0 mA$  |
| Forward Transconductance       | $G_M$        | 40  | -    | mS      | $V_{DS} = 28.0 V$ , $I_{DS} = 50.0 mA$ , $\Delta V_{GS} = 1.0V$ , 80 $\mu s$ Pulse |
| Input Capacitance              | $C_{ISS}$    | -   | 3.5  | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$  |
| Output Capacitance             | $C_{OSS}$    | -   | 3.75 | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$  |
| Reverse Capacitance            | $C_{RSS}$    | -   | 1.2  | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$  |
| Power Gain                     | $G_P$        | 10  | -    | dB      | $V_{DD} = 28.0 V$ , $I_{DQ} = 25 mA$ , $P_{OUT} = 2.0 W$ $F = 1.0 GHz$             |
| Drain Efficiency               | $\eta_D$     | 40  | -    | %       | $V_{DD} = 28.0 V$ , $I_{DQ} = 25 mA$ , $P_{OUT} = 2.0 W$ $F = 1.0 GHz$             |
| Load Mismatch Tolerance        | VSWR-T       | -   | 20:1 | -       | $V_{DD} = 28.0 V$ , $I_{DQ} = 25 mA$ , $P_{OUT} = 2.0 W$ $F = 1.0 GHz$             |

### Package Outline



| LETTER<br>DIM | MILLIMETERS |       | INCHES |      |
|---------------|-------------|-------|--------|------|
|               | MIN         | MAX   | MIN    | MAX  |
| A             | 20.70       | 20.96 | .815   | .825 |
| B             | 14.35       | 14.61 | .565   | .575 |
| C             | 13.72       | 14.22 | .540   | .560 |
| D             | 6.27        | 6.53  | .247   | .257 |
| E             | 6.22        | 6.48  | .245   | .255 |
| F             | 6.22        | 6.48  | .245   | .255 |
| G             | 1.14        | 1.40  | .045   | .055 |
| H             | 2.92        | 3.18  | .115   | .125 |
| J             | 1.40        | 1.65  | .055   | .065 |
| K             | 1.96        | 2.46  | .077   | .097 |
| L             | 3.61        | 4.37  | .142   | .172 |
| M             | .08         | .15   | .003   | .006 |

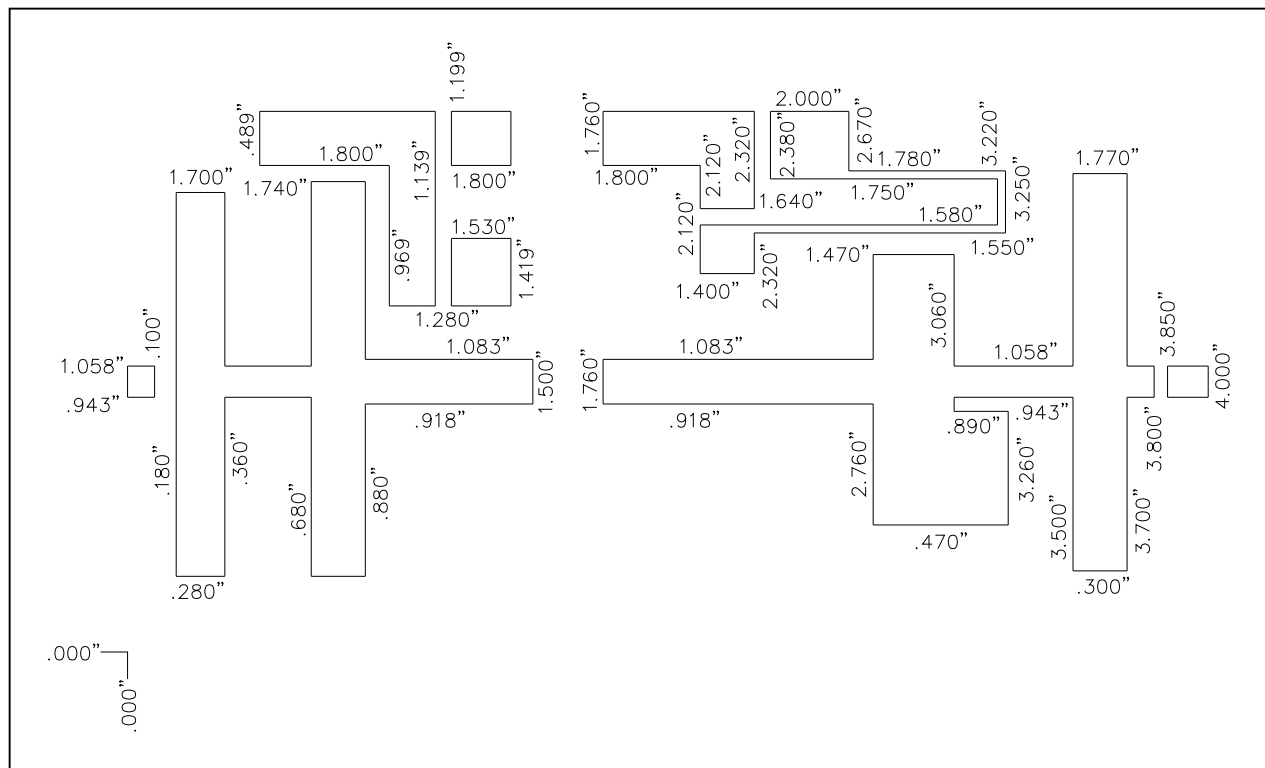
## Typical Broadband Performance Curves



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## TEST FIXTURE CIRCUIT DIMENSIONS



## TEST FIXTURE ASSEMBLY

