

## RF Power MOSFET Transistor 5 W, 500 - 1000 MHz, 28 V

Rev. V1

### 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
- RoHS Compliant

### Absolute Maximum Ratings @ 25°C

| Parameter            | Symbol        | Rating      | Units |
|----------------------|---------------|-------------|-------|
| Drain-Source Voltage | $V_{DS}$      | 65          | V     |
| Gate-Source Voltage  | $V_{GS}$      | 20          | V     |
| Drain-Source Current | $I_{DS}$      | 1.4         | A     |
| Power Dissipation    | $P_D$         | 14.4        | W     |
| Junction Temperature | $T_J$         | 200         | °C    |
| Storage Temperature  | $T_{STG}$     | -65 to +150 | °C    |
| Thermal Resistance   | $\theta_{JC}$ | 12.1        | °C/W  |

### Typical Device Impedance

| F (MHz) | $Z_{IN}$ ( $\Omega$ ) | $Z_{LOAD}$ ( $\Omega$ ) |
|---------|-----------------------|-------------------------|
| 500     | 4.3 - j29.0           | 27.3 + j28.6            |
| 1000    | 2.2 - j2.75           | 8.0 + j16.0             |
| 1400    | 2.8 - j3.0            | 9.4 + j10.6             |

$V_{DD} = 28V$ ,  $I_{DQ} = 50mA$ ,  $P_{OUT} = 5.0 W$

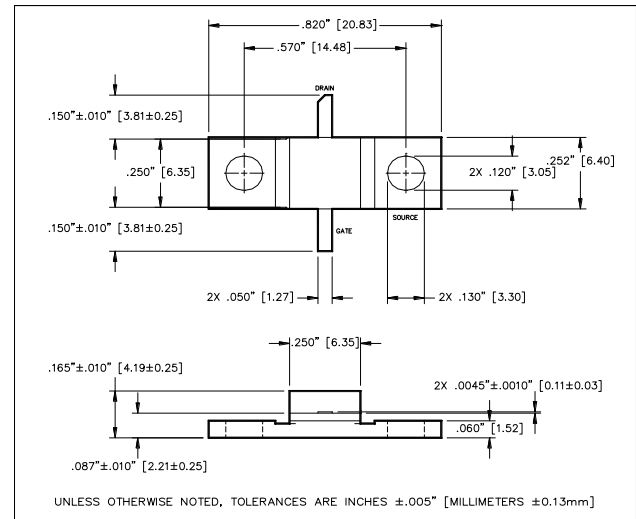
$Z_{IN}$  is the series equivalent input impedance of the device from gate to source.

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

### Electrical Characteristics @ 25°C

| Parameter                      | Symbol       | Min | Max  | Units   | Test Conditions                                                                     |
|--------------------------------|--------------|-----|------|---------|-------------------------------------------------------------------------------------|
| Drain-Source Breakdown Voltage | $BV_{DSS}$   | 65  | -    | V       | $V_{GS} = 0.0 V$ , $I_{DS} = 2.0 mA$                                                |
| Drain-Source Leakage Current   | $I_{DSS}$    | -   | 1.0  | mA      | $V_{GS} = 28.0 V$ , $V_{DS} = 0.0 V$                                                |
| Gate-Source Leakage Current    | $I_{GSS}$    | -   | 1.0  | $\mu A$ | $V_{GS} = 20.0 V$ , $V_{DS} = 0.0 V$                                                |
| Gate Threshold Voltage         | $V_{GS(TH)}$ | 2.0 | 6.0  | V       | $V_{DS} = 10.0 V$ , $I_{DS} = 10.0 mA$                                              |
| Forward Transconductance       | $G_M$        | 80  | -    | mS      | $V_{DS} = 10.0 V$ , $I_{DS} = 100.0 mA$ , $\Delta V_{GS} = 1.0V$ , 80 $\mu s$ Pulse |
| Input Capacitance              | $C_{ISS}$    | -   | 7    | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$                                                   |
| Output Capacitance             | $C_{OSS}$    | -   | 5    | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$                                                   |
| Reverse Capacitance            | $C_{RSS}$    | -   | 2.4  | pF      | $V_{DS} = 28.0 V$ , $F = 1.0 MHz$                                                   |
| Power Gain                     | $G_P$        | 10  | -    | dB      | $V_{DD} = 28.0 V$ , $I_{DQ} = 50 mA$ , $P_{OUT} = 5.0 W$ $F = 1.0 GHz$              |
| Drain Efficiency               | $\eta_D$     | 50  | -    | %       | $V_{DD} = 28.0 V$ , $I_{DQ} = 50 mA$ , $P_{OUT} = 5.0 W$ $F = 1.0 GHz$              |
| Load Mismatch Tolerance        | VSWR-T       | -   | 20:1 | -       | $V_{DD} = 28.0 V$ , $I_{DQ} = 50 mA$ , $P_{OUT} = 5.0 W$ $F = 1.0 GHz$              |

### Package Outline

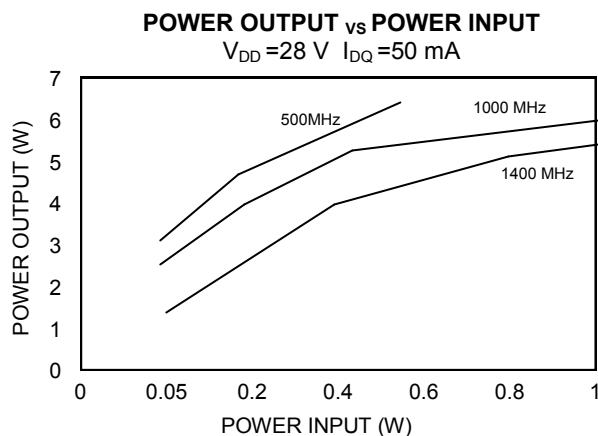
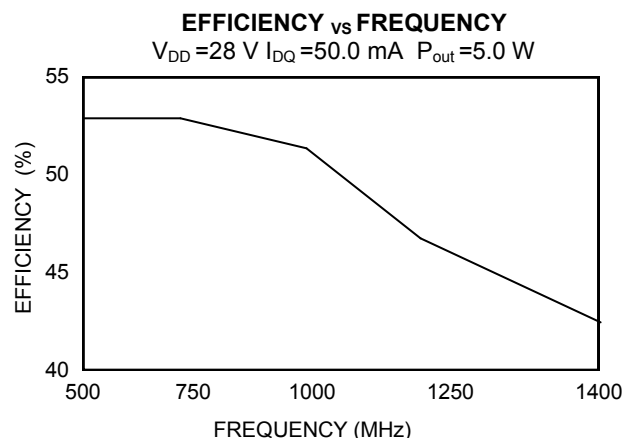
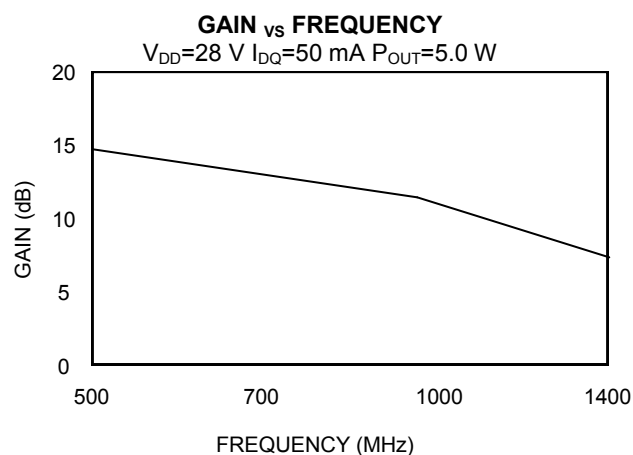
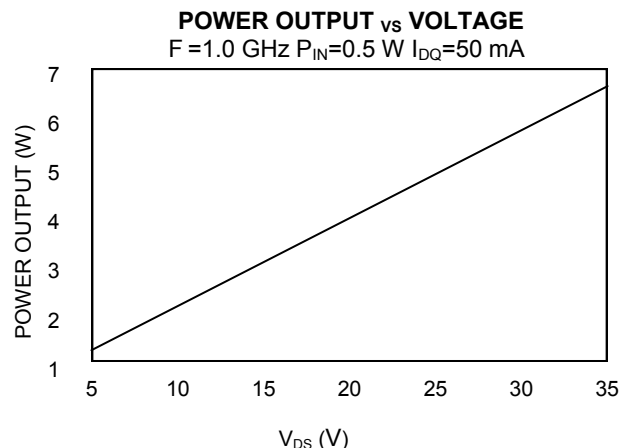
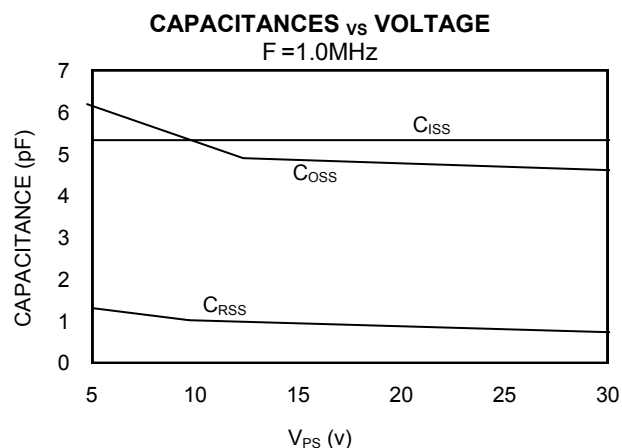


| LETTER DIM. | MILLIMETERS |       | INCHES |      |
|-------------|-------------|-------|--------|------|
|             | MIN         | MAX   | MIN    | MAX  |
| A           | 20.70       | 20.96 | .815   | .825 |
| B           | 14.35       | 14.61 | .565   | .575 |
| C           | 13.72       | 14.22 | .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 |

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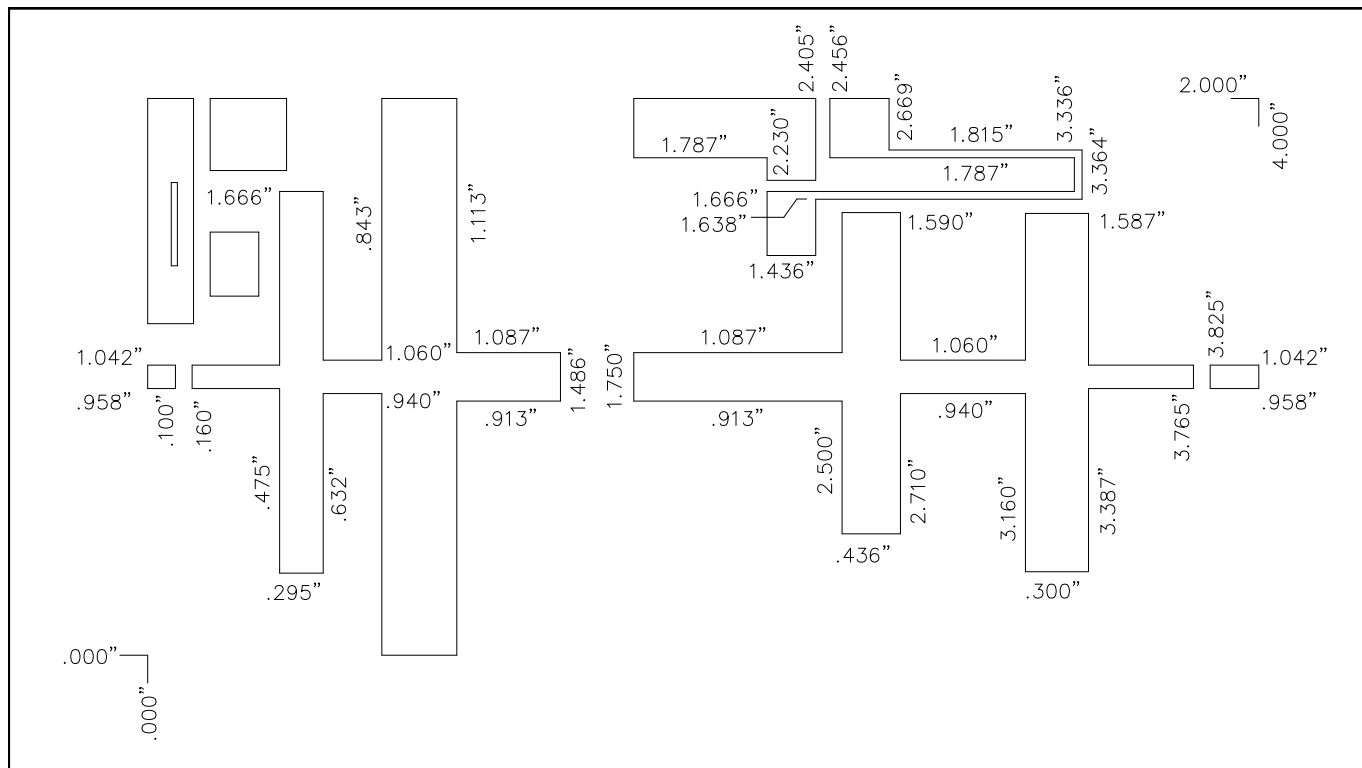
### Typical Broadband Performance Curves



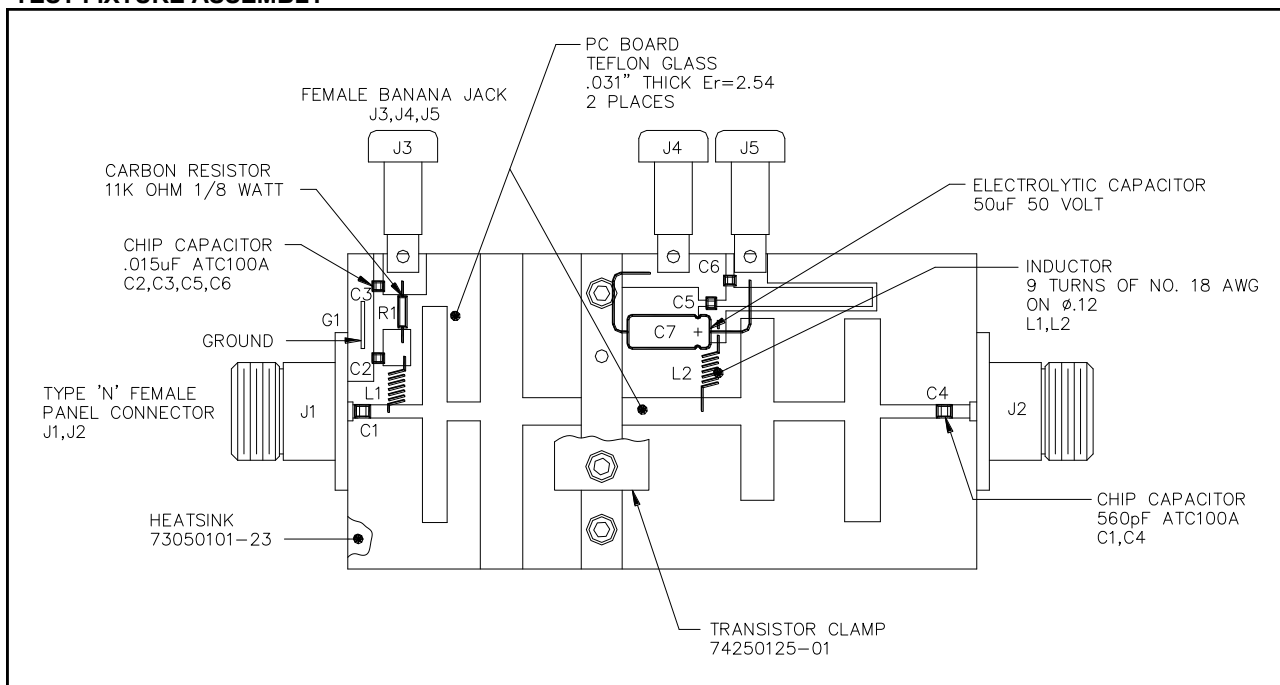
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### TEST FIXTURE CIRCUIT DIMENSIONS



### TEST FIXTURE ASSEMBLY



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