# UF2840G

## RF Power MOSFET Transistor
## 40W, 100-500 MHz, 28V

M/A-COM Products
*Released; RoHS Compliant*

### Features

- N-channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than competitive devices

### 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 | $I_{DS}$ | 4* | A |
| Power Dissipation | $P_D$ | 116 | W |
| Junction Temperature | $T_J$ | 200 | °C |
| Storage Temperature | $T_{STG}$ | -55 to 150 | °C |
| Thermal Resistance | $\theta_{JC}$ | 1.52 | °C/W |

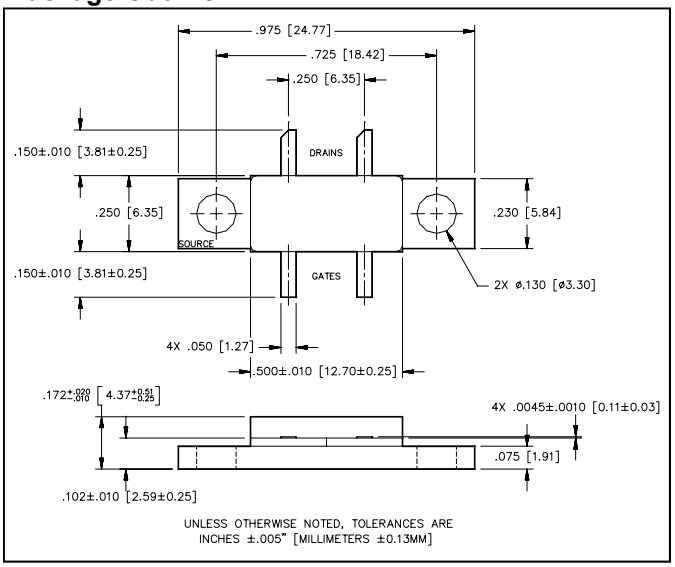
### TYPICAL DEVICE IMPEDANCES

| F (MHz) | $Z_{IN}$ (Ω) | $Z_{LOAD}$ (Ω) |
|---|---|---|
| 100 | 6.0-j20.0 | 12.0+j6.0 |
| 200 | 3.5-j11.5 | 16.5+j19.5 |
| 300 | 2.5-j5.5 | 13.0j13.0 |
| 400 | 3.0+j0.0 | 12.0+j9.0 |
| 500 | 4.0+j3.0 | +12.0j5.0 |
| $V_{DD}$=28V, $I_{DQ}$=500 mA, $P_{OUT}$ =40.0 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.

### Package Outline




### 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 , $I_{DS}$ = 5.0 mA |
| Drain-Source Leakage Current | $I_{DSS}$ | - | 1.0 | mA | $V_{GS}$ = 28.0 V , $V_{GS}$ = 0.0 V |
| Gate-Source Leakage Current | $I_{GSS}$ | - | 1.0 | µA | $V_{GS}$ = 20.0 V , $V_{DS}$ = 0.0 V |
| Gate Threshold Voltage | $V_{GS(TH)}$ | 2.0 | 6.0 | V | $V_{DS}$ = 10.0 V , $I_{DS}$ = 100.0 mA |
| Forward Transconductance | $G_M$ | .500 | - | S | $V_{DS}$ = 10.0 V , $I_{DS}$ 1.0 A , Δ $V_{GS}$ = 1.0V, 80 µs Pulse |
| Input Capacitance | $C_{ISS}$ | - | 45 | pF | $V_{DS}$ = 28.0 V , F = 1.0 MHz |
| Output Capacitance | $C_{OSS}$ | - | 30 | pF | $V_{DS}$ = 28.0 V , F = 1.0 MHz |
| Reverse Capacitance | $C_{RSS}$ | - | 8 | pF | $V_{DS}$ = 28.0 V , F = 1.0 MHz |
| Power Gain | $G_P$ | 10 | - | dB | $V_{DD}$ = 28.0 V, $I_{DQ}$ = 500.0 mA, $P_{OUT}$ = 40.0 W F =500 MHz |
| Drain Efficiency | $\eta_D$ | 50 | - | % | $V_{DD}$ = 28.0 V, $I_{DQ}$ = 500.0 mA, $P_{OUT}$ = 40.0 W F =500 MHz |
| Load Mismatch Tolerance | VSWR-T | - | 30:1 | - | $V_{DD}$ = 28.0 V, $I_{DQ}$ = 500.0 mA, $P_{OUT}$ = 40.0 W F =500 MHz |

*Per side



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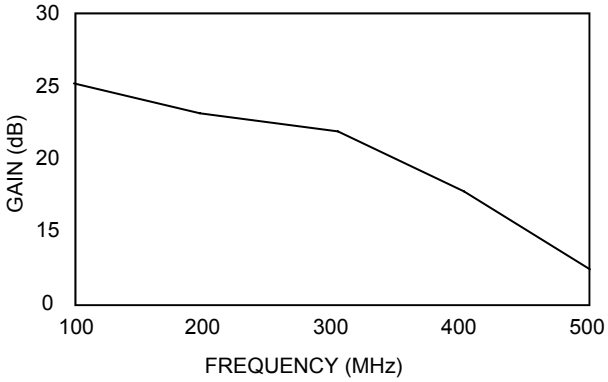
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## Typical Broadband Performance Curves

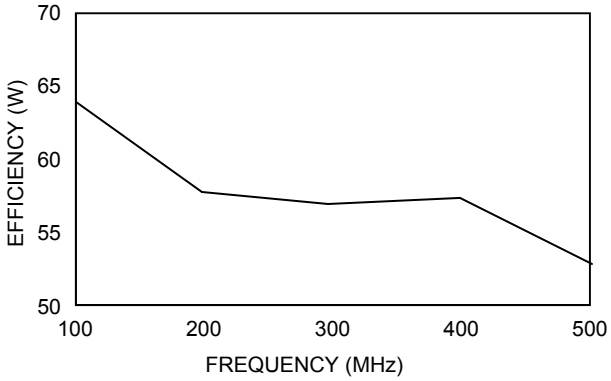
**GAIN vs FREQUENCY**

$V_{DD}$ =28 V $I_{DQ}$=500 mA $P_{OUT}$ =40 W



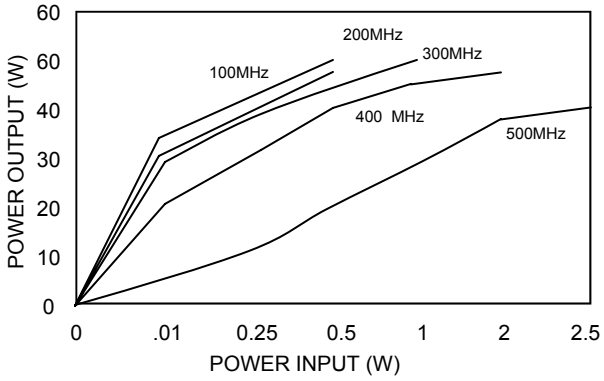

**EFFICIENCY vs FREQUENCY**

$V_{DD}$=200 V $I_{DD}$ =500 mA $P_{OUT}$ =40 W




**POWER OUTPUT vs POWER INPUT**

$V_{DD}$ =28 V $I_{DQ}$ =500 mA





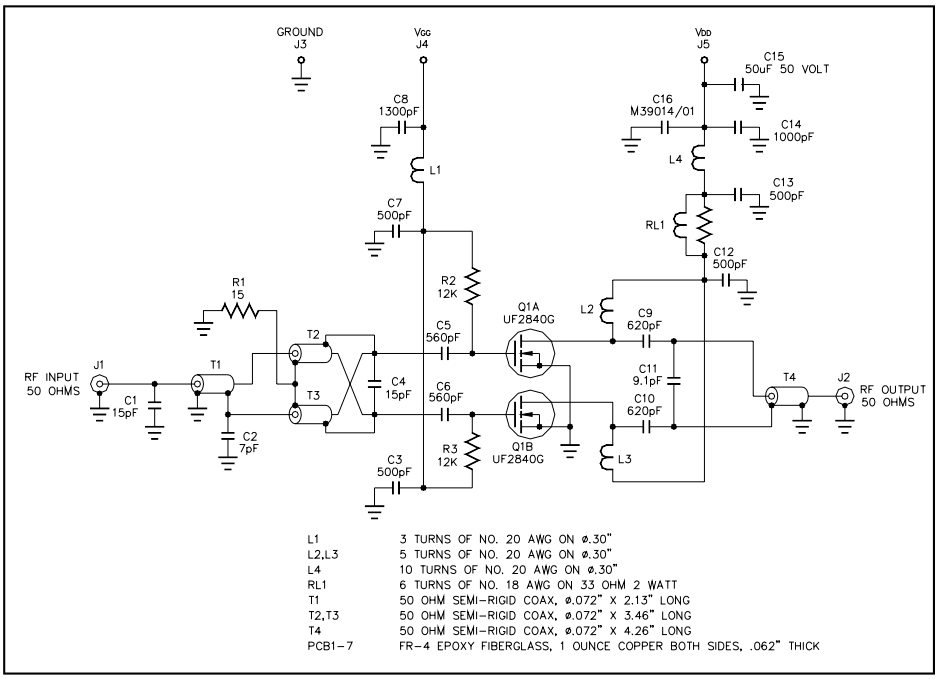

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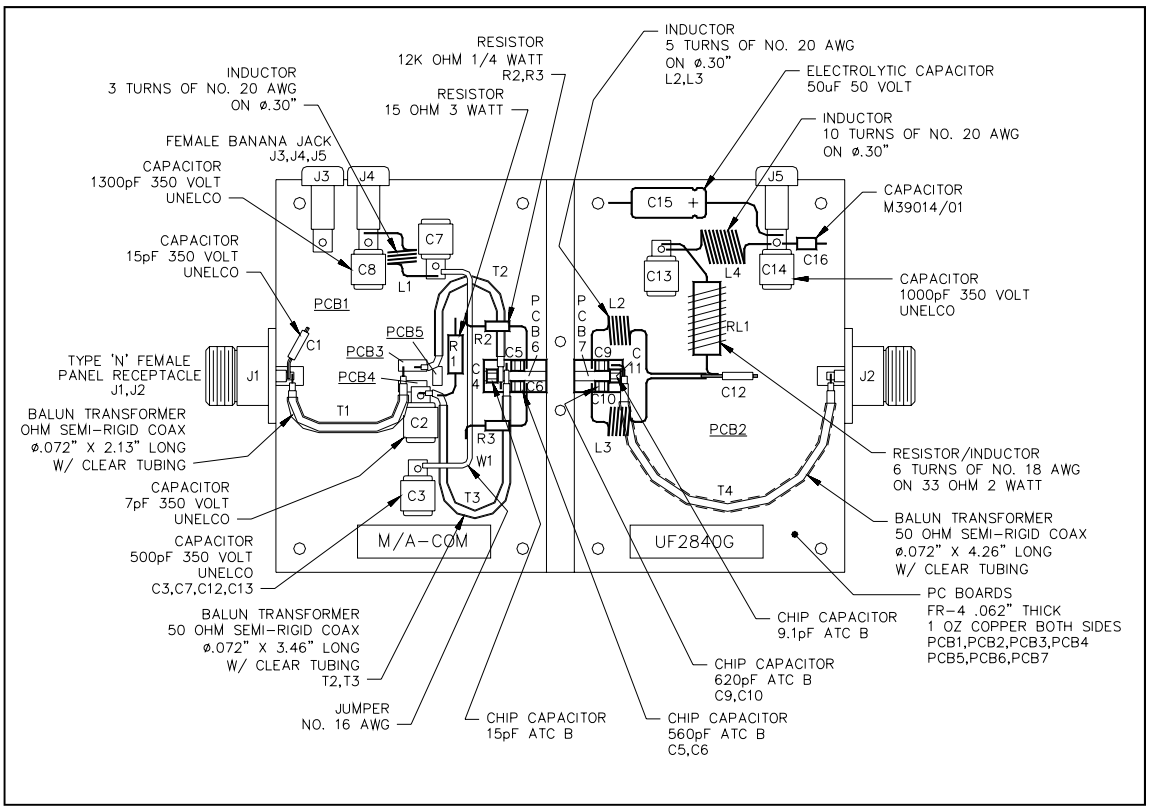
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## TEST FIXTURE SCHEMATIC




## TEST FIXTURE ASSEMBLY






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