

# RF MOSFET Power Transistor, 80W, 28V

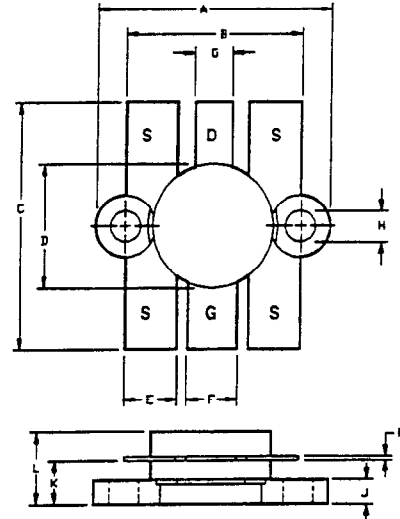
## 2 - 175 MHz

**DU2880T**

V2.00

### Features

- N-Channel Enhancement Mode Device
- DMOS Structure
- Lower Capacitances for Broadband Operation
- High Saturated Output Power
- Lower Noise Figure Than Competitive Devices



LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.38	25.15	.960	.990
B	18.29	18.54	.720	.730
C	21.36	21.74	.841	.856
D	12.60	12.85	.496	.506
E	5.33	5.59	.210	.220
F	5.08	5.33	.200	.210
G	3.81	4.06	.150	.160
H	3.10	3.15	.122	.125
J	2.51	2.67	.099	.105
K	4.06	4.57	.160	.180
L	6.68	7.49	.263	.295
M	.10	.15	.004	.006

### 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	$I_{DS}$	16	A
Power Dissipation	$P_D$	206	W
Junction Temperature	$T_J$	200	°C
Storage Temperature	$T_{STG}$	-65 to +150	°C
Thermal Resistance	$\theta_{JC}$	0.85	°C/W

### Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	65	-	V	$V_{GS}=0.0\text{ V}$ , $I_{DS}=20.0\text{ mA}$
Drain-Source Leakage Current	$I_{DSS}$	-	4.0	mA	$V_{DS}=28.0\text{ V}$ , $V_{GS}=0.0\text{ V}$
Gate-Source Leakage Current	$I_{GSS}$	-	4.0	$\mu\text{A}$	$V_{GS}=20.0\text{ V}$ , $V_{DS}=0.0\text{ V}$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS}=10.0\text{ V}$ , $I_{DS}=400.0\text{ mA}$
Forward Transconductance	$G_M$	2.0	-	S	$V_{DS}=10.0\text{ V}$ , $I_{DS}=4.0\text{ A}$ , $\Delta V_{GS}=1.0\text{ V}$ , 80 $\mu\text{s}$ Pulse
Input Capacitance	$C_{ISS}$	-	180	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Output Capacitance	$C_{OSS}$	-	160	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Reverse Capacitance	$C_{RSS}$	-	32	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Power Gain	$G_P$	13	-	dB	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=400\text{ mA}$ , $P_{OUT}=80.0\text{ W}$ , $F=175\text{ MHz}$
Drain Efficiency	$\eta_D$	60	-	%	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=400\text{ mA}$ , $P_{OUT}=80.0\text{ W}$ , $F=175\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	30:1	-	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=400\text{ mA}$ , $P_{OUT}=80.0\text{ W}$ , $F=175\text{ MHz}$

Specifications Subject to Change Without Notice.

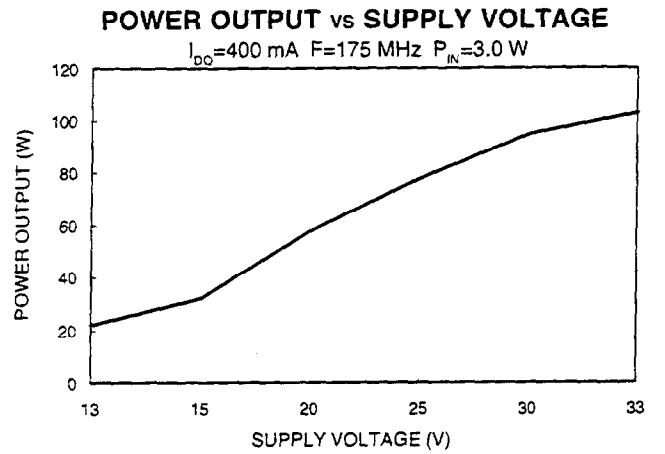
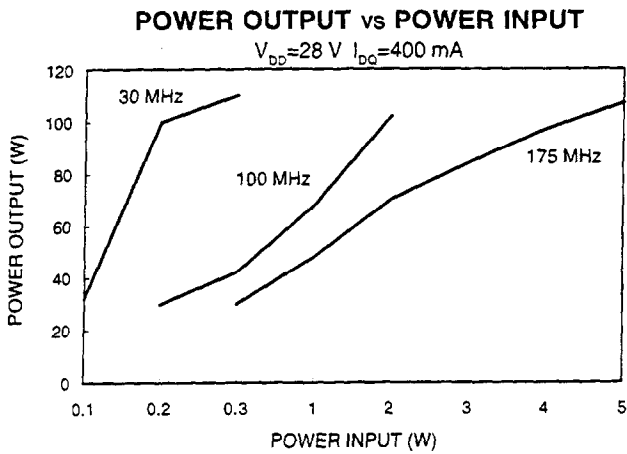
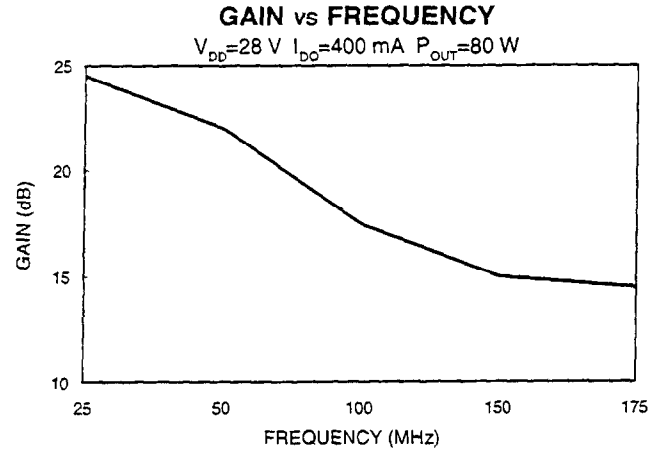
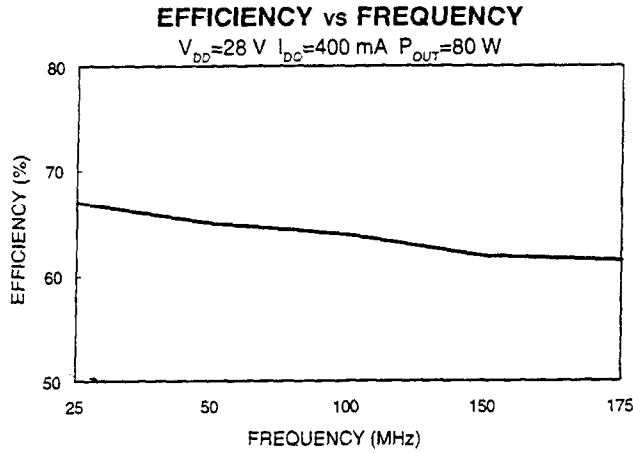
**M/A-COM, Inc.**

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Typical Broadband Performance Curves



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Typical Device Impedance

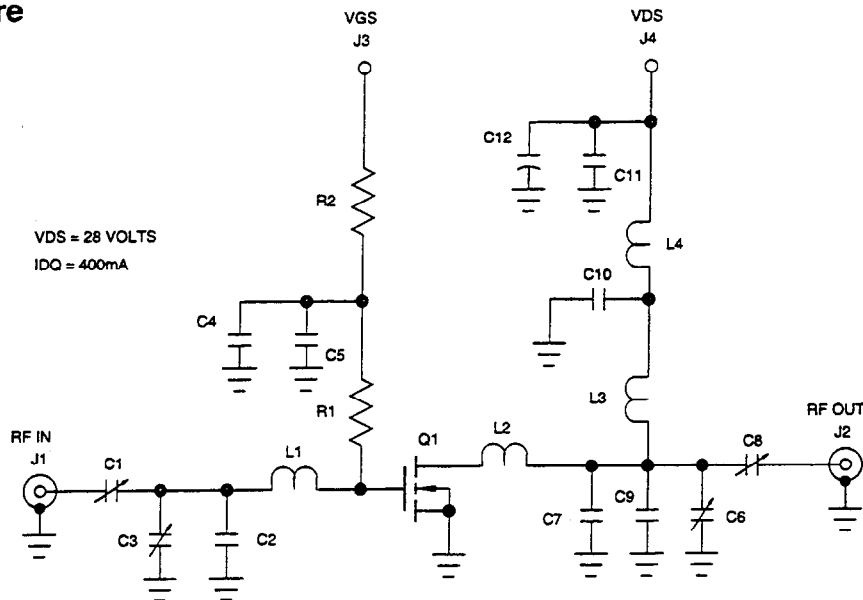
Frequency (MHz)	Z <sub>IN</sub> (OHMS)	Z <sub>LOAD</sub> (OHMS)
30	5.4 - j 4.4	5.7 + j 4.7
50	2.5 - j 4.4	3.4 + j 3.5
100	1.6 - j 3.4	2.4 + j 2.4
175	0.7 - j 1.2	1.7 + j 0.8

V<sub>DD</sub>=28 V, I<sub>DO</sub>=400 mA, P<sub>OUT</sub>=80 Watts

Z<sub>IN</sub> is the series equivalent input impedance of the device from gate to source.

Z<sub>LOAD</sub> is the optimum series equivalent load impedance as measured from drain to ground.

RF Test Fixture



VDS = 28 VOLTS  
IDQ = 400mA

PARTS LIST

- C1,C3 TRIMMER CAPACITOR 4-40pF
- C2,C9,C10 CAPACITOR 50pF
- C4,C11 CAPACITOR 1000pF
- C5 MONOLITHIC CIRCUIT CAPACITOR 0.01uF
- C6,C8 TRIMMER CAPACITOR 9-180pF
- C7 CAPACITOR 15pF
- C12 ELECTROLYTIC CAPACITOR 50uF 50 VOLT
- L1 NO. 12 AWG COPPER WIRE X 1.18" (LOOP 0.5")
- L2 NO. 12 AWG COPPER WIRE X 1" (LOOP 0.4")
- L3,L4 8 TURNS OF NO. 18 AWG ENAMEL WIRE ON 0.25", CLOSE WOUND
- R1 RESISTOR 300 OHMS 0.5 WATT
- R2 RESISTOR 2.7K OHMS 0.25 WATT
- Q1 DU2880T
- BOARD FR4 0.062"

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