

# RF MOSFET Power Transistor, 80W, 28V

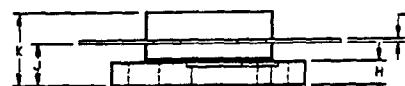
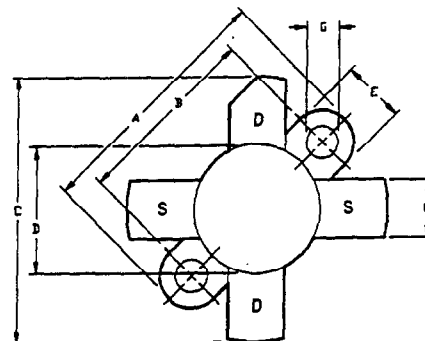
## 2 - 175 MHz

**DU2880U**

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



### 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

LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.64	24.89	.970	.980
B	18.29	18.54	.720	.730
C	25.91	26.42	1.020	1.040
D	12.60	12.85	.496	.506
E	6.22	6.48	.245	.255
F	5.59	5.84	.220	.230
G	3.05	3.30	.120	.130
H	2.21	2.59	.087	.102
J	3.91	4.42	.154	.174
K	6.53	7.34	.257	.289
L	.10	.15	.004	.006

### 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.

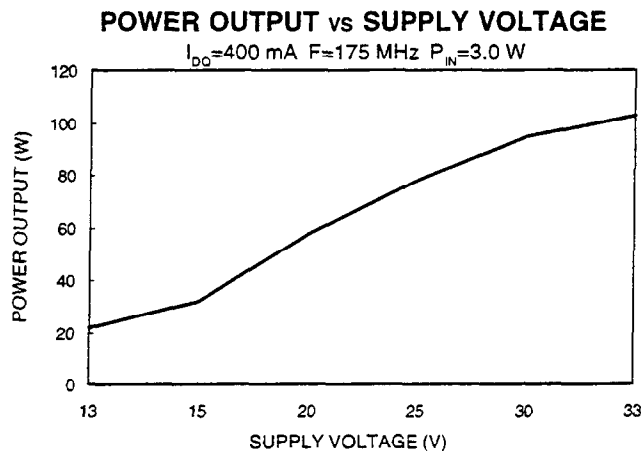
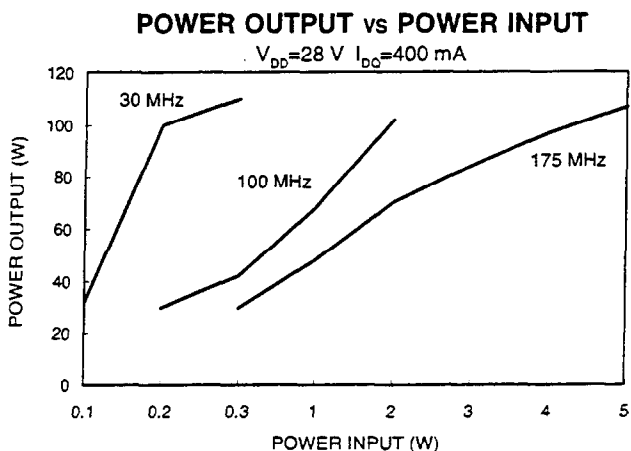
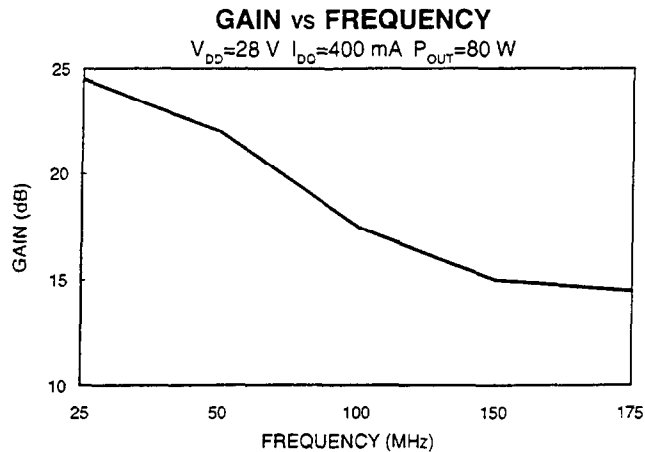
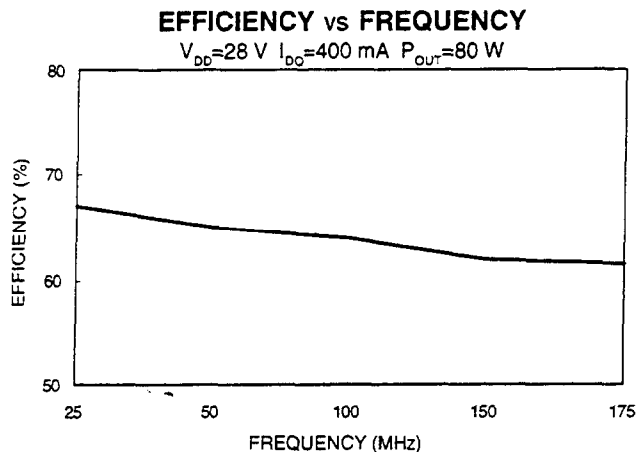
**M/A-COM, Inc.**

North America: Tel. (800) 366-2266  
Fax (800) 618-8883

Asia/Pacific: Tel. +81 (03) 3226-1671  
Fax +81 (03) 3226-1451

Europe: Tel. +44 (1344) 869 595  
Fax +44 (1344) 300 020

Typical Broadband Performance Curves



Typical Device Impedance

Frequency (MHz)	$Z_{IN}$ (OHMS)	$Z_{LOAD}$ (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

$V_{DD}=28\text{ V}$ ,  $I_{DQ}=400\text{ mA}$ ,  $P_{OUT}=80\text{ Watts}$

$Z_{IN}$  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.

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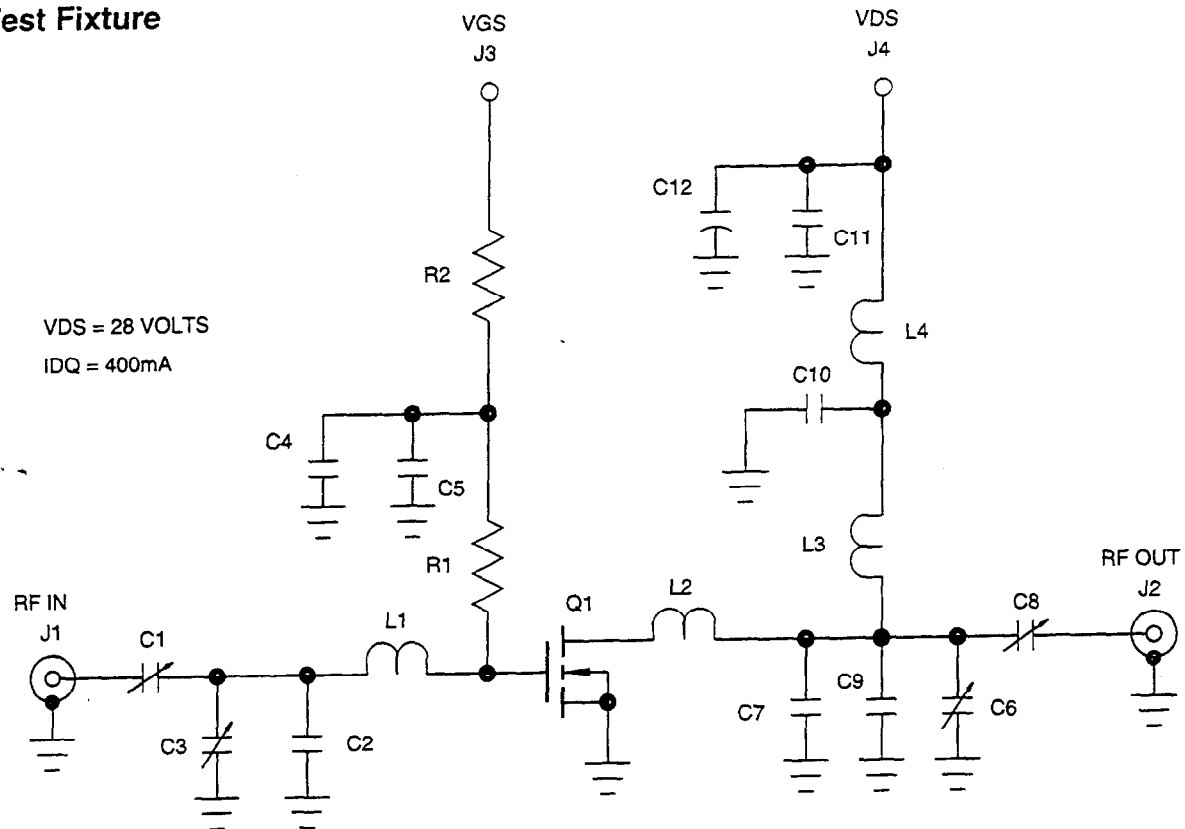
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## RF Test Fixture



## 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	DU2880U
BOARD	FR4 0.062"

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