

# RF MOSFET Power Transistor, 60W, 28V

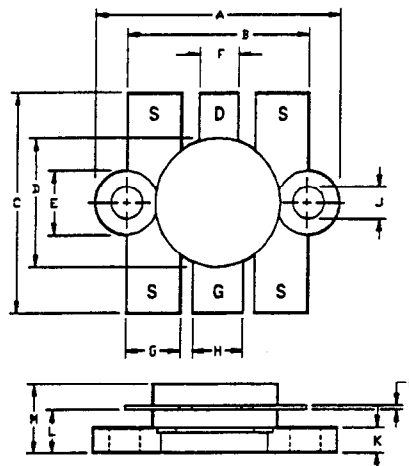
## 2 - 175 MHz

# DU2860T

V2.00

### Features

- N-Channel Enhancement Mode Device
- DMOS Structure
- Lower Capacitances for Broadband Operation
- High Saturated Output Power
- Lower Noise Figure Than Bipolar 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	$I_{DS}$	12	A
Power Dissipation	$P_D$	159	W
Junction Temperature	$T_J$	200	°C
Storage Temperature	$T_{STG}$	-65 to +150	°C
Thermal Resistance	$\theta_{JC}$	1.1	°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	21.21	21.97	.835	.865
D	12.60	12.85	.496	.506
E	6.22	6.48	.245	.255
F	3.81	4.06	.150	.160
G	5.33	5.59	.210	.220
H	5.08	5.33	.200	.210
J	3.05	3.30	.120	.130
K	2.29	2.54	.090	.100
L	4.06	4.57	.160	.180
M	6.68	7.49	.263	.295
N	.10	.15	.004	.006

### Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	65	-	V	$V_{GS}=0.0\text{ V}, I_{DS}=15.0\text{ mA}$
Drain-Source Leakage Current	$I_{DSS}$	-	3.0	mA	$V_{DS}=28.0\text{ V}, V_{GS}=0.0\text{ V}$
Gate-Source Leakage Current	$I_{GSS}$	-	3.0	μA	$V_{GS}=20.0\text{ V}, V_{DS}=0.0\text{ V}$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS}=10.0\text{ V}, I_{DS}=300.0\text{ mA}$
Forward Transconductance	$G_M$	1.5	-	S	$V_{DS}=10.0\text{ V}, I_{DS}=3.0\text{ A}, \Delta V_{GS}=1.0\text{ V}, 80\text{ }\mu\text{s Pulse}$
Input Capacitance	$C_{ISS}$	-	135	pF	$V_{DS}=28.0\text{ V}, F=1.0\text{ MHz}$
Output Capacitance	$C_{OSS}$	-	120	pF	$V_{DS}=28.0\text{ V}, F=1.0\text{ MHz}$
Reverse Capacitance	$C_{RSS}$	-	24	pF	$V_{DS}=28.0\text{ V}, F=1.0\text{ MHz}$
Power Gain	$G_P$	13	-	dB	$V_{DD}=28.0\text{ V}, I_{DO}=300\text{ mA}, P_{OUT}=60.0\text{ W}, F=175\text{ MHz}$
Drain Efficiency	$\eta_D$	60	-	%	$V_{DD}=28.0\text{ V}, I_{DO}=300\text{ mA}, P_{OUT}=60.0\text{ W}, F=175\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	30:1	-	$V_{DD}=28.0\text{ V}, I_{DO}=300\text{ mA}, P_{OUT}=60.0\text{ W}, F=175\text{ MHz}$

Specifications Subject to Change Without Notice.

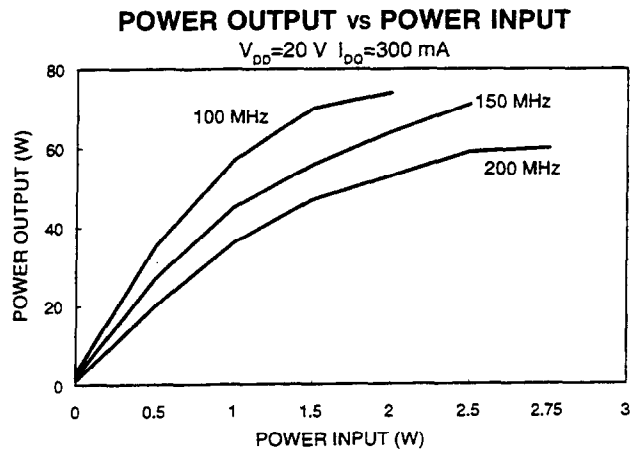
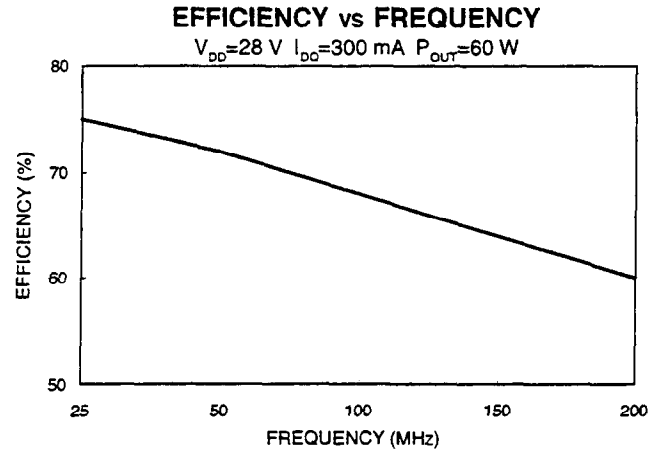
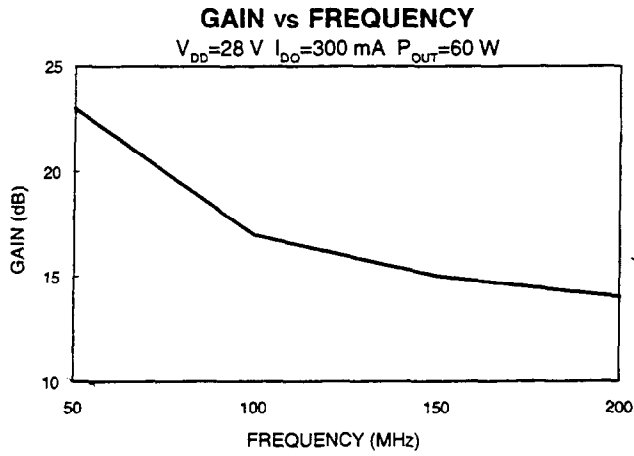
M/A-COM, Inc.

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Typical Broadband Performance Curves



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Typical Device Impedance

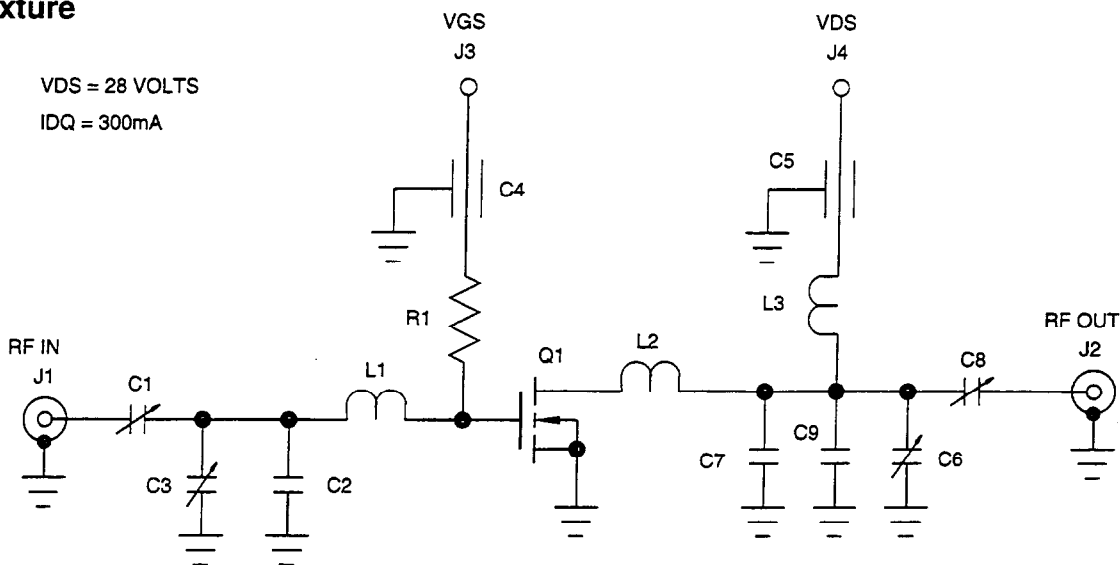
Frequency (MHz)	Z <sub>IN</sub> (OHMS)	Z <sub>LOAD</sub> (OHMS)
30	9.0 - j 4.0	6.0 + j 0.0
50	6.0 - j 5.8	5.0 + j 2.0
100	4.0 - j 4.2	4.0 + j 3.0
200	1.0 - j 1.0	2.0 + j 1.9

V<sub>DD</sub>=28 V, I<sub>DQ</sub>=300 mA, P<sub>OUT</sub>=60 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



PARTS LIST

- C1,C3 TRIMMER CAPACITOR 4-40pF
- C2,C9 CAPACITOR 50pF
- C4,C5 FEEDTHROUGH CAPACITOR 0.001uF
- C6,C8 TRIMMER CAPACITOR 9-180pF
- C7 CAPACITOR 15pF
- L1 NO. 12 AWG COPPER WIRE X 1.18" (LOOP 0.5")
- L2 NO. 12 AWG COPPER WIRE X 1" (LOOP 0.4")
- L3 8 TURNS OF NO. 22 AWG ENAMEL WIRE ON '0.25", CLOSE WOUND
- R1 RESISTOR 300 OHMS 0.5 WATT
- Q1 DU2860T
- BOARD FR4 0.062"

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