

RF MOSFET Power Transistor, 60W, 28V

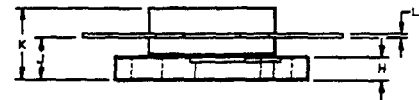
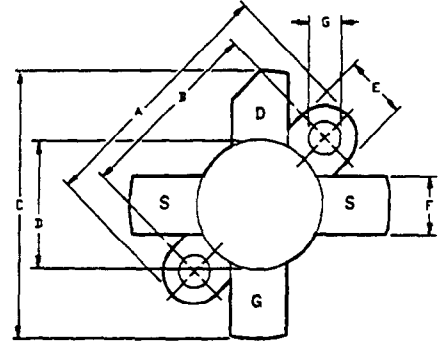
2 - 175 MHz

DU2860U

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}	-55 to +150	°C
Thermal Resistance	θ_{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	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	$V_{GS}=0.0\text{ V}$, $I_{DS}=15.0\text{ mA}$
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 μs 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	$V_{DD}=28.0\text{ V}$, $I_{DQ}=300\text{ mA}$, $P_{OUT}=60.0\text{ W}$, $F=175\text{ MHz}$
Drain Efficiency	η_D	60	-	%	$V_{DD}=28.0\text{ V}$, $I_{DQ}=300\text{ mA}$, $P_{OUT}=60.0\text{ W}$, $F=175\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	30:1	-	$V_{DD}=28.0\text{ V}$, $I_{DQ}=300\text{ mA}$, $P_{OUT}=60.0\text{ W}$, $F=175\text{ MHz}$

Specifications Subject to Change Without Notice.

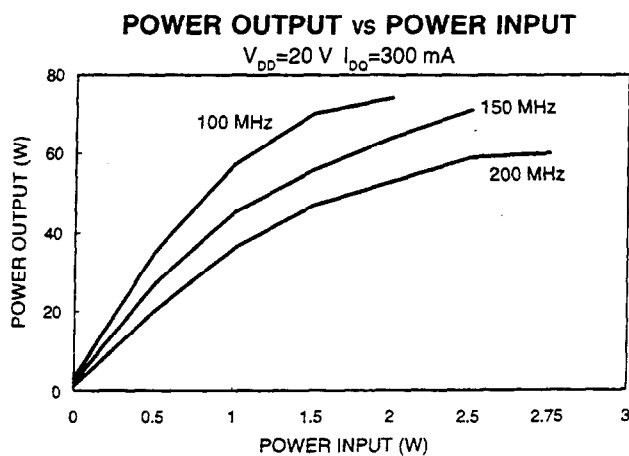
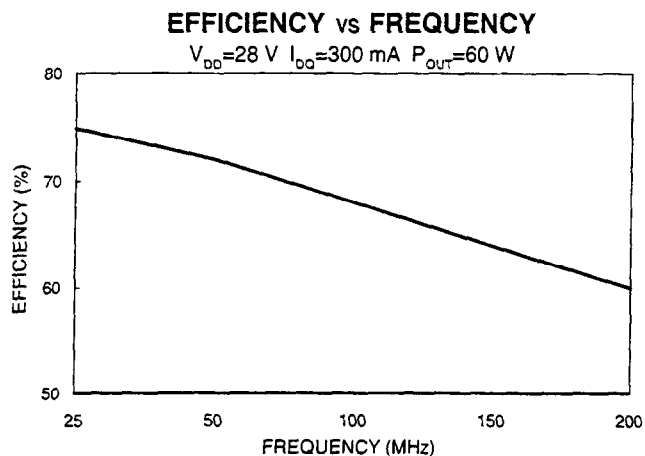
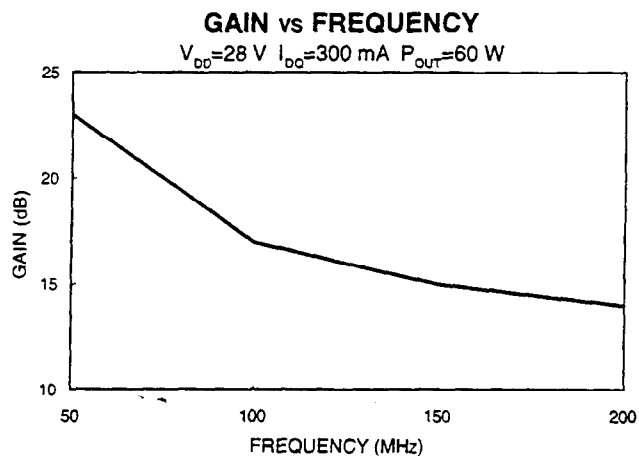
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Typical Broadband Performance Curves



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Typical Device Impedance

Frequency (MHz)	Z_{IN} (OHMS)	Z_{LOAD} (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	$1.0 - j 1.0$	$2.0 + j 1.9$

$$V_{DS}=28 \text{ V, } I_{DQ}=300 \text{ mA, } P_{OUT}=60 \text{ Watts}$$

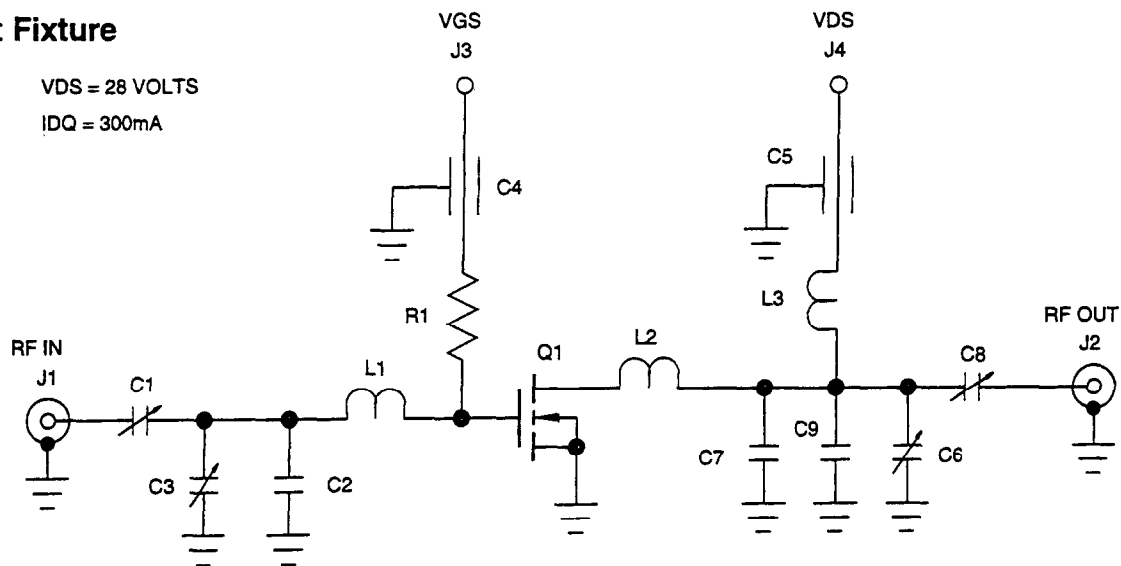
Z_{IN} is the series equivalent input impedance of the device from gate to source.

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

RF Test Fixture

$V_{DS} = 28 \text{ VOLTS}$

$I_{DQ} = 300 \text{ mA}$



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. 18 AWG ENAMEL WIRE ON '0.25", CLOSE WOUND
R1	RESISTOR 300 OHMS 0.5 WATT
Q1	DU2860U
BOARD	FR4 0.062"

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