

# RF MOSFET Power Transistor, 15W, 28V

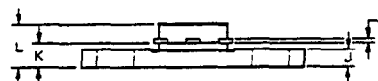
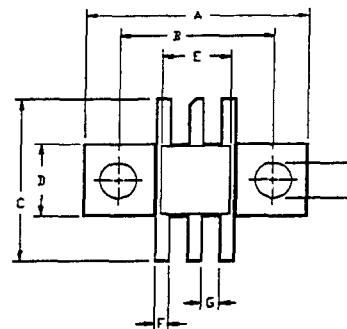
## 100 - 500 MHz

**UF2815B**

V2.00

### Features

- N-Channel Enhancement Mode Device
- DMOS Structure
- Lower Capacitances for Broadband Operation
- Common Source Configuration
- Lower Noise Floor
- 100 MHz to 500 MHz Operation



### Absolute Maximum Ratings at 25°C

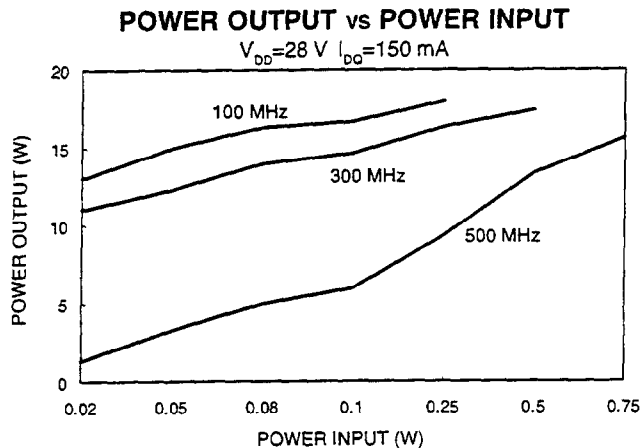
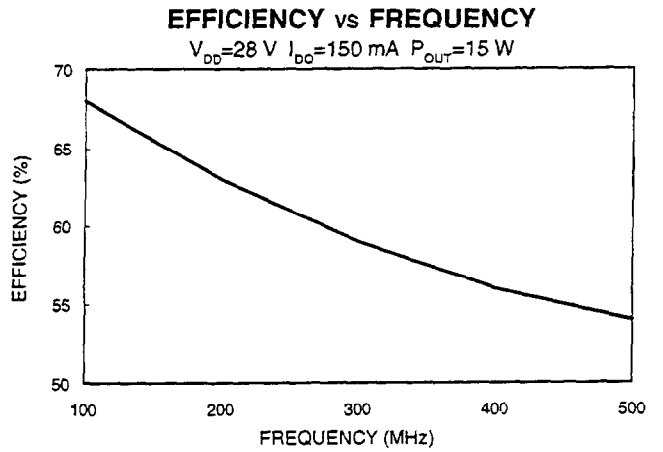
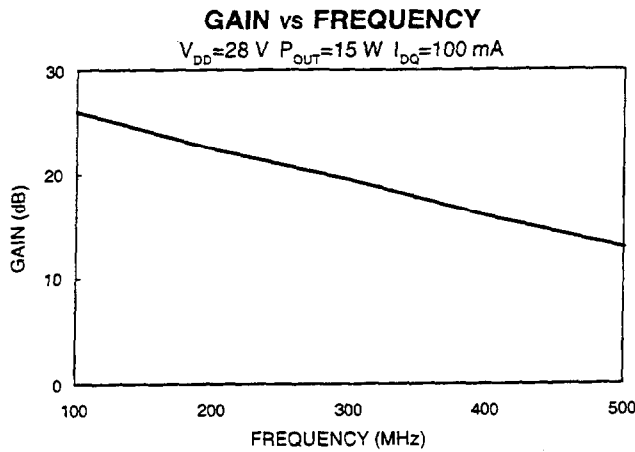
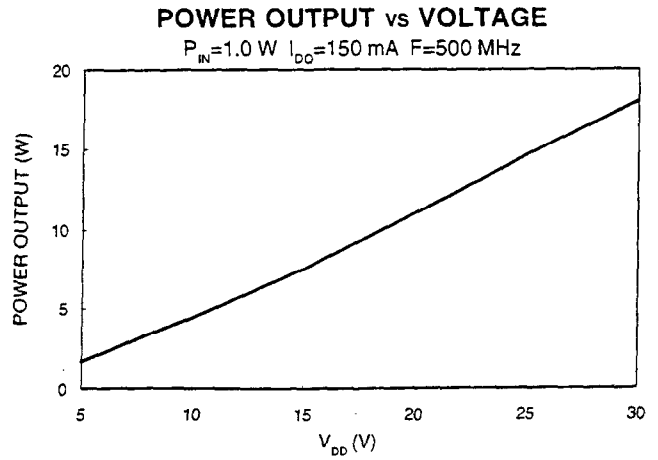
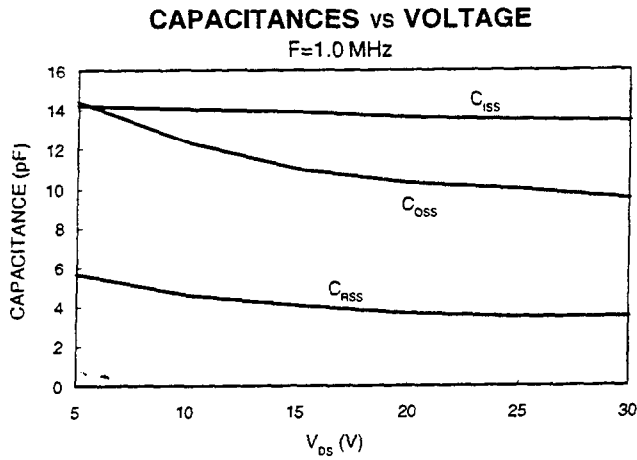
Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	20	V
Drain-Source Current	$I_{DS}$	4.2	A
Power Dissipation	$P_D$	48.6	W
Junction Temperature	$T_J$	200	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Thermal Resistance	$\theta_{JC}$	3.6	°C/W

LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.70	20.96	.815	.825
B	14.35	14.61	.565	.575
C	14.73	15.24	.580	.600
D	6.27	6.53	.247	.257
E	6.22	6.48	.245	.255
F	1.14	1.40	.045	.055
G	1.52	1.78	.060	.070
H	2.92	3.17	.115	.125
J	1.40	1.65	.055	.065
K	2.03	2.39	.080	.094
L	3.66	4.32	.144	.170
M	.10	.15	.004	.006

### Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	65	-	V	$V_{GS}=0.0\text{ V}$ , $I_{DS}=6.0\text{ mA}$
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	$\mu\text{A}$	$V_{GS}=20\text{ V}$ , $V_{DS}=0.0\text{ V}$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS}=10.0\text{ V}$ , $I_{DS}=30.0\text{ mA}$
Forward Transconductance	$G_M$	.240	-	S	$V_{DS}=10.0\text{ V}$ , $I_{DS}=300.0\text{ mA}$ , $\Delta V_{GS}=1.0\text{ V}$ , 80 $\mu\text{s}$ Pulse
Input Capacitance	$C_{ISS}$	-	21	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Output Capacitance	$C_{OSS}$	-	15	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Reverse Capacitance	$C_{RSS}$	-	7.2	pF	$V_{DS}=28.0\text{ V}$ , $F=1.0\text{ MHz}$
Power Gain	$G_P$	10	-	dB	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=150.0\text{ mA}$ , $P_{OUT}=15.0\text{ W}$ , $F=500\text{ MHz}$
Drain Efficiency	$\eta_D$	50	-	%	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=150.0\text{ mA}$ , $P_{OUT}=15.0\text{ W}$ , $F=500\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	20:1	-	$V_{DD}=28.0\text{ V}$ , $I_{DQ}=150.0\text{ mA}$ , $P_{OUT}=15.0\text{ W}$ , $F=500\text{ MHz}$

Typical Broadband Performance Curves



Specifications Subject to Change Without Notice.

## Typical Device Impedance

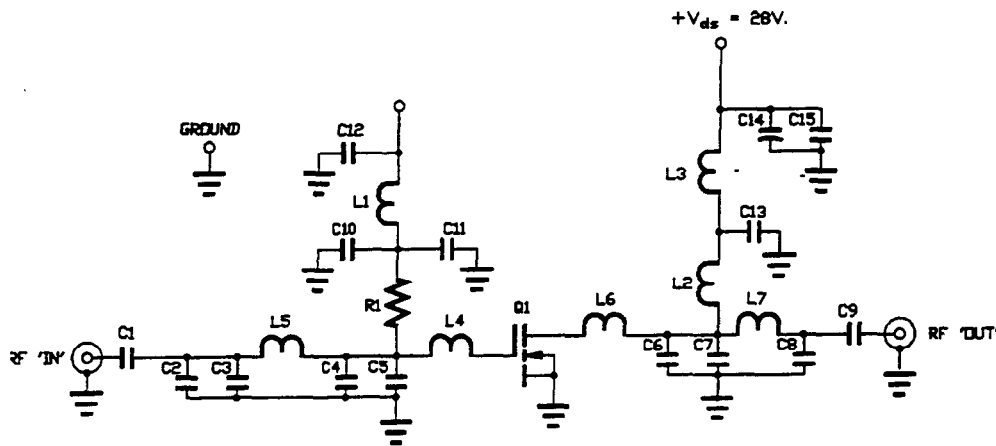
Frequency (MHz)	$Z_{IN}$ (OHMS)	$Z_{LOAD}$ (OHMS)
100	6.4 - j 25.0	22.0 + j 16.0
300	6.5 - j 12.0	15.0 + j 14.0
500	1.7 - j 10.5	8.0 + j 10.5

$$V_{DD}=28 \text{ V, } I_{DQ}=150 \text{ mA, } P_{OUT}=15.0 \text{ Watts}$$

$Z_{IN}$  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



## PARTS LIST

C7	2.0 pf
C4	3.0pf
C6	3.6pf
C5, 8	5.6pf
C3	9.1pf
C2	13pf
C9	270pf
C1	820pf
C11, 12, 13, 15	.015uf
C10	.10uf
C14	50uf 50V.
R1	10K OHM
Q1	UF2815B
L1, 3	9 TURNS OF NO. 22 AWG
L2	20 TURNS OF NO. 22 AWG
L4	.55' OF 50 OHM TRANSMISSION LINE
L5	.25' OF 50 OHM TRANSMISSION LINE
L6	1.20' OF 50 OHM TRANSMISSION LINE
L7	.10' OF 50 OHM TRANSMISSION LINE