

RF MOSFET Power Transistor, 10W, 28V

100 - 500 MHz

UF2810P

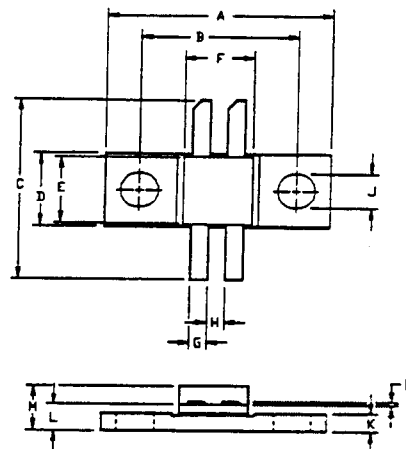
V2.00

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}	1.4*	A
Power Dissipation	P_D	26.9	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	6.5	°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	15.67	17.45	.617	.687
D	6.27	6.53	.247	.257
E	6.22	6.48	.245	.255
F	6.22	6.48	.245	.255
G	1.40	1.65	.055	.065
H	1.40	1.65	.055	.065
J	2.92	3.18	.115	.125
K	1.40	1.65	.055	.065
L	1.96	2.46	.077	.097
M	3.61	4.37	.142	.172
N	.08	.13	.003	.005

Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	$V_{GS}=0.0\text{ V}$, $I_{DS}=2.0\text{ mA}^*$
Drain-Source Leakage Current	I_{DSS}	-	1.0	mA	$V_{DS}=28.0\text{ V}$, $V_{GS}=0.0\text{ V}^*$
Gate-Source Leakage Current	I_{GSS}	-	1.0	μA	$V_{GS}=20\text{ V}$, $V_{DS}=0.0\text{ V}^*$
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	$V_{DS}=10.0\text{ V}$, $I_{DS}=10.0\text{ mA}^*$
Forward Transconductance	G_M	80	-	mS	$V_{DS}=10.0\text{ V}$, $I_{DS}=100.0\text{ mA}$, $\Delta V_{GS}=1.0\text{ V}$, 80 μs Pulse*
Input Capacitance	C_{ISS}	-	7	pF	$V_{DS}=28.0\text{ V}$, $F=1.0\text{ MHz}^*$
Output Capacitance	C_{OSS}	-	5	pF	$V_{DS}=28.0\text{ V}$, $F=1.0\text{ MHz}^*$
Reverse Capacitance	C_{RSS}	-	2.4	pF	$V_{DS}=28.0\text{ V}$, $F=1.0\text{ MHz}^*$
Power Gain	G_P	10	-	dB	$V_{DD}=28.0\text{ V}$, $I_{DQ}=100.0\text{ mA}$, $P_{OUT}=10.0\text{ W}$, $F=500\text{ MHz}$
Drain Efficiency	η_D	50	-	%	$V_{DD}=28.0\text{ V}$, $I_{DQ}=100.0\text{ mA}$, $P_{OUT}=10.0\text{ W}$, $F=500\text{ MHz}$
Load Mismatch Tolerance	VSWR-T	-	20:1	-	$V_{DD}=28.0\text{ V}$, $I_{DQ}=100.0\text{ mA}$, $P_{OUT}=10.0\text{ W}$, $F=500\text{ MHz}$

* Per Side

Typical Device Impedance

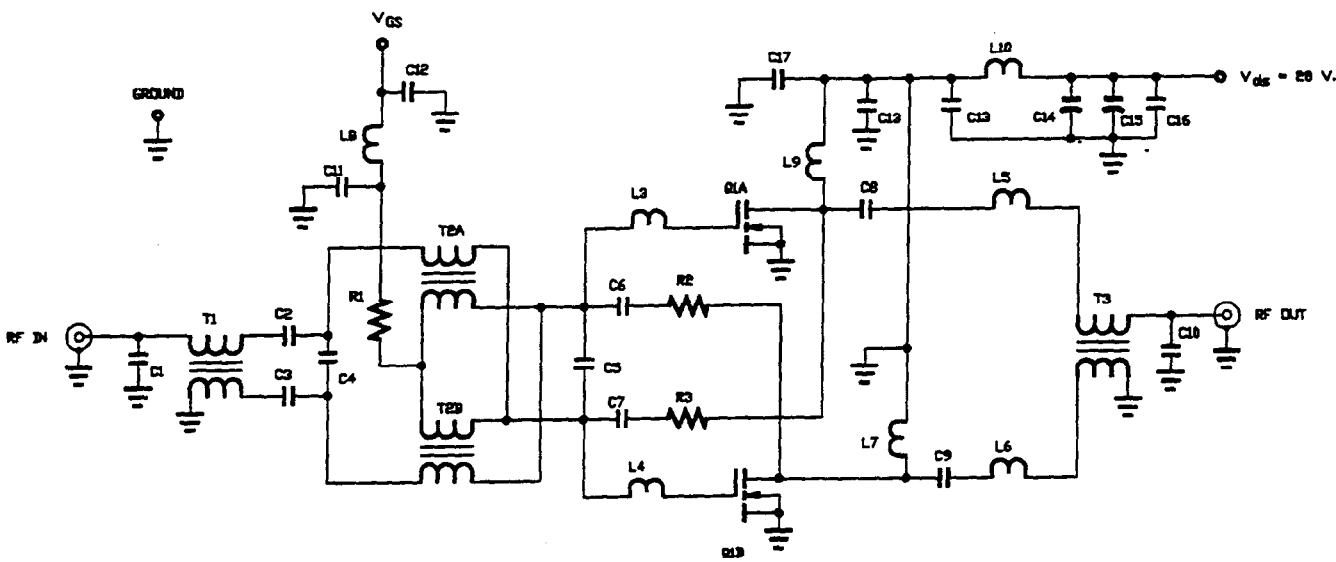
Frequency (MHz)	Z_{IN} (OHMS)	Z_{LOAD} (OHMS)
100	$30.0 - j 150.0$	$70.0 + j 110.0$
300	$15.0 - j 90.0$	$55.0 + j 80.0$
500	$4.2 - j 46.0$	$48.0 + j 50.0$

$V_{DD}=28\text{ V}$, $I_{DO}=100\text{ mA}$, $P_{OUT}=10.0\text{ Watts}$

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

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

RF Test Fixture



PARTS LIST

C10	2.7 pf
C5	3.0 PF
C1	6.8 pf
C4	15 pf
C2, 3, 6,	
7, 8, 9	500 pf
C11, 12, 13,	
14, 17	.015 uf
C15	.10 uf
C16	50 uf 50 V.
R1	100 OHM 25 W.
R2, 3	1.1K OHM 25 W.
T1, 2, 3	2.50' OF 50 OHM SEMI-RIGID COAX
L8, 10	7 TURNS OF NO. 22 AWG WIRE
L7, 9	15 TURNS OF NO. 22 AWG WIRE
L1, 2	.35' OF 50 OHM TRANSMISSION LINE
L3, 4	.70' OF 50 OHM TRANSMISSION LINE
L5, 6	1.0' OF 50 OHM TRANSMISSION LINE
Q1	UF2810P