

RF MOSFET Power Transistor, 10W, 28V

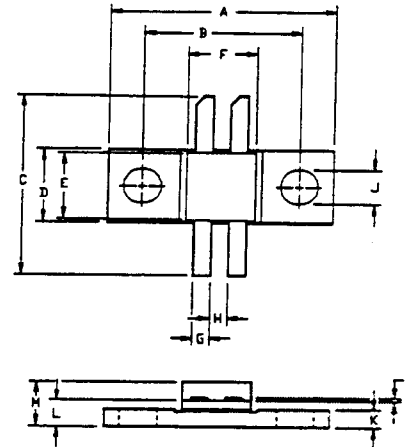
100 - 500 MHz

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	$V_{DS}=10.0\text{ V}, I_{DS}=100.0\text{ mA}, \Delta V_{GS}=1.0\text{ V}, 80\text{ }\mu\text{s Pulse}^*$
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

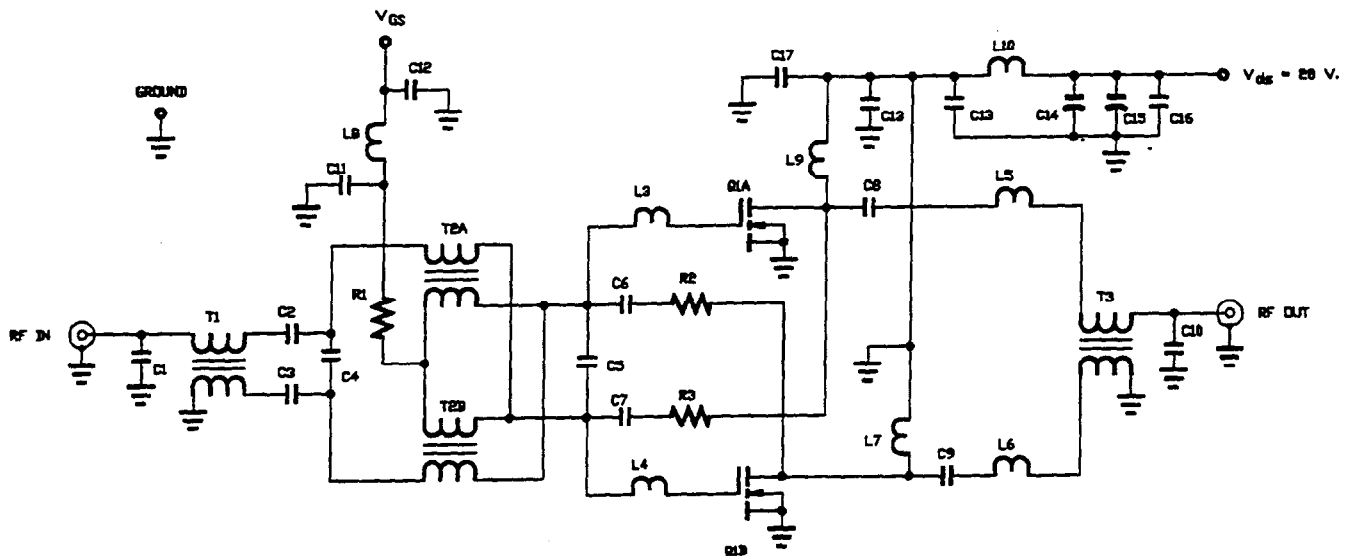
Frequency (MHz)	Z _{IN} (OHMS)	Z _{LOAD} (OHMS)
100	30.0 - j 150.0	70.0 + j 110.0
300	15.0 - j 90.0	55.0 + j 80.0
500	4.2 - j 46.0	48.0 + j 50.0

V_{DD}=28 V, I_{DO}=100 mA, P_{OUT}=10.0 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