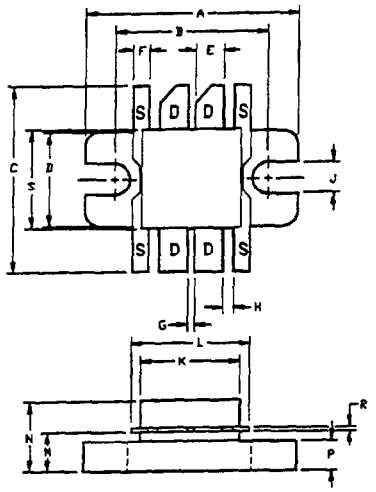
RF MOSFET Power Transistor, 100W, 28V
100 - 500 MHz

UF28100V

V2.00

Features

- N-Channel Enhancement Mode Device
- DMOS Structure
- Lower Capacitances for Broadband Operation
- High Saturated Output Power
- Lower Noise Figure Than Competitive Devices



LETTER	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	22.73	22.99	.895	.905
B	16.38	16.64	.645	.655
C	19.65	19.56	.730	.770
D	.382	.389	.382	.389
E	2.92	3.18	.115	.125
F	1.65	1.91	.065	.075
G	.64	.89	.025	.035
H	1.02	1.27	.040	.050
J	3.12	3.38	.123	.133
K	10.67	10.87	.420	.428
L	12.45	12.95	.490	.510
M	4.06	4.57	.160	.180
N	6.71	7.52	.264	.296
P	3.05	3.30	.120	.130
R	.10	.15	.004	.006
S	10.06	10.26	.396	.404

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	250	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Thermal Resistance	θ_{JC}	0.7	°C/W

Electrical Characteristics at 25°C

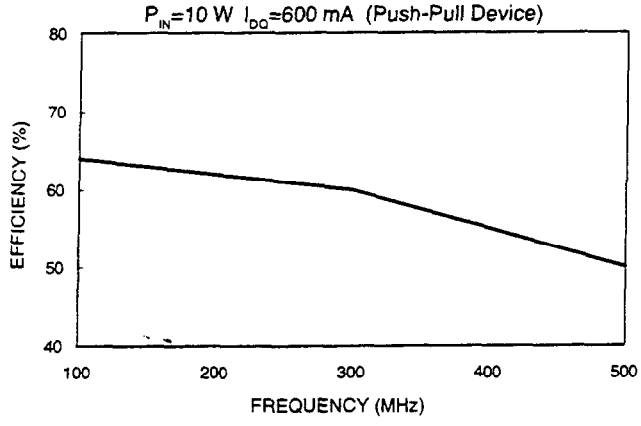
Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	V_{GS}=0.0 V, I_{DS}=15.0 mA*
Drain-Source Leakage Current	I_{DSS}	-	3.0	mA	V_{DS}=28.0 V, V_{GS}=0.0 V*
Gate-Source Leakage Current	I_{GSS}	-	3.0	µA	V_{GS}=20 V, V_{DS}=0.0 V*
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	V_{DS}=10.0 V, I_{DS}=300.0 mA*
Forward Transconductance	G_M	1.5	-	S	V_{DS}=10.0 V, I_{DS}=3000.0 mA, ΔV_{GS}=1.0 V, 80 µs Pulse*
Input Capacitance	C_{ISS}	-	135	pF	V_{DS}=28.0 V, F=1.0 MHz*
Output Capacitance	C_{OSS}	-	90	pF	V_{DS}=28.0 V, F=1.0 MHz*
Reverse Capacitance	C_{RSS}	-	24	pF	V_{DS}=28.0 V, F=1.0 MHz*
Power Gain	G_P	10	-	dB	V_{DD}=28.0 V, I_{DQ}=600.0 mA, P_{OUT}=100.0 W, F=500 MHz
Drain Efficiency	η_D	50	-	%	V_{DD}=28.0 V, I_{DQ}=600.0 mA, P_{OUT}=100.0 W, F=500 MHz
Load Mismatch Tolerance	VSWR-T	-	30:1	-	V_{DD}=28.0 V, I_{DQ}=600.0 mA, P_{OUT}=100.0 W, F=500 MHz

* Per Side

Typical Broadband Performance Curves

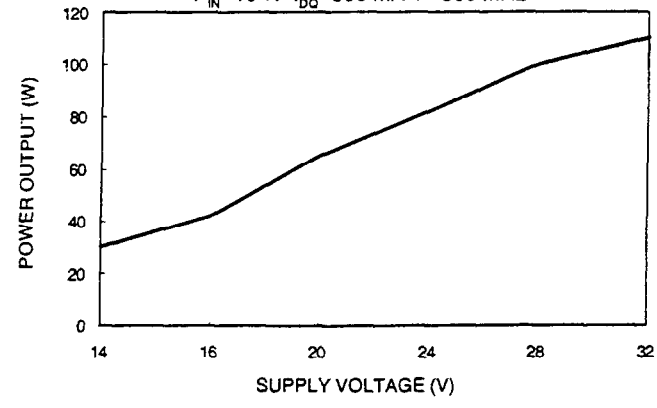
EFFICIENCY vs FREQUENCY

P_{IN}=10 W I_{DQ}=600 mA (Push-Pull Device)



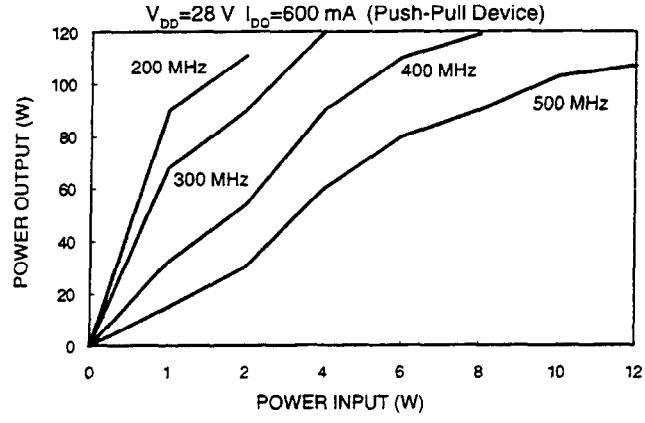
POWER OUTPUT vs SUPPLY VOLTAGE

P_{IN}=10 W I_{DQ}=600 mA F=500 MHz



POWER OUTPUT vs POWER INPUT

V_{DD}=28 V I_{DQ}=600 mA (Push-Pull Device)



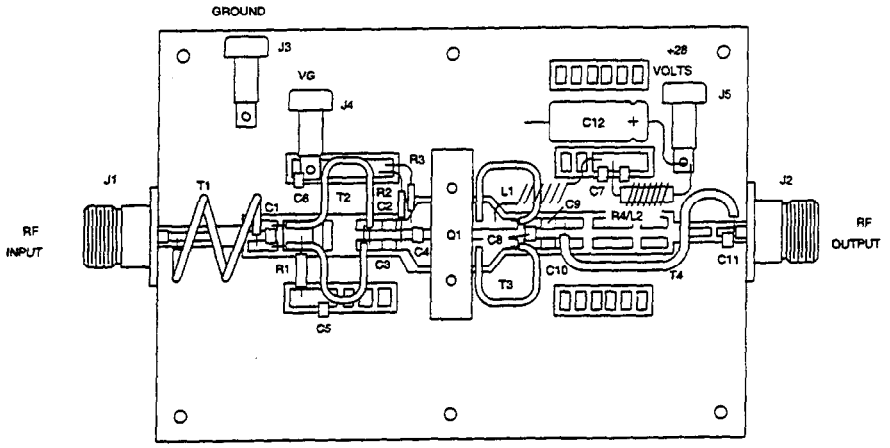
Typical Device Impedance

Frequency (MHz)	Z_{IN} (OHMS)	Z_{LOAD} (OHMS)
100	4.5 - j 6.0	14.5 + j 0.5
300	2.25 - j 1.75	7.5 + j 1.0
500	1.5 + j 5.5	3.5 - j 3.5

V_{DD}=28 V, I_{DQ}=600 mA, P_{OUT}=100.0 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

C1,C8	CHIP CAPACITOR, 2.0pF ATC B
C2,C3	CHIP CAPACITOR, 5000pF
C4	CHIP CAPACITOR, 37pF ATC B
C5	CHIP CAPACITOR, 260pF ATC B
C6,C7	CHIP CAPACITOR, .015uF
C9,C10	CHIP CAPACITOR, 560pF ATC B
C11	CHIP CAPACITOR, 0.6pF ATC B
C12	ELECTROLYTIC CAPACITOR, 50uF 50 VOLTS
R1,R4	RESISTOR, 27 OHM .25 WATT
R2,R3	RESISTOR, 22K OHM .25 WATT
L1	INDUCTOR, 5 TURNS OF NO. 18 AWG ON '.10"
L2	INDUCTOR, 10 TURNS OF NO. 22 AWG ON R4
T1	1:1 BALUN TRANSFORMER, 50 OHM SEMI-RIGID COAX '.085" X 3" LONG
T2	4:1 BALUN TRANSFORMER, 25 OHM SEMI-RIGID COAX '.070" X 2.5" LONG
T3	1:9 BALUN TRANSFORMER, 10 OHM SEMI-RIGIG COAX '.070" X 2.5" LONG
T4	1:1 BALUN TRANSFORMER, 50 OHM SEMI-RIGID COAX '.085" X 4" LONG
Q1	UF28100V
BOARD	ROGERS 5870, .031" THICK
J1,J2	CONNECTOR, TYPE 'N'
J3,J4,J5	BANANA JACK
HEATSINK	FINNED ALUMINUM, D/N 73050182-03