ERF9530

RF Power MOSFET - 30MHz / 100 Watt PEP

DESCRIPTION

The ERF9530 is a N-Channel Enhancement Mode MOSFET transistor developed for RF power amplifier applications in the HF frequency range. High power in a TO-3PN package for an excellent 'watt per dollar' value.

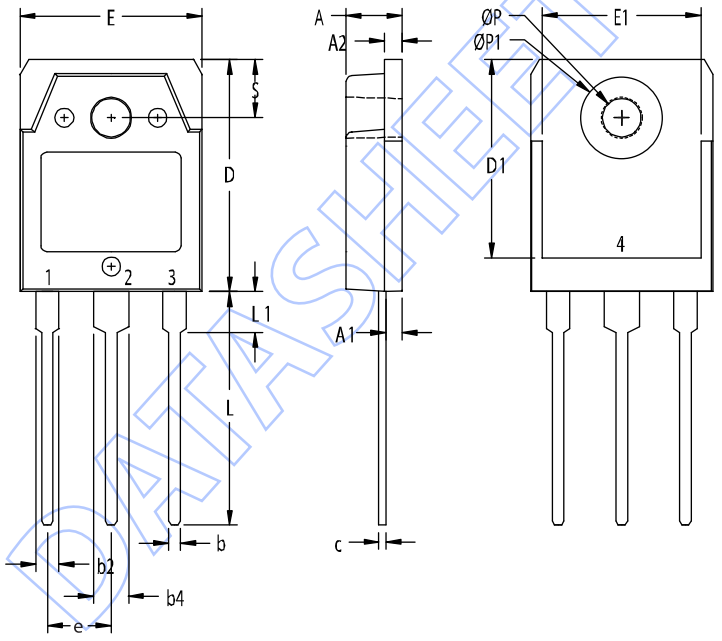
FEATURES

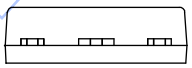
- High Power and Economical:
  Pout > 25W (100W PEP)
  Gp > 10dB @ 12.5V, f=30MHz

APPLICATION

Final amplification stages in mobile HF transceivers and amplifiers.

TO-3PN PACKAGE OUTLINE





Pins:
1. Gate
2. Drain
3. Source
4. Drain (Fin)

SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	0.90	1.15
b2	.075	.087	1.90	2.20
b4	.114	.126	2.90	3.20
c	.022	.031	0.55	0.80
D	.780	.791	19.80	20.10
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.205	.225	5.25	5.65
L	.779	.795	19.80	20.20
L1	.118	.145	3.00	3.70
ØP	.126	.134	3.20	3.40
ØP1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

ABSOLUTE MAXIMUM RATINGS

(Tc=25°C UNLESS OTHERWISE SPECIFIED)

SYMBOL	PARAMETER	CONDITIONS	RATINGS	UNIT
V_{DSS}	Drain to source voltage	Vgs = 0V	50	V
V_{GSS}	Gate to source voltage	Vds = 0V	+/- 30	V
Pch	Channel dissipation	Tc=25°C	150	W
I_D	Drain current		20	A
Tch	Channel temperature		150	°C
Tstg	Storage temperature		-40 to +150	°C
Rth j-c	Thermal resistance	junction to case	1.2	°C/W

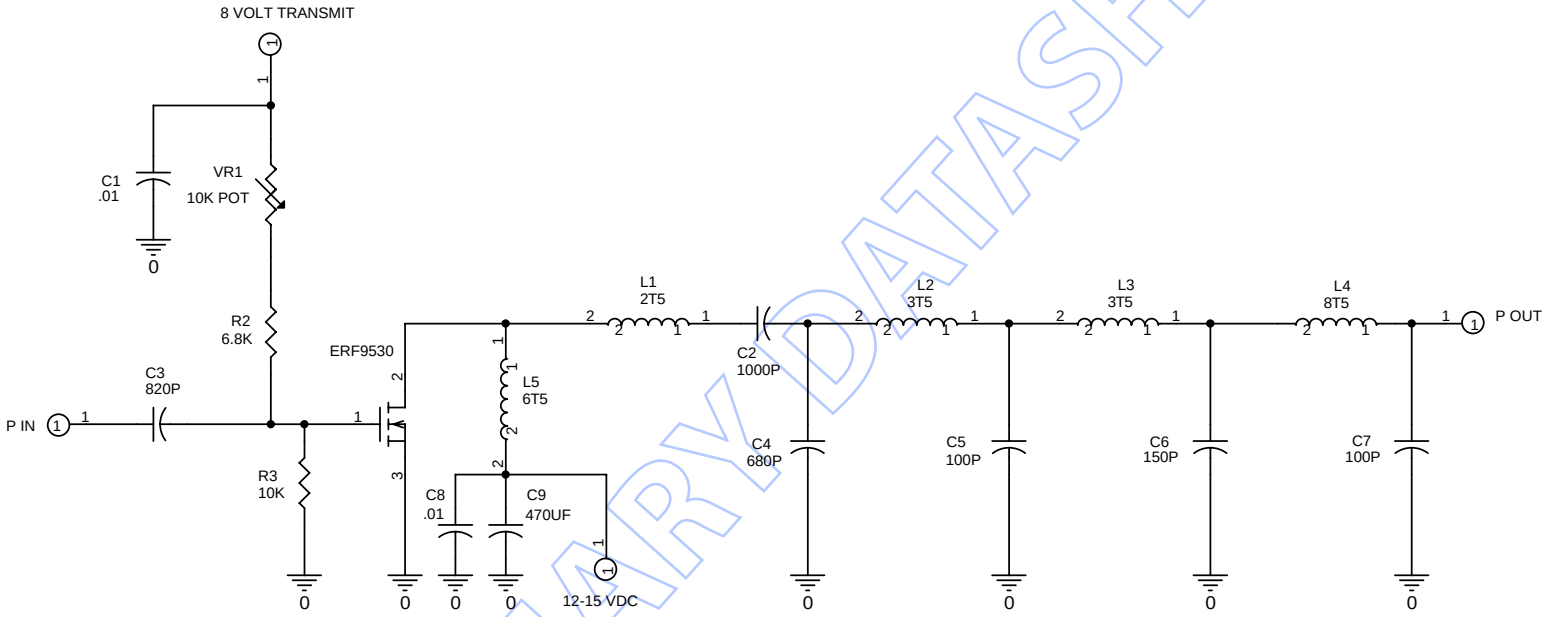
ELECTRICAL CHARACTERISTICS

(Tc=25°C UNLESS OTHERWISE SPECIFIED)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
I_{DSS}	Zero gate voltage drain current	V_{DS} = 50V, V_{GS} = 0V	-	-	500	µA
V_{TH}	Gate threshold voltage	V_{DS} = 12V, I_{DS} = 250µA	2	-	4	V
Pout	Output Power	V_{DD} = 12.5V, Pin=10W f=30MHz	85	100	125	W

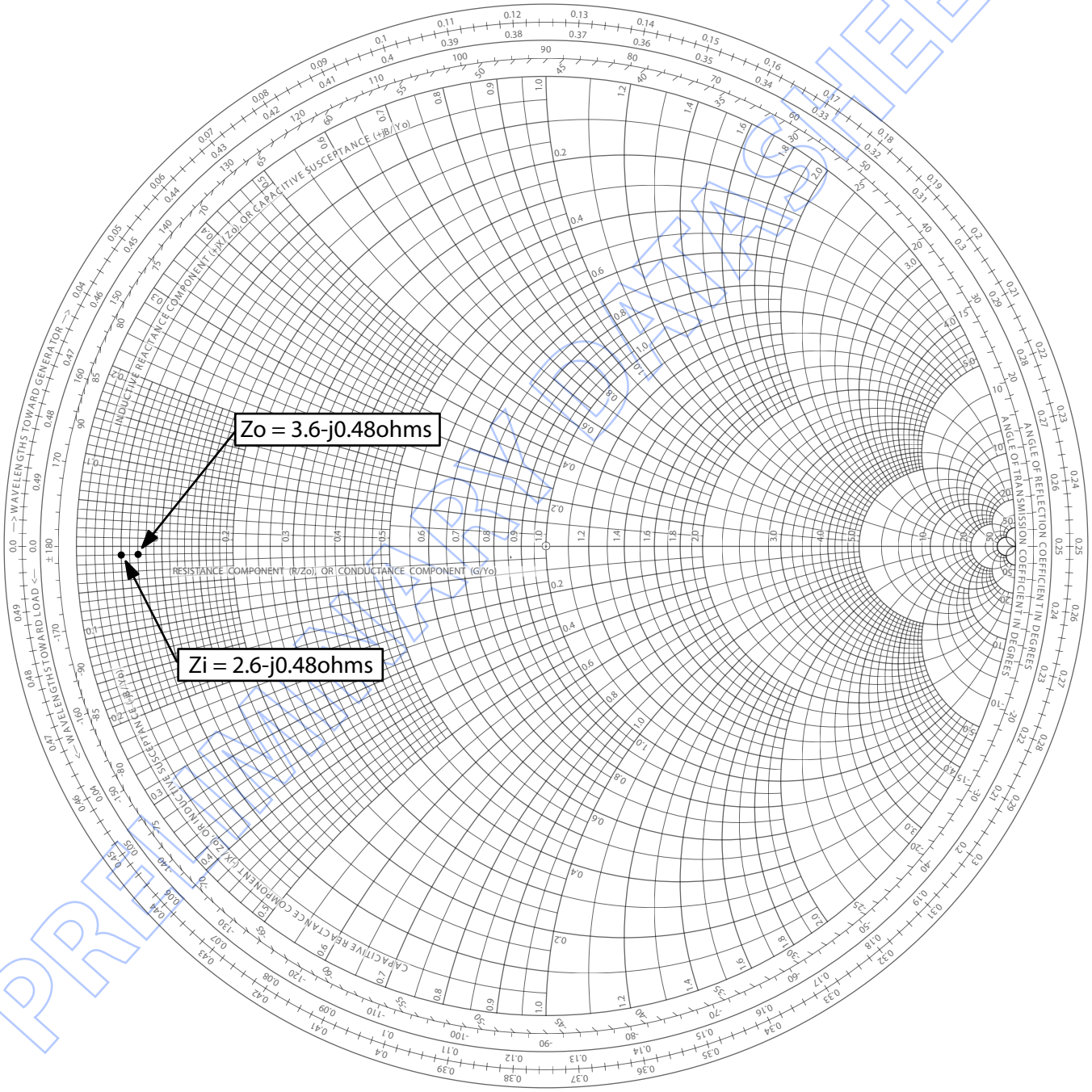
NOTE: Above parameters, specifications, ratings, limits and conditions are subject to change.

TEST CIRCUIT (f=30MHz)



INPUT / OUTPUT IMPEDANCE VS. FREQUENCY CHARACTERISTICS

f = 30Mhz, Vds = 12V, Id = 0.5A



S-PARAMETER DATA (@Vdd=12.5V, Id=500mA)

FREQ. (MHz)	S11		S21		S12		S22	
	(mag)	(angle)	(mag)	(angle)	(mag)	(angle)	(mag)	(angle)
10	0.8558	-178.5206	3.3926	82.5906	0.0398	51.656	0.8172	-175.4808
15.4	0.85	-178.7039	2.2221	79.1456	0.0548	60.8473	0.8168	-176.0968
20.8	0.8459	-179.1359	1.6698	75.5818	0.0709	64.7333	0.8153	-176.3149
25.3	0.8432	-179.2576	1.3846	72.891	0.0847	66.8258	0.8161	-176.1127
30.7	0.8562	-178.4354	1.159	70.4095	0.0973	69.9854	0.8221	-176.1409
35.2	0.8598	-178.7634	1.0264	68.2264	0.1122	71.2546	0.8229	-175.7806
40.6	0.8592	-178.9764	0.9111	65.442	0.1277	71.5434	0.8267	-175.6365
45.1	0.8571	-179.0534	0.8292	63.2822	0.1413	71.9191	0.828	-175.3323
50.5	0.8562	-179.4405	0.7613	60.7759	0.1578	72.0172	0.8303	-175.1716
55	0.8571	-179.5267	0.7101	58.9704	0.1704	71.8344	0.8323	-174.9387
60.4	0.8489	179.8435	0.6594	56.8556	0.1862	71.3587	0.8363	-174.5682
65.8	0.8417	179.0236	0.6152	54.9493	0.1986	70.8188	0.8402	-174.5976
70.3	0.7568	-179.6396	0.5583	54.6786	0.2016	71.9517	0.8414	-174.7352
75.7	0.8516	-177.5559	0.5666	54.5807	0.2288	72.0652	0.8384	-174.448
80.2	0.8537	-177.8571	0.5512	53.8863	0.243	72.1885	0.8373	-174.3858
85.6	0.8769	-179.4935	0.543	51.824	0.2631	70.3354	0.8375	-173.64
90.1	0.8678	178.5492	0.5062	49.5482	0.2651	68.4448	0.8467	-173.3934
95.5	0.8467	176.5781	0.4957	50.3177	0.2782	69.5116	0.8468	-173.7852
100	0.8267	177.0862	0.4816	50.6054	0.2869	69.9825	0.8468	-173.7515

The data and specifications provided in this publication are believed to be accurate and reliable. However, Palomar Electronics assumes no responsibility or liability for the consequences of use of this information. This publication supersedes and replaces all information previously supplied. Data and specifications are subject to change without notice.

WARNING
Semiconductor failure may cause personal injury, fire and/or property damage. Do not exceed the maximum rating conditions of this device in any design. As with all plastic molded devices, exceeding the maximum ratings of the device may cause the package to fail which may lead to an explosion and/or fire. Take all precautions and consider all safety issues when designing your circuits.

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