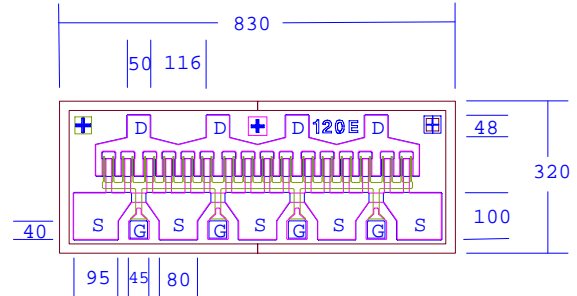


DATA SHEET
High Efficiency Heterojunction Power FET

- +29.5dBm TYPICAL OUTPUT POWER
- 9.5dB TYPICAL POWER GAIN AT 18GHz
- 0.3 X 1200 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY
- Idss SORTED IN 30mA PER BIN RANGE



Chip Thickness: 75 ± 13 microns
All Dimensions In Microns

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss}	28.0	29.5 29.5		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss}	10.0	12.0 9.5		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss}		46		%
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	210	360	510	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	240	380		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =3.5mA		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.2mA	-12	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.2mA	-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		35		°C/W

MAXIMUM RATINGS AT 25°C

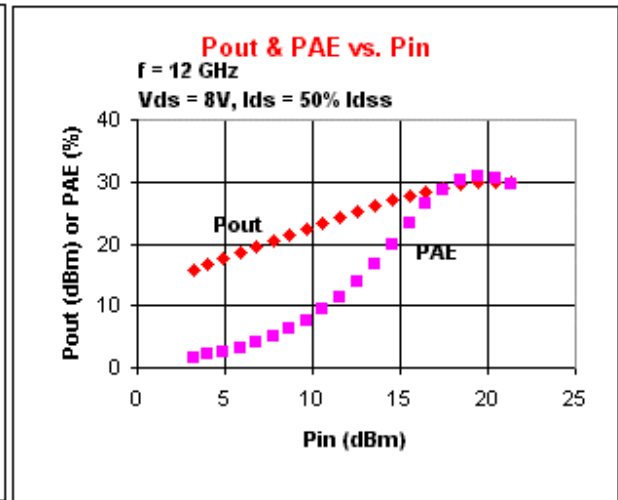
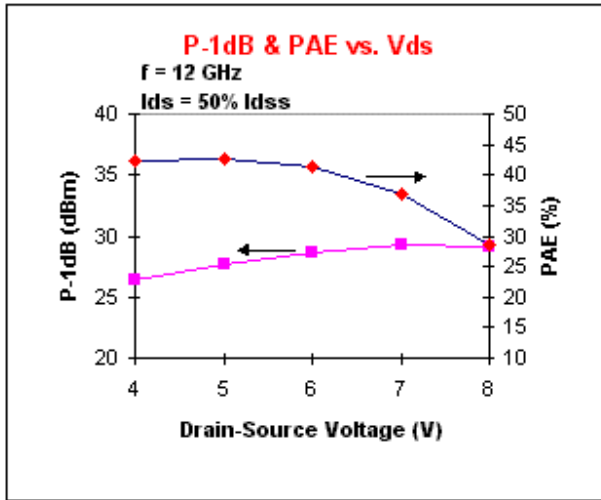
SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V
I_{ds}	Drain Current	I _{dss}	405mA
I_{gsf}	Forward Gate Current	60mA	10mA
P_{in}	Input Power	27dBm	@3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	3.9W	3.2W

Note: 1. Exceeding any of the above ratings may result in permanent damage.

2. Exceeding any of the above ratings may reduce MTTF below design goals.

DATA SHEET

High Efficiency Heterojunction Power FET



S-PARAMETERS

8V, 1/2 Idss

FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.898	-97.8	14.488	124.9	0.034	39.3	0.300	-95.1
2.0	0.885	-134.7	8.805	103.0	0.041	22.6	0.313	-125.6
3.0	0.882	-150.7	6.129	90.7	0.042	16.0	0.322	-135.8
4.0	0.887	-159.7	4.668	81.9	0.042	10.9	0.338	-140.7
5.0	0.896	-165.0	3.747	74.9	0.042	9.3	0.349	-143.7
6.0	0.898	-168.8	3.128	68.6	0.040	8.5	0.366	-145.2
7.0	0.901	-171.8	2.674	62.8	0.040	7.3	0.390	-146.7
8.0	0.904	-174.2	2.329	57.5	0.039	6.7	0.411	-148.1
9.0	0.908	-176.0	2.057	52.2	0.037	5.3	0.433	-150.2
10.0	0.912	-177.2	1.842	47.7	0.037	5.6	0.458	-152.2
11.0	0.916	-178.7	1.657	42.9	0.035	5.4	0.483	-154.7
12.0	0.917	-179.9	1.501	38.2	0.035	6.4	0.511	-157.7
13.0	0.920	-178.8	1.370	33.5	0.033	6.8	0.538	-160.3
14.0	0.922	-177.5	1.256	28.9	0.033	6.5	0.564	-163.1
15.0	0.927	-175.6	1.163	24.2	0.033	4.8	0.590	-165.9
16.0	0.927	-173.8	1.077	19.4	0.033	5.8	0.616	-168.7
17.0	0.929	-171.4	0.998	14.4	0.033	3.9	0.638	-171.4
18.0	0.934	-169.1	0.934	9.9	0.034	6.0	0.658	-173.5
19.0	0.934	-166.8	0.880	5.2	0.034	5.7	0.675	-176.4
20.0	0.936	-164.2	0.827	0.5	0.035	4.2	0.692	-178.4
21.0	0.938	-162.3	0.751	-2.6	0.036	7.9	0.725	-179.6
22.0	0.938	-161.2	0.701	-6.4	0.036	6.4	0.743	-177.5
23.0	0.939	-160.1	0.659	-10.5	0.037	7.6	0.758	-175.3
24.0	0.939	-159.3	0.622	-14.1	0.039	10.6	0.769	-173.4
25.0	0.948	-158.8	0.592	-18.1	0.040	12.3	0.776	-170.9
26.0	0.946	-158.7	0.559	-21.2	0.041	12.6	0.783	-168.3
27.0	0.945	-158.5	0.535	-24.4	0.044	15.2	0.790	-166.0
28.0	0.946	-158.0	0.513	-27.1	0.046	16.3	0.791	-164.0
29.0	0.958	-157.6	0.493	-30.1	0.049	16.5	0.790	-161.3
30.0	0.948	-156.9	0.472	-33.6	0.050	11.6	0.799	-158.5
31.0	0.961	-155.8	0.451	-36.8	0.051	12.6	0.802	-156.0
32.0	0.955	-154.5	0.430	-40.1	0.049	10.4	0.813	-152.9
33.0	0.951	-153.2	0.405	-42.9	0.048	13.5	0.824	-150.1
34.0	0.959	-151.2	0.388	-46.3	0.048	11.3	0.836	-147.6
35.0	0.963	-148.9	0.369	-49.0	0.048	13.2	0.856	-144.8
36.0	0.967	-147.5	0.348	-51.4	0.050	9.7	0.875	-141.4
37.0	0.978	-145.4	0.338	-54.7	0.052	7.8	0.891	-138.2
38.0	0.993	-143.3	0.325	-58.0	0.055	0.1	0.891	-134.7
39.0	1.005	-139.3	0.320	-64.0	0.057	-12.6	0.883	-131.9
40.0	0.994	-137.0	0.312	-67.9	0.058	-21.3	0.876	-130.0

Note: The data included 0.7 mils diameter Au bonding wires:
4 gate wires, 15 mils each; 4 drain wires, 20 mils each; 10 source wires, 7 mils each.