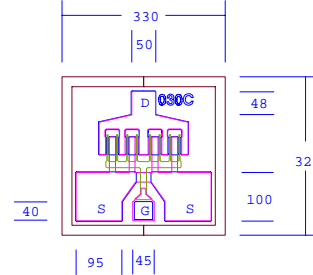


DATA SHEET
High Efficiency Heterojunction Power FET

- **+23.0dBm TYPICAL OUTPUT POWER**
- **11.0dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 300 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 10mA 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 _{ds}	21.0	23.0 23.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds}	12.0	13.5 11.0		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds}		45		%
I_{ds}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	50	90	130	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	60	95		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =1.0mA		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.0mA	-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.0mA	-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		125		°C/W

MAXIMUM RATINGS AT 25 °C

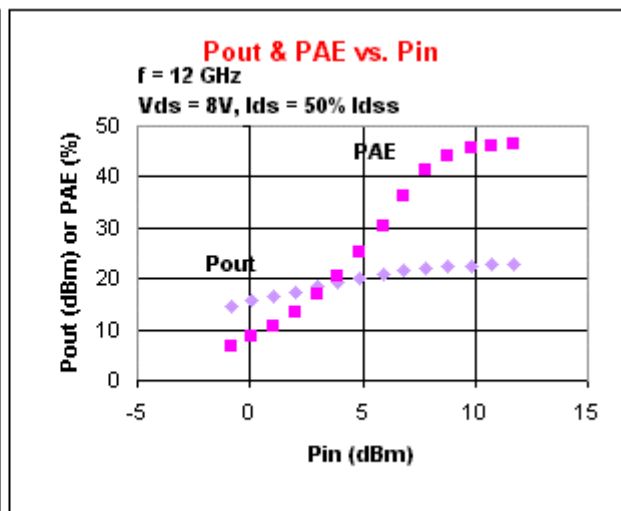
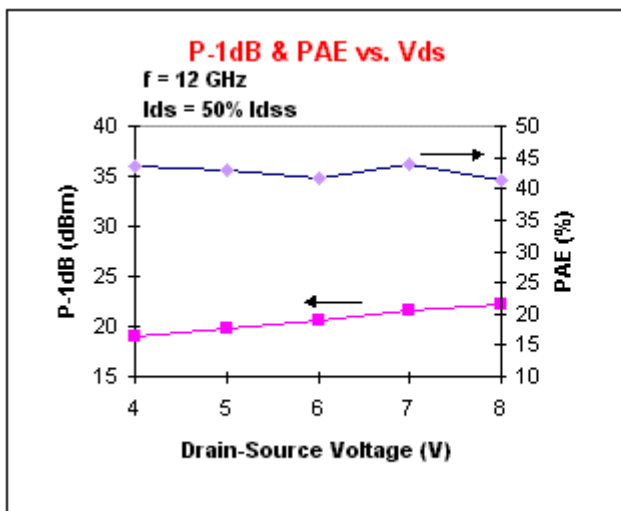
SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V
I_{ds}	Drain Current	I _{ds}	110mA
I_{gsf}	Forward Gate Current	15mA	2.5mA
P_{in}	Input Power	21dBm	@3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	1.1W	900mW

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 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
1.0	0.975	-23.9	7.888	162.4	0.017	76.0	0.750	-9.3
2.0	0.951	-46.7	7.419	147.5	0.032	63.5	0.726	-18.3
3.0	0.911	-67.1	6.800	133.6	0.044	53.5	0.682	-25.5
4.0	0.883	-85.5	6.169	121.3	0.053	44.0	0.643	-32.0
5.0	0.859	-101.4	5.542	110.4	0.059	36.3	0.605	-37.1
6.0	0.840	-114.7	4.993	100.9	0.063	30.0	0.577	-41.6
7.0	0.825	-126.5	4.526	92.2	0.065	25.0	0.554	-45.8
8.0	0.814	-136.9	4.125	84.2	0.067	19.6	0.535	-49.6
9.0	0.808	-146.1	3.780	76.9	0.067	15.1	0.517	-53.4
10.0	0.801	-154.1	3.495	70.1	0.068	11.2	0.504	-57.1
11.0	0.799	-162.0	3.255	63.3	0.067	7.9	0.491	-61.3
12.0	0.797	-169.5	3.041	56.7	0.067	4.5	0.479	-65.6
13.0	0.794	-176.9	2.862	50.2	0.068	1.6	0.466	-70.4
14.0	0.791	-175.9	2.700	43.7	0.068	-1.9	0.453	-75.2
15.0	0.799	-168.2	2.566	37.0	0.069	-4.3	0.442	-80.5
16.0	0.800	-160.9	2.425	30.4	0.069	-7.5	0.434	-86.1
17.0	0.807	-153.3	2.282	23.6	0.070	-10.9	0.421	-92.3
18.0	0.816	-146.4	2.155	17.0	0.070	-12.1	0.411	-98.4
19.0	0.824	-139.8	2.039	10.5	0.071	-15.2	0.402	-105.0
20.0	0.832	-133.9	1.913	4.3	0.071	-17.8	0.400	-111.3
21.0	0.850	-130.8	1.761	-0.7	0.069	-18.3	0.404	-121.6
22.0	0.854	-128.3	1.647	-5.9	0.068	-18.6	0.416	-129.4
23.0	0.856	-125.8	1.554	-11.0	0.067	-19.4	0.435	-136.1
24.0	0.858	-123.8	1.466	-16.0	0.067	-19.4	0.449	-142.5
25.0	0.861	-121.9	1.400	-21.0	0.067	-19.1	0.474	-148.3
26.0	0.857	-120.7	1.336	-25.3	0.067	-16.9	0.489	-153.1
27.0	0.859	-118.5	1.283	-30.2	0.068	-17.1	0.504	-158.7
28.0	0.860	-116.0	1.241	-34.9	0.070	-17.2	0.515	-162.6
29.0	0.863	-112.5	1.204	-40.3	0.072	-17.4	0.523	-167.9
30.0	0.861	-108.2	1.160	-45.6	0.073	-19.5	0.533	-173.0
31.0	0.869	-103.9	1.120	-51.1	0.072	-21.1	0.540	-178.8
32.0	0.871	-98.2	1.071	-56.8	0.072	-23.7	0.552	-175.1
33.0	0.876	-93.5	1.013	-62.5	0.070	-26.9	0.563	-168.2
34.0	0.895	-88.7	0.959	-68.0	0.068	-28.5	0.579	-161.5
35.0	0.926	-84.1	0.910	-73.5	0.069	-31.3	0.610	-153.7
36.0	0.952	-81.3	0.858	-79.0	0.072	-36.4	0.642	-146.1
37.0	0.984	-77.8	0.815	-84.5	0.075	-43.8	0.677	-137.7
38.0	1.015	-74.8	0.765	-91.0	0.073	-51.4	0.702	-130.2
39.0	1.032	-71.4	0.702	-97.1	0.074	-65.3	0.712	-123.9
40.0	1.002	-70.1	0.650	-103.1	0.072	-70.2	0.725	-119.1

Note: The data included 0.7 mils diameter Au bonding wires:
 1 gate wires, 15 mils each; 1 drain wires, 20 mils each; 4 source wires, 7 mils each.