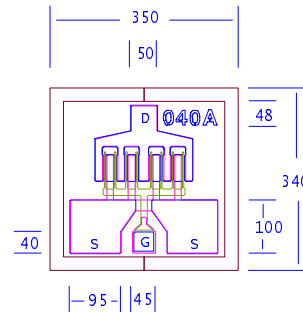


DATA SHEET
High Efficiency Heterojunction Power FET

- +24.5dBm TYPICAL OUTPUT POWER
- 11.0dB TYPICAL POWER GAIN AT 18GHz
- 0.3 X 400 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 _{dss}	22.5	24.5 24.5		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss}	11.5	13.5 11.0		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss}		45		%
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	70	120	160	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	80	130		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)		105		°C/W

MAXIMUM RATINGS AT 25°C

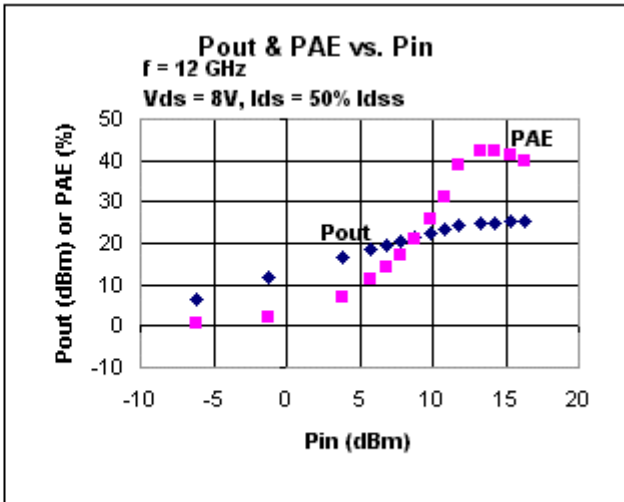
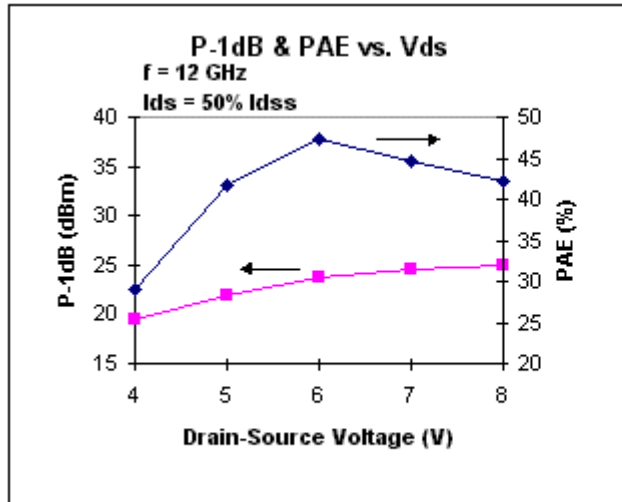
SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V
I_{ds}	Drain Current	I _{dss}	135mA
I_{gsf}	Forward Gate Current	20mA	3mA
P_{in}	Input Power	21dBm	@3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	1.3W	1.1W

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		FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.972	-32.9	10.341	157.6	0.021	72.5	0.666	-12.8	21.0	0.856	132.6	1.642	-6.5	0.065	-8.2	0.341	-155.6
2.0	0.933	-62.1	9.244	139.3	0.036	57.7	0.611	-24.0	22.0	0.862	128.5	1.512	-12.2	0.064	-7.9	0.382	-165.1
3.0	0.893	-86.0	8.024	123.8	0.046	45.6	0.546	-33.0	23.0	0.868	125.3	1.397	-17.8	0.063	-8.5	0.434	-172.6
4.0	0.863	-105.4	6.944	110.9	0.053	36.4	0.493	-40.6	24.0	0.865	122.5	1.295	-22.5	0.063	-8.1	0.481	-177.0
5.0	0.826	-123.4	6.013	99.3	0.057	29.0	0.451	-48.3	25.0	0.875	120.9	1.219	-26.9	0.063	-6.6	0.524	179.3
6.0	0.812	-135.8	5.262	89.9	0.059	24.0	0.425	-54.7	26.0	0.870	119.4	1.140	-30.9	0.065	-6.1	0.563	177.6
7.0	0.805	-145.7	4.649	81.8	0.060	19.9	0.412	-60.7	27.0	0.877	117.9	1.082	-34.2	0.067	-4.3	0.597	176.5
8.0	0.801	-153.8	4.162	74.6	0.060	15.8	0.405	-66.4	28.0	0.873	117.6	1.038	-37.9	0.071	-1.3	0.616	174.5
9.0	0.797	-160.7	3.745	67.9	0.060	13.0	0.401	-71.6	29.0	0.868	116.4	1.015	-41.4	0.073	-3.3	0.628	173.3
10.0	0.800	-166.7	3.415	61.7	0.060	10.9	0.405	-75.8	30.0	0.869	114.9	1.002	-45.6	0.078	-3.2	0.634	170.8
11.0	0.798	-172.5	3.140	55.8	0.059	9.2	0.409	-80.0	31.0	0.877	112.6	0.991	-50.6	0.079	-5.2	0.624	167.1
12.0	0.803	-177.9	2.903	49.7	0.059	7.4	0.411	-83.9	32.0	0.872	109.8	0.979	-56.0	0.084	-7.8	0.611	161.4
13.0	0.807	176.4	2.710	44.0	0.059	6.5	0.408	-87.1	33.0	0.876	105.5	0.948	-62.3	0.086	-11.6	0.587	152.9
14.0	0.813	170.4	2.546	38.2	0.060	4.5	0.403	-90.6	34.0	0.888	101.7	0.933	-68.8	0.089	-15.1	0.586	142.2
15.0	0.815	164.3	2.386	32.0	0.059	3.4	0.393	-94.4	35.0	0.915	96.8	0.888	-75.6	0.090	-22.0	0.588	129.2
16.0	0.820	157.9	2.259	25.5	0.060	0.7	0.379	-99.0	36.0	0.944	92.3	0.834	-82.9	0.091	-29.9	0.612	116.3
17.0	0.826	151.5	2.128	19.2	0.062	-1.1	0.358	-105.9	37.0	0.974	86.3	0.772	-90.1	0.089	-40.0	0.654	103.9
18.0	0.835	144.8	2.007	12.6	0.063	-2.3	0.340	-113.4	38.0	0.989	82.3	0.699	-97.4	0.082	-49.1	0.712	95.1
19.0	0.839	139.0	1.891	5.7	0.063	-3.9	0.323	-124.1	39.0	0.997	77.6	0.618	-103.3	0.077	-61.4	0.751	89.9
20.0	0.847	133.3	1.780	-1.0	0.065	-6.1	0.319	-137.0	40.0	0.988	76.1	0.552	-107.6	0.068	-67.3	0.786	88.5

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.