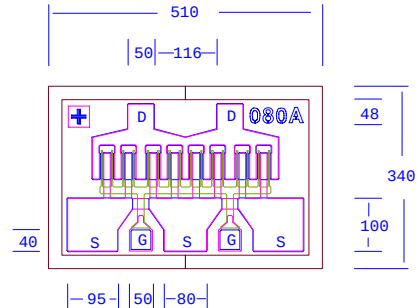


DATA SHEET
High Efficiency Heterojunction Power FET

- +27.5dBm TYPICAL OUTPUT POWER
- 9.5dB TYPICAL POWER GAIN AT 18GHz
- 0.3 X 800 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY
- Idss SORTED IN 20 mA 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} f=12GHz f=18GHz	26.0	27.5 27.5		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	10.5	12.5 9.5		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz		45		%
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	130	240	320	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	160	260		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =2.5mA		-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)		55		°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}	260mA
I_{gsf}	Forward Gate Current	40mA	7mA
P_{in}	Input Power	25dBm	@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	2.5W	2.1W

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

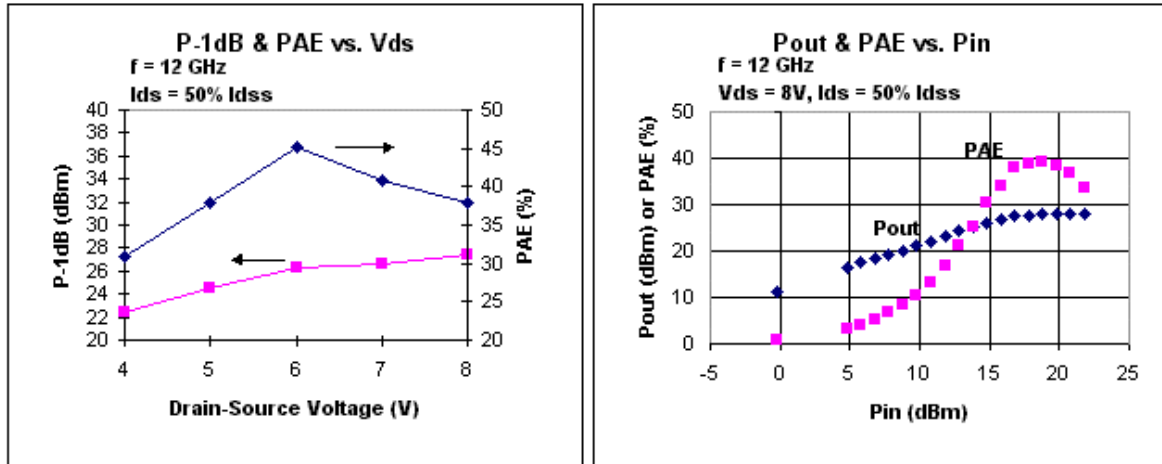
2. Exceeding any of the above ratings may reduce MTTF below design goals.

Excelics Semiconductor, Inc., 2908 Scott Blvd., Santa Clara, CA 95054

Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: www.excelics.com

DATS SHEET

High Efficiency Heterojunction Power FET



S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---		FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.929	-63.0	13.172	141.6	0.035	56.2	0.478	-36.9	21.0	0.892	151.7	1.076	-6.7	0.060	1.8	0.546	-173.4
2.0	0.885	-102.9	9.639	117.9	0.051	36.9	0.380	-60.7	22.0	0.893	148.0	1.015	-11.2	0.060	1.7	0.566	-176.3
3.0	0.863	-125.7	7.251	102.8	0.056	26.6	0.319	-75.8	23.0	0.898	144.4	0.958	-16.1	0.061	0.9	0.587	-179.8
4.0	0.856	-140.4	5.741	91.7	0.058	20.1	0.290	-86.4	24.0	0.895	140.9	0.909	-21.0	0.062	1.6	0.606	176.9
5.0	0.842	-153.1	4.704	82.3	0.059	15.5	0.288	-95.4	25.0	0.908	138.0	0.862	-25.6	0.065	2.7	0.626	172.3
6.0	0.843	-160.5	3.991	74.6	0.059	12.5	0.288	-102.3	26.0	0.905	136.3	0.814	-30.3	0.068	2.1	0.644	167.6
7.0	0.848	-166.4	3.455	67.8	0.059	10.2	0.293	-108.2	27.0	0.916	133.9	0.785	-34.5	0.070	2.1	0.665	163.6
8.0	0.853	-171.0	3.045	61.6	0.059	8.2	0.304	-114.3	28.0	0.924	133.4	0.745	-39.2	0.074	2.6	0.687	158.0
9.0	0.857	-174.5	2.701	55.8	0.058	7.2	0.315	-120.2	29.0	0.919	133.0	0.700	-42.7	0.075	0.6	0.704	153.5
10.0	0.866	-177.6	2.437	50.3	0.056	5.6	0.331	-125.3	30.0	0.928	133.6	0.675	-46.9	0.079	0.1	0.721	149.1
11.0	0.867	179.4	2.212	44.8	0.056	5.4	0.353	-130.8	31.0	0.936	133.6	0.644	-50.4	0.079	0.4	0.736	145.4
12.0	0.874	176.9	2.011	39.2	0.055	5.0	0.375	-136.0	32.0	0.931	133.2	0.616	-54.2	0.080	-0.5	0.749	141.4
13.0	0.877	174.3	1.842	34.1	0.054	3.9	0.398	-140.7	33.0	0.918	130.9	0.574	-58.3	0.081	-1.4	0.753	137.7
14.0	0.883	171.6	1.698	29.1	0.053	3.6	0.423	-145.0	34.0	0.922	129.9	0.547	-61.2	0.081	-1.4	0.771	135.0
15.0	0.884	168.8	1.567	23.8	0.053	4.1	0.445	-148.4	35.0	0.925	127.6	0.518	-64.5	0.080	-2.1	0.779	132.2
16.0	0.886	166.1	1.457	18.7	0.053	3.4	0.466	-152.1	36.0	0.935	125.9	0.494	-67.2	0.088	-6.5	0.784	129.7
17.0	0.885	163.7	1.362	13.9	0.054	2.5	0.487	-155.5	37.0	0.929	122.6	0.478	-70.2	0.087	-7.8	0.790	126.3
18.0	0.885	160.2	1.287	8.8	0.055	2.3	0.501	-158.3	38.0	0.929	119.1	0.465	-75.0	0.094	-14.2	0.797	122.8
19.0	0.883	156.3	1.226	3.3	0.057	1.5	0.514	-161.9	39.0	0.919	114.3	0.446	-79.0	0.091	-21.0	0.797	119.5
20.0	0.885	152.0	1.166	-2.2	0.059	0.6	0.524	-165.7	40.0	0.913	109.5	0.439	-83.8	0.096	-29.3	0.799	115.9

Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 7 mils each.