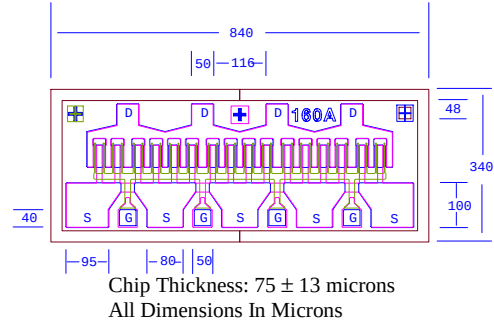


DATA SHEET
High Efficiency Heterojunction Power FET

- **+31.0dBm TYPICAL OUTPUT POWER**
- **8.5dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 1600 MICRON RECESSED “MUSHROOM” GATE**
- **Si₃N₄ PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 40mA PER BIN RANGE**


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	29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	9.5	11.5 8.5		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	290	480	660	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	320	500		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =4.5mA		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.6mA	-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.6mA	-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		30		°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}	475mA
I_{gsf}	Forward Gate Current	80mA	14mA
P_{in}	Input Power	28dBm	@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	4.5W	3.8W

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.

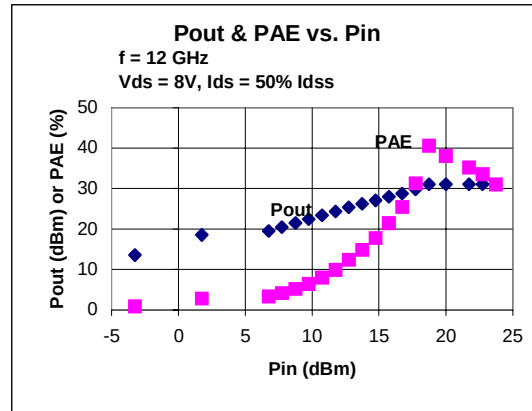
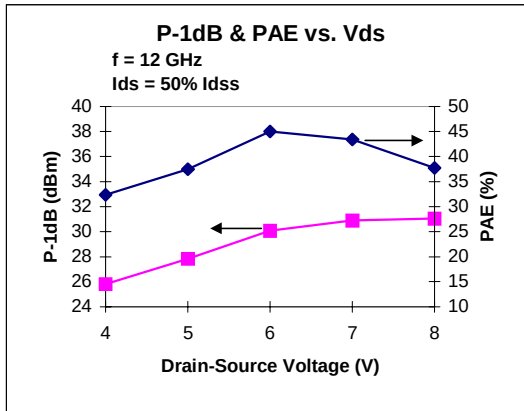
Excelics Semiconductor, Inc., 2908 Scott Blvd., Santa Clara, CA 95054

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

EPA160A

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	0.891	-118.3	14.073	114.9	0.028	32.7	0.344	-141.1
2.0	0.890	-146.2	7.912	96.6	0.031	22.3	0.385	-156.6
3.0	0.889	-157.7	5.382	86.8	0.031	20.5	0.401	-162.4
4.0	0.892	-163.6	4.093	79.3	0.032	19.1	0.416	-164.1
5.0	0.887	-167.5	3.275	73.1	0.031	21.8	0.431	-164.8
6.0	0.893	-170.0	2.741	67.3	0.031	24.5	0.449	-164.8
7.0	0.898	-171.6	2.341	62.4	0.031	26.6	0.467	-164.9
8.0	0.901	-173.3	2.036	57.4	0.031	27.6	0.485	-164.8
9.0	0.901	-174.1	1.793	53.2	0.029	28.8	0.496	-165.0
10.0	0.906	-174.9	1.604	49.2	0.029	33.3	0.511	-165.2
11.0	0.912	-175.3	1.449	45.1	0.028	35.6	0.526	-166.2
12.0	0.921	-175.9	1.316	40.9	0.029	36.4	0.538	-168.1
13.0	0.929	-176.3	1.202	36.6	0.029	36.0	0.553	-170.8
14.0	0.929	-176.6	1.096	32.2	0.030	36.4	0.564	-174.4
15.0	0.934	-176.7	1.010	27.8	0.030	37.1	0.578	-179.0
16.0	0.929	-176.6	0.920	23.2	0.031	33.7	0.597	175.9
17.0	0.933	-175.9	0.849	19.1	0.031	32.2	0.623	171.0
18.0	0.943	-176.0	0.790	14.4	0.033	30.4	0.652	165.8
19.0	0.943	-176.3	0.731	9.7	0.034	31.5	0.684	161.2
20.0	0.941	-176.7	0.672	5.2	0.036	31.0	0.710	157.2
21.0	0.930	-176.9	0.616	1.7	0.039	31.3	0.734	155.0
22.0	0.925	-177.3	0.578	-1.6	0.042	31.5	0.764	153.3
23.0	0.926	-177.9	0.545	-4.1	0.047	32.0	0.790	152.4
24.0	0.926	-179.1	0.518	-6.9	0.051	33.7	0.807	152.1
25.0	0.906	179.0	0.492	-8.9	0.057	34.8	0.817	152.4
26.0	0.906	178.1	0.471	-10.2	0.064	36.7	0.811	154.7

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.