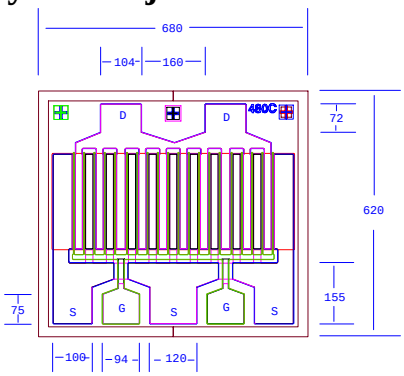
Excelics EPA480C

DATA SHEET
High Efficiency Heterojunction Power FET

- **+36.0dBm TYPICAL OUTPUT POWER**
- **19.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 4800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 120mA 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 Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	34.0	36.0 36.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	17.5	19.0 14.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		55		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		880	1440	1880	mA
Gm	Transconductance Vds=3V, Vgs=0V		960	1560		mS
Vp	Pinch-off Voltage Vds=3V, Ids=14mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=4.8mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=4.8mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			12		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	1.2A
Igsf	Forward Gate Current	240mA	40mA
Pin	Input Power	33dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	11.4 W	9.5 W

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

EPA480C

DATA SHEET
High Efficiency Heterojunction Power FET

S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.932	-128.5	13.854	111.4	0.020	30.2	0.327	-151.2
1.000	0.921	-154.5	7.443	95.4	0.022	23.1	0.358	-162.2
1.500	0.919	-164.7	5.021	87.1	0.023	23.8	0.372	-165.2
2.000	0.918	-170.4	3.769	81.0	0.023	26.8	0.387	-166.4
2.500	0.919	-174.4	3.006	75.8	0.024	30.7	0.403	-167.0
3.000	0.920	-177.4	2.491	71.1	0.025	35.1	0.421	-167.6
3.500	0.921	-179.9	2.120	66.7	0.026	39.6	0.441	-168.4
4.000	0.922	177.9	1.839	62.5	0.027	43.9	0.461	-169.3
4.500	0.923	176.0	1.619	58.5	0.029	47.9	0.483	-170.5
5.000	0.925	174.2	1.441	54.7	0.032	51.4	0.505	-171.9
5.500	0.927	172.5	1.295	51.0	0.034	54.4	0.527	-173.5
6.000	0.928	170.8	1.172	47.5	0.037	56.8	0.549	-175.3
6.500	0.930	169.3	1.067	44.1	0.040	58.7	0.571	-177.2
7.000	0.932	167.8	0.977	40.8	0.044	60.1	0.592	-179.3
7.500	0.933	166.3	0.898	37.7	0.047	61.0	0.613	178.5
8.000	0.935	164.8	0.829	34.7	0.051	61.6	0.633	176.3
8.500	0.936	163.4	0.768	31.9	0.055	61.8	0.652	174.0
9.000	0.938	162.0	0.713	29.1	0.059	61.7	0.671	171.6
9.500	0.940	160.6	0.665	26.6	0.063	61.4	0.689	169.3
10.000	0.941	159.2	0.621	24.1	0.067	60.9	0.706	166.9

Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 20 mils each; 2 drain wires, 12 mils each; 6 source wires, 7 mils each.