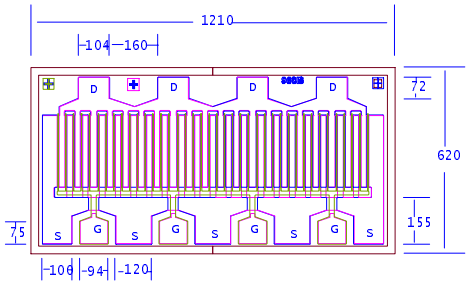
Excelics EPA960B

PRELIMINARY DATA SHEET

High Efficiency Heterojunction Power FET

- **+38.5dBm TYPICAL OUTPUT POWER**
- **18.5dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 9600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 240mA PER BIN RANGE**



Chip Thickness: 50 ± 10 microns
(with > 20 microns Gold Plated Heat Sink (PHS))
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	37.0	38.5 38.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	17.0	18.5 13.5		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V		1760	2880	3760	mA
Gm	Transconductance Vds=3V, Vgs=0V		1920	3120		mS
Vp	Pinch-off Voltage Vds=3V, Ids=28mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=9.6mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=9.6mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			5		°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	2.8A
Igsf	Forward Gate Current	480mA	80mA
Pin	Input Power	36dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	27 W	23 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.

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EPA960B

PRELIMINARY 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	0.959	-155.9	9.081	98.1	0.013	18.6	0.607	-173.3
1.000	0.957	-168.7	4.601	88.2	0.014	19.1	0.618	-175.4
1.500	0.957	-173.4	3.060	82.3	0.014	23.6	0.626	-175.7
2.000	0.958	-176.1	2.280	77.5	0.015	29.0	0.636	-175.7
2.500	0.958	-177.9	1.807	73.2	0.015	34.7	0.647	-175.6
3.000	0.959	-179.4	1.489	69.1	0.016	40.2	0.659	-175.6
3.500	0.960	179.4	1.260	65.3	0.017	45.4	0.673	-175.8
4.000	0.961	178.4	1.087	61.7	0.019	50.1	0.687	-176.1
4.500	0.961	177.4	0.951	58.3	0.020	54.3	0.702	-176.5
5.000	0.962	176.5	0.842	55.0	0.022	57.8	0.716	-177.1
5.500	0.963	175.6	0.752	52.0	0.024	60.8	0.731	-177.8
6.000	0.964	174.8	0.677	49.1	0.026	63.3	0.746	-178.6
6.500	0.965	174.0	0.614	46.4	0.028	65.2	0.759	-179.5
7.000	0.966	173.2	0.559	43.8	0.030	66.8	0.773	179.6
7.500	0.966	172.4	0.512	41.5	0.033	67.9	0.786	178.5
8.000	0.967	171.7	0.472	39.3	0.035	68.8	0.798	177.4
8.500	0.968	170.9	0.436	37.3	0.038	69.4	0.809	176.3
9.000	0.968	170.2	0.404	35.4	0.040	69.8	0.820	175.1
9.500	0.969	169.4	0.376	33.8	0.043	70.0	0.830	173.9
10.000	0.970	168.7	0.351	32.2	0.046	70.0	0.840	172.7

Note: The data included 0.7 mils diameter Au bonding wires:
4 gate wires, 20 mils each; 4 drain wires, 12 mils each; 10 source wires, 7 mils each.