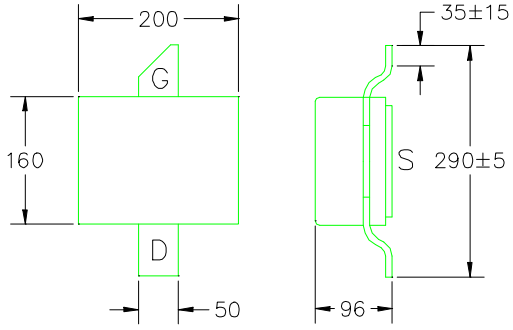
Excelics EPA960C-CP083

PRELIMINARY DATA SHEET

High Efficiency Heterojunction Power FET

- **NON-HERMETIC SURFACE MOUNT 160MIL METAL CERAMIC PACKAGE**
- **+38.0dBm TYPICAL OUTPUT POWER**
- **16.5dB TYPICAL POWER GAIN AT 2GHz**
- **0.4 X 9600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**



All Dimensions In Mils
Tolerance ±3

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f= 2GHz Vds=8V, Ids=50% Idss f= 4GHz	36.5	38.0 38.0		dBm
G_{1dB}	Gain at 1dB Compression f= 2GHz Vds=8V, Ids=50% Idss f= 4GHz	15.0	16.5 11.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=2GHz		45		%
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)		6*		°C/W

***** Overall Rth depends on case mounting.

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	2.9A	2.4A
Igsf	Forward Gate Current	480mA	60mA
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	23W	19W

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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PRILIMINARY 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
0.5	0.969	-167.6	8.140	88.4	0.008	24.0	0.814	178.7
1.0	0.978	178.4	4.058	73.8	0.011	32.3	0.784	175.2
1.5	0.935	167.8	3.512	66.1	0.016	38.4	0.741	169.4
2.0	0.929	161.0	2.695	57.2	0.021	38.2	0.741	165.6
2.5	0.922	155.5	2.253	49.3	0.025	38.3	0.727	163.4
3.0	0.918	149.8	2.032	40.2	0.030	36.2	0.705	159.7
3.5	0.908	142.2	1.891	30.6	0.037	32.0	0.685	154.5
4.0	0.891	132.4	1.814	19.2	0.045	23.2	0.659	147.7
4.5	0.879	119.7	1.753	5.8	0.052	14.6	0.634	139.9
5.0	0.868	105.9	1.673	-8.2	0.060	5.2	0.623	130.9
5.5	0.859	91.7	1.585	-22.2	0.068	-5.6	0.617	121.2
6.0	0.850	78.2	1.501	-35.7	0.076	-16.6	0.608	112.0
6.5	0.843	64.9	1.461	-46.5	0.084	-23.6	0.565	109.2
7.0	0.825	51.6	1.475	-61.0	0.098	-34.6	0.553	98.3
7.5	0.815	33.9	1.490	-78.4	0.112	-49.5	0.540	81.4
8.0	0.821	12.7	1.415	-98.4	0.119	-66.6	0.521	61.3
8.5	0.850	-6.9	1.253	-116.7	0.120	-82.4	0.546	39.2
9.0	0.877	-22.5	1.087	-133.1	0.114	-98.7	0.593	20.5
9.5	0.892	-33.5	0.928	-145.9	0.108	-110.8	0.609	8.8
10.0	0.902	-43.6	0.852	-153.8	0.111	-118.9	0.665	4.5