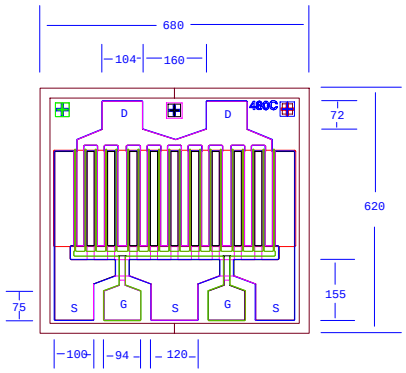
Excelics EFA480C

DATA SHEET

Low Distortion GaAs Power FET

- **+34.0dBm TYPICAL OUTPUT POWER**
- **18.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 4800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION AND PLATED HEAT SINK**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 80mA 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	32.0	34.0 34.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	16.0	18.0 12.5		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz		40		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		800	1360	1760	mA
Gm	Transconductance Vds=3V, Vgs=0V		560	720		mS
Vp	Pinch-off Voltage Vds=3V, Ids=10mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=4.8mA		-12	-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	-4V
Ids	Drain Current	Idss	1.2A
Igsf	Forward Gate Current	120mA	20mA
Pin	Input Power	32dBm	@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

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S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.944	-119.8	9.669	115.5	0.023	33.8	0.515	-166.9
1.000	0.931	-149.2	5.352	97.6	0.026	24.2	0.553	-172.1
1.500	0.928	-161.0	3.646	88.3	0.027	23.1	0.564	-174.0
2.000	0.927	-167.6	2.756	81.6	0.027	24.4	0.569	-175.0
2.500	0.927	-172.0	2.213	75.9	0.028	26.6	0.574	-175.4
3.000	0.927	-175.4	1.849	70.7	0.029	29.2	0.580	-175.7
3.500	0.928	-178.1	1.587	66.0	0.030	31.9	0.585	-175.9
4.000	0.928	179.6	1.389	61.4	0.031	34.6	0.591	-176.0
4.500	0.929	177.5	1.235	57.0	0.032	37.2	0.597	-176.1
5.000	0.930	175.6	1.112	52.8	0.034	39.6	0.604	-176.3
5.500	0.931	173.9	1.010	48.7	0.035	41.9	0.612	-176.5
6.000	0.932	172.3	0.925	44.7	0.037	44.1	0.620	-176.7
6.500	0.933	170.7	0.853	40.8	0.039	46.0	0.628	-176.9
7.000	0.934	169.2	0.790	37.0	0.040	47.8	0.636	-177.2
7.500	0.935	167.7	0.735	33.3	0.042	49.4	0.645	-177.5
8.000	0.937	166.3	0.687	29.7	0.044	50.8	0.654	-177.9
8.500	0.938	164.9	0.643	26.2	0.047	52.1	0.664	-178.3
9.000	0.939	163.6	0.604	22.8	0.049	53.2	0.673	-178.8
9.500	0.941	162.3	0.569	19.5	0.051	54.1	0.683	-179.4
10.000	0.942	160.9	0.537	16.2	0.054	54.9	0.693	-179.9

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.