

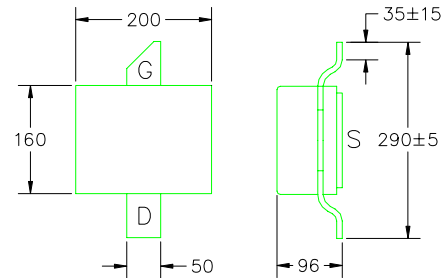
# EFA480C-CP083

UPDATED 12/28/2004

## Low Distortion GaAs Power FET

### FEATURES

- NON-HERMETIC SURFACE MOUNT
- 160MIL METAL CERAMIC PACKAGE
- +33.5 dBm OUTPUT POWER AT 1dB COMPRESSION
- 16.0 dB GAIN AT 2 GHz
- 0.5x4800 MICRON RECESSED "MUSHROOM" GATE
- Si<sub>3</sub>N<sub>4</sub> PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY



All Dimensions in mil  
Tolerance: ± 3 mil

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)



Caution! ESD sensitive device.

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>1dB</sub>	Output Power at 1dB Compression V <sub>ds</sub> = 8 V, I <sub>ds</sub> =50% I <sub>ds</sub>	f = 2.0 GHz 32.0	f = 4.0 GHz 33.5		dBm
G <sub>1dB</sub>	Gain at 1dB Compression V <sub>ds</sub> = 8 V, I <sub>ds</sub> =50% I <sub>ds</sub>	f = 2.0 GHz 14.5	f = 4.0 GHz 11.0		dB
PAE	Power Added Efficiency at 1dB Compression V <sub>ds</sub> = 8 V, I <sub>ds</sub> =50% I <sub>ds</sub>		35		%
I <sub>DSS</sub>	Saturated Drain Current V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	800	1360	1760	mA
G <sub>M</sub>	Transconductance V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	560	720		mS
V <sub>P</sub>	Pinch-off Voltage V <sub>DS</sub> = 3 V, I <sub>DS</sub> = 10 mA		-2.0	-3.5	V
BV <sub>GD</sub>	Drain Breakdown Voltage I <sub>GD</sub> = 4.8 mA	-12	-15		V
BV <sub>GS</sub>	Source Breakdown Voltage I <sub>GS</sub> = 4.8 mA	-7	-14		V
R <sub>TH</sub> *	Thermal Resistance		14*		°C/W

Notes: \* Overall R<sub>th</sub> depends on case mounting.

### MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
V <sub>ds</sub>	Drain-Source Voltage	12V	8V
V <sub>gs</sub>	Gate-Source Voltage	-8V	-4.0V
I <sub>ds</sub>	Drain Current	I <sub>ds</sub>	1.0A
I <sub>gsf</sub>	Forward Gate Current	120mA	20mA
P <sub>in</sub>	Input Power	32dBm	@ 3dB Compression
T <sub>ch</sub>	Channel Temperature	175°C	150°C
T <sub>stg</sub>	Storage Temperature	-65/175°C	-65/150°C
P <sub>t</sub>	Total Power Dissipation	9.7W	8.1W

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.

Specifications are subject to change without notice.

Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085

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S-PARAMETERS								
8V, 1/2 Idss								
FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.962	-126.6	10.630	107.1	0.018	32.4	0.607	-175.7
1.0	0.954	-160.5	5.887	81.8	0.021	23.2	0.612	177.7
1.5	0.867	-174.8	4.989	69.7	0.030	24.2	0.524	168.9
2.0	0.854	171.4	3.891	55.7	0.034	20.3	0.516	163.0
2.5	0.840	161.0	3.287	43.1	0.040	16.4	0.490	157.7
3.0	0.826	151.3	2.978	30.3	0.046	11.2	0.446	151.8
3.5	0.805	139.5	2.803	15.9	0.056	4.0	0.397	143.7
4.0	0.781	124.9	2.672	-0.2	0.065	-6.7	0.351	132.3
4.5	0.766	106.6	2.539	-17.8	0.074	-17.9	0.323	116.2
5.0	0.760	86.7	2.384	-36.0	0.082	-31.2	0.316	98.1
5.5	0.764	66.6	2.216	-54.4	0.090	-44.5	0.322	79.8
6.0	0.773	47.5	2.049	-72.6	0.096	-58.5	0.332	60.8
6.5	0.785	29.3	1.927	-89.9	0.101	-72.1	0.313	38.4
7.0	0.802	7.3	1.813	-110.7	0.106	-88.9	0.352	13.8
7.5	0.837	-17.0	1.599	-133.8	0.101	-106.9	0.438	-11.9
8.0	0.876	-38.5	1.288	-154.6	0.089	-123.1	0.541	-32.6
8.5	0.912	-53.7	1.010	-171.2	0.076	-136.9	0.641	-46.1
9.0	0.921	-64.5	0.786	175.8	0.065	-143.6	0.701	-55.5
9.5	0.929	-72.1	0.652	165.0	0.061	-156.6	0.721	-63.7
10.0	0.945	-81.4	0.581	156.5	0.058	-165.6	0.757	-66.3

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