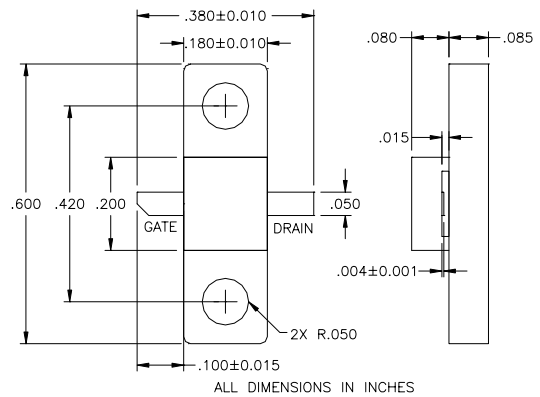


### FEATURES

- Non-Hermetic 180mil Metal Flange Package
- +36.5 dBm Typical Output Power
- 16.0 dB Typical Power Gain at 2GHz
- 0.5 x 9600 Micron Recessed “Mushroom” Gate
- Si<sub>3</sub>N<sub>4</sub> Passivation
- Advanced Epitaxial Heterojunction Profile Provides High Power Efficiency, Linearity and Reliability



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



Caution! ESD sensitive device.

SYMBOL	PARAMETERS/TEST CONDITIONS <sup>1</sup>	MIN	TYP	MAX	UNITS
<b>P<sub>1dB</sub></b>	Output Power at 1dB Compression V <sub>DS</sub> = 8 V, I <sub>DS</sub> ≈ 50% I <sub>DSS</sub> f = 2GHz f = 4GHz	35.0	36.5 36.5		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression V <sub>DS</sub> = 8 V, I <sub>DS</sub> ≈ 50% I <sub>DSS</sub> f = 2GHz f = 4GHz	14.5	16.0 11.0		dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>DS</sub> = 8 V, I <sub>DS</sub> ≈ 50% I <sub>DSS</sub> f = 2GHz		34		%
<b>I<sub>DSS</sub></b>	Saturated Drain Current V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	1600	2720	3520	mA
<b>G<sub>M</sub></b>	Transconductance V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	1100	1450		mS
<b>V<sub>P</sub></b>	Pinch-off Voltage V <sub>DS</sub> = 3 V, I <sub>DS</sub> = 28 mA		-2.0	-3.5	V
<b>BV<sub>GD</sub></b>	Drain Breakdown Voltage I <sub>GD</sub> = 9.6 mA	-13	-15		V
<b>BV<sub>GS</sub></b>	Source Breakdown Voltage I <sub>GS</sub> = 9.6 mA	-7	-14		V
<b>R<sub>TH</sub></b>	Thermal Resistance		6*		°C/W

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

### MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
<b>V<sub>ds</sub></b>	Drain-Source Voltage	12V	8V
<b>V<sub>gs</sub></b>	Gate-Source Voltage	-5V	-3V
<b>I<sub>gsf</sub></b>	Forward Gate Current	43.2 mA	14.4 mA
<b>I<sub>gsr</sub></b>	Reversed Gate Current	-7.2 mA	-2.4 mA
<b>P<sub>in</sub></b>	Input Power	33 dBm	@ 3dB Compression
<b>T<sub>ch</sub></b>	Channel Temperature	175°C	175°C
<b>T<sub>stg</sub></b>	Storage Temperature	-65/175°C	-65/175°C
<b>P<sub>t</sub></b>	Total Power Dissipation	23 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.

Specifications are subject to change without notice.

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

Phone: 408-737-1711 Fax: 408-737-1868 Web: [www.excelics.com](http://www.excelics.com)

page 1 of 2  
Revised May 2006



# EFA960CR-180F

ISSUED 05/11/2006

## Low Distortion GaAs Power FET

### S-PARAMETERS

VDS = 8 V, IDS ≈ 50% IDSS

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.976	-158.7	5.862	93.1	0.010	22.1	0.822	179.7
1.0	0.971	-176.4	3.028	77.0	0.012	22.3	0.808	176.5
1.5	0.948	176.1	2.702	69.3	0.018	26.4	0.743	169.2
2.0	0.934	168.5	2.132	60.0	0.021	27.2	0.733	167.2
2.5	0.929	162.1	1.853	51.1	0.025	26.9	0.704	165.4
3.0	0.908	155.3	1.736	41.5	0.030	24.1	0.671	163.3
3.5	0.893	146.5	1.728	29.7	0.038	18.8	0.626	158.0
4.0	0.868	134.3	1.740	14.9	0.047	7.8	0.562	149.5
4.5	0.847	119.2	1.751	-2.0	0.056	-3.7	0.503	136.4
5.0	0.835	101.9	1.735	-20.3	0.065	-17.5	0.453	119.1
5.5	0.830	84.3	1.700	-38.6	0.074	-31.2	0.415	100.0
6.0	0.823	65.8	1.661	-57.7	0.083	-46.7	0.389	79.4
6.5	0.807	46.7	1.632	-77.4	0.089	-63.4	0.391	59.1
7.0	0.807	21.5	1.603	-100.2	0.096	-81.6	0.386	35.4
7.5	0.824	-7.2	1.473	-124.5	0.095	-101.8	0.420	7.6
8.0	0.851	-33.9	1.259	-147.7	0.087	-119.4	0.481	-17.7
8.5	0.882	-54.9	1.047	-167.0	0.078	-136.7	0.574	-36.3
9.0	0.901	-74.3	0.876	174.5	0.066	-146.5	0.660	-47.1
9.5	0.890	-88.9	0.733	160.0	0.072	-158.3	0.659	-54.7
10.0	0.893	-104.2	0.666	144.8	0.068	-177.5	0.673	-64.4

Specifications are subject to change without notice.

Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085  
 Phone: 408-737-1711 Fax: 408-737-1868 Web: [www.excelics.com](http://www.excelics.com)

page 2 of 2  
 Revised May 2006