



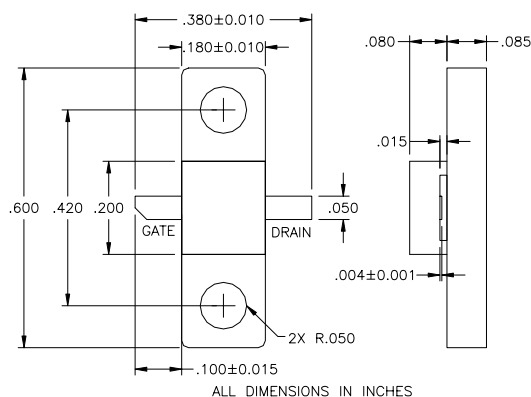
ISSUED 05/02/2006

# EPA680A-180F

## High Efficiency Heterojunction Power FET

### FEATURES

- Non-Hermetic 180mil Metal Flange Package
- +36.5 dBm Typical Output Power
- 16.0 dB Typical Power Gain at 2GHz
- 0.4 x 6800 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



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



Caution! ESD sensitive device.

SYMBOL	PARAMETERS/TEST CONDITIONS <sup>1</sup>	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>DSS</sub> f = 2GHz f = 4GHz	35.0	36.5 36.5		dBm
G <sub>1dB</sub>	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
PAE	Power Added Efficiency at 1dB Compression V <sub>DS</sub> = 8 V, I <sub>DS</sub> ≈ 50% I <sub>DSS</sub> f = 2GHz		44		%
I <sub>DSS</sub>	Saturated Drain Current V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	1250	2050	2690	mA
G <sub>M</sub>	Transconductance V <sub>DS</sub> = 3 V, V <sub>GS</sub> = 0 V	1360	2150		mS
V <sub>P</sub>	Pinch-off Voltage V <sub>DS</sub> = 3 V, I <sub>DS</sub> = 20 mA		-1.0	-2.5	V
BV <sub>GD</sub>	Drain Breakdown Voltage I <sub>GD</sub> = 6.8 mA	-13	-15		V
BV <sub>GS</sub>	Source Breakdown Voltage I <sub>GS</sub> = 6.8 mA	-7	-14		V
R <sub>TH</sub>	Thermal Resistance		7*		°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>
V <sub>ds</sub>	Drain-Source Voltage	12V	8V
V <sub>gs</sub>	Gate-Source Voltage	-5V	-3V
I <sub>gsf</sub>	Forward Gate Current	30.6 mA	10.2 mA
I <sub>gsr</sub>	Reversed Gate Current	-5.1 mA	-1.7 mA
P <sub>in</sub>	Input Power	33.5 dBm	@ 3dB Compression
T <sub>ch</sub>	Channel Temperature	175°C	175°C
T <sub>stg</sub>	Storage Temperature	-65/175°C	-65/175°C
P <sub>t</sub>	Total Power Dissipation	20 W	20 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 1

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