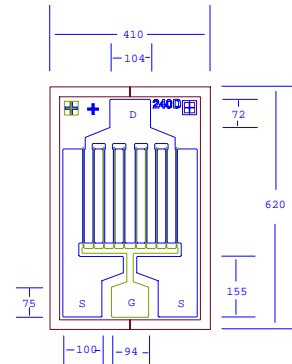


**PRELIMINARY DATA SHEET**
**Low Distortion GaAs Power FET**

- **+31.0dBm TYPICAL OUTPUT POWER**
- **18.5dB TYPICAL POWER GAIN AT 2GHz**
- **HIGH BV<sub>gd</sub> FOR 10V BIAS**
- **0.5 X 2400 MICRON RECESSED “MUSHROOM” GATE**
- **Si<sub>3</sub>N<sub>4</sub> PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Id<sub>ss</sub> SORTED IN 40mA PER BIN RANGE**



Chip Thickness: 75 ± 13 microns  
All Dimensions In Microns

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

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>P<sub>1dB</sub></b>	Output Power at 1dB Compression f= 2GHz V <sub>ds</sub> =10V, I <sub>ds</sub> =50% I <sub>ds</sub> f= 4 GHz	29.0	31.0 31.0		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression V <sub>ds</sub> =10V, I <sub>ds</sub> =50% I <sub>ds</sub> f= 2GHz f= 4GHz	16.0	18.5 13.5		dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>ds</sub> =10V, I <sub>ds</sub> =50% I <sub>ds</sub> f=2GHz		45		%
<b>I<sub>ds</sub></b>	Saturated Drain Current V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	320	480	720	mA
<b>G<sub>m</sub></b>	Transconductance V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	200	280		mS
<b>V<sub>p</sub></b>	Pinch-off Voltage V <sub>ds</sub> =3V, I <sub>ds</sub> =6mA		-2.5	-4.0	V
<b>BV<sub>gd</sub></b>	Drain Breakdown Voltage I <sub>gd</sub> =2.4mA	-15	-20		V
<b>BV<sub>gs</sub></b>	Source Breakdown Voltage I <sub>gs</sub> =2.4mA	-10	-17		V
<b>R<sub>th</sub></b>	Thermal Resistance (Au-Sn Eutectic Attach)		23		°C/W

**MAXIMUM RATINGS AT 25°C**

SYMBOLS	PARAMETERS	ABSOLUTE <sup>1</sup>	CONTINUOUS <sup>2</sup>
<b>V<sub>ds</sub></b>	Drain-Source Voltage	14V	10V
<b>V<sub>gs</sub></b>	Gate-Source Voltage	-8V	-4.5V
<b>I<sub>ds</sub></b>	Drain Current	I <sub>ds</sub>	500mA
<b>I<sub>gsf</sub></b>	Forward Gate Current	60mA	10mA
<b>P<sub>in</sub></b>	Input Power	29dBm	@ 3dB Compression
<b>T<sub>ch</sub></b>	Channel Temperature	175°C	150°C
<b>T<sub>stg</sub></b>	Storage Temperature	-65/175°C	-65/150°C
<b>P<sub>t</sub></b>	Total Power Dissipation	6.0W	5.0W

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.

# EFC240D

## PRELIMINARY DATA SHEET

### Low Distortion GaAs Power FET

#### S-PARAMETERS

10V, 1/2 Idss

Freq GHz	S11 Mag	S11 Ang	S21 Mag	S21 Ang	S12 Mag	S12 Ang	S22 Mag	S22 Ang
0.500	0.962	-66.3	11.912	141.2	0.025	55.9	0.239	-129.1
1.000	0.933	-106.1	8.577	117.9	0.036	36.9	0.337	-144.0
1.500	0.859	-121.0	6.591	108.2	0.042	32.6	0.303	-146.3
2.000	0.860	-136.6	5.272	97.9	0.044	26.7	0.330	-151.9
2.500	0.849	-147.5	4.344	89.7	0.046	22.6	0.343	-155.1
3.000	0.848	-155.8	3.689	82.9	0.047	20.8	0.354	-157.6
3.500	0.846	-162.2	3.195	76.9	0.047	19.4	0.365	-159.4
4.000	0.846	-167.3	2.809	71.5	0.048	18.7	0.373	-160.6
4.500	0.849	-172.0	2.472	66.5	0.047	18.7	0.389	-162.9
5.000	0.856	-176.1	2.229	61.8	0.048	18.6	0.399	-163.5
5.500	0.853	-179.3	2.024	57.2	0.048	18.8	0.411	-164.5
6.000	0.855	177.4	1.852	52.9	0.048	20.4	0.422	-165.6
6.500	0.857	174.4	1.708	48.7	0.048	19.7	0.434	-165.8
7.000	0.861	171.7	1.577	44.8	0.049	20.7	0.444	-166.5
7.500	0.861	169.3	1.466	41.0	0.049	20.7	0.457	-167.7
8.000	0.865	167.0	1.375	37.2	0.049	21.7	0.468	-168.4
8.500	0.869	165.2	1.288	33.7	0.050	22.1	0.477	-169.7
9.000	0.873	163.5	1.213	30.1	0.050	24.0	0.487	-171.2
9.500	0.877	161.9	1.146	26.8	0.052	24.7	0.500	-172.4
10.000	0.876	160.4	1.085	23.3	0.053	25.4	0.509	-174.2

Note: The data included 0.7 mils diameter Au bonding wires:  
1 gate wires, 20 mils each; 2 drain wires, 12 mils each; 4 source wires, 7 mils each.