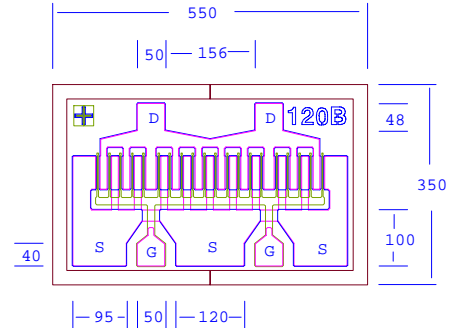


**PRELIMINARY DATA SHEET**
**Low Distortion GaAs Power FET**

- +28.0dBm TYPICAL OUTPUT POWER
- 9.5dB TYPICAL POWER GAIN AT 12GHz
- HIGH BV<sub>gd</sub> FOR 10V BIAS
- 0.3 X 1200 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 20mA 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 V <sub>ds</sub> =10V, I <sub>ds</sub> =50% Id <sub>ss</sub>	26.0	28.0 28.0		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression V <sub>ds</sub> =10V, I <sub>ds</sub> =50% Id <sub>ss</sub>	7.5	9.5 7.0		dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>ds</sub> =10V, I <sub>ds</sub> =50% Id <sub>ss</sub>		33		%
<b>Id<sub>ss</sub></b>	Saturated Drain Current V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	160	260	360	mA
<b>G<sub>m</sub></b>	Transconductance V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	100	140		mS
<b>V<sub>p</sub></b>	Pinch-off Voltage V <sub>ds</sub> =3V, I <sub>ds</sub> =3.0 mA		-2.5	-4.0	V
<b>BV<sub>gd</sub></b>	Drain Breakdown Voltage I <sub>gd</sub> =1.2mA	-15	-20		V
<b>BV<sub>gs</sub></b>	Source Breakdown Voltage I <sub>gs</sub> =1.2mA	-10	-17		V
<b>R<sub>th</sub></b>	Thermal Resistance (Au-Sn Eutectic Attach)		40		°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	Id <sub>ss</sub>	285mA
<b>I<sub>gsf</sub></b>	Forward Gate Current	30mA	5mA
<b>P<sub>in</sub></b>	Input Power	26dBm	@ 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	3.4W	2.8W

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.

# EFC120B

## PRELIMINARY DATA SHEET

### Low Distortion GaAs Power FET

#### S-PARAMETERS

10V, 1/2 Idss

Freq	S11	S11	S21	S21	S12	S12	S22	S22
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.000	0.970	-47.8	6.538	148.7	0.034	62.7	0.293	-35.9
2.000	0.928	-83.3	5.302	125.7	0.056	44.8	0.284	-63.5
3.000	0.899	-108.1	4.250	108.6	0.067	31.7	0.281	-83.1
4.000	0.884	-125.3	3.482	95.4	0.072	22.4	0.290	-95.4
5.000	0.876	-138.0	2.884	84.1	0.073	15.7	0.296	-107.6
6.000	0.868	-147.5	2.462	74.5	0.073	11.0	0.323	-114.8
7.000	0.871	-155.2	2.141	66.3	0.073	6.4	0.354	-119.3
8.000	0.866	-161.2	1.889	58.7	0.072	3.1	0.384	-123.7
9.000	0.868	-166.6	1.681	51.6	0.070	0.3	0.415	-127.2
10.000	0.871	-171.5	1.516	44.7	0.068	-2.2	0.445	-130.5
11.000	0.874	-176.7	1.380	38.1	0.066	-4.5	0.475	-134.0
12.000	0.878	179.1	1.263	31.7	0.064	-6.4	0.507	-137.2
13.000	0.878	175.3	1.159	25.4	0.063	-8.0	0.532	-140.6
14.000	0.884	172.1	1.074	19.5	0.062	-8.3	0.561	-144.4
15.000	0.885	168.4	0.992	13.5	0.060	-9.9	0.581	-148.3
16.000	0.890	164.3	0.926	6.6	0.059	-11.4	0.599	-152.8
17.000	0.890	160.9	0.862	0.5	0.059	-13.3	0.621	-158.4
18.000	0.895	158.2	0.807	-5.3	0.059	-14.0	0.644	-163.6
19.000	0.898	155.5	0.754	-11.4	0.058	-14.0	0.662	-168.7
20.000	0.905	152.1	0.703	-17.3	0.058	-13.8	0.676	-173.6
21.000	0.911	143.9	0.647	-23.3	0.056	-14.3	0.699	-172.1
22.000	0.912	141.1	0.595	-28.0	0.056	-13.1	0.713	-177.2
23.000	0.922	139.7	0.549	-33.2	0.055	-13.0	0.748	178.7
24.000	0.919	138.2	0.505	-36.9	0.054	-10.6	0.765	176.4
25.000	0.923	137.3	0.460	-40.3	0.054	-6.3	0.787	173.6
26.000	0.930	135.8	0.442	-44.3	0.056	-3.4	0.799	171.0

Note: The data included 0.7 mils diameter Au bonding wires:  
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 7 mils each.