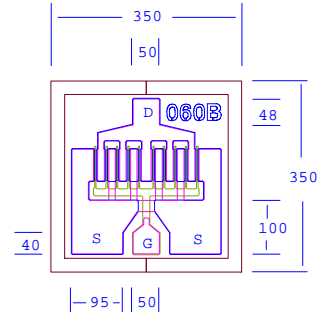


**PRELIMINARY DATA SHEET**
**Low Distortion GaAs Power FET**

- +25.0dBm TYPICAL OUTPUT POWER
- 10.5dB TYPICAL POWER GAIN AT 12GHz
- HIGH BV<sub>gd</sub> FOR 10V BIAS
- 0.3 X 600 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 10mA 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=12GHz V <sub>ds</sub> =10V, Id <sub>s</sub> =50% Id <sub>ss</sub>	23.0	25.0		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression f=12GHz V <sub>ds</sub> =10V, Id <sub>s</sub> =50% Id <sub>ss</sub>	9.0	10.5		dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>ds</sub> =10V, Id <sub>ss</sub> =50% Id <sub>ss</sub>		35		%
<b>Id<sub>ss</sub></b>	Saturated Drain Current V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	80	130	180	mA
<b>G<sub>m</sub></b>	Transconductance V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	50	70		mS
<b>V<sub>p</sub></b>	Pinch-off Voltage V <sub>ds</sub> =3V, Id <sub>s</sub> =1.5mA		-2.5	-4.0	V
<b>BV<sub>gd</sub></b>	Drain Breakdown Voltage I <sub>gd</sub> =1.0mA	-15	-20		V
<b>BV<sub>gs</sub></b>	Source Breakdown Voltage I <sub>gs</sub> =1.0mA	-10	-17		V
<b>R<sub>th</sub></b>	Thermal Resistance (Au-Sn Eutectic Attach)		75		°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>Id<sub>s</sub></b>	Drain Current	Id <sub>ss</sub>	150mA
<b>I<sub>gsf</sub></b>	Forward Gate Current	15mA	2.5mA
<b>P<sub>in</sub></b>	Input Power	23dBm	@ 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	1.8W	1.5W

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.

# EFC060B

## 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	1.000	-22.2	4.497	162.6	0.022	75.2	0.568	-9.8
2.000	0.976	-43.5	4.274	147.4	0.042	65.1	0.553	-19.6
3.000	0.948	-64.1	3.993	132.7	0.059	53.7	0.524	-28.6
4.000	0.924	-82.9	3.676	119.0	0.072	43.1	0.492	-36.9
5.000	0.896	-100.8	3.334	105.8	0.080	34.2	0.446	-45.2
6.000	0.879	-115.2	3.005	94.5	0.086	26.7	0.418	-52.3
7.000	0.869	-127.1	2.720	84.8	0.089	20.4	0.398	-59.4
8.000	0.856	-136.5	2.487	75.7	0.091	15.0	0.380	-67.9
9.000	0.843	-145.4	2.291	67.0	0.092	9.0	0.374	-78.0
10.000	0.835	-154.1	2.119	58.4	0.092	4.2	0.384	-86.9
11.000	0.826	-162.9	1.955	50.4	0.092	0.3	0.395	-93.9
12.000	0.829	-170.1	1.826	42.7	0.091	-3.8	0.409	-100.1
13.000	0.825	-176.9	1.706	35.1	0.091	-7.5	0.415	-106.5
14.000	0.826	176.5	1.614	27.7	0.091	-10.6	0.426	-113.9
15.000	0.826	169.4	1.508	20.1	0.089	-15.0	0.435	-119.9
16.000	0.834	162.5	1.412	12.6	0.088	-17.6	0.439	-124.7
17.000	0.839	157.6	1.331	5.7	0.088	-20.3	0.432	-131.7
18.000	0.846	153.9	1.274	-1.0	0.089	-22.6	0.422	-141.5
19.000	0.844	150.1	1.218	-8.7	0.089	-25.8	0.422	-154.1
20.000	0.845	144.5	1.151	-16.6	0.089	-29.1	0.444	-166.5
21.000	0.851	134.1	1.055	-24.7	0.086	-31.9	0.476	-168.6
22.000	0.856	129.4	0.975	-31.0	0.084	-32.8	0.502	-177.0
23.000	0.866	126.8	0.907	-37.7	0.081	-34.5	0.543	175.0
24.000	0.869	124.1	0.841	-43.7	0.078	-34.4	0.574	168.2
25.000	0.874	121.9	0.775	-49.4	0.077	-34.9	0.618	162.2
26.000	0.876	118.6	0.711	-55.1	0.074	-32.9	0.660	158.1

Note: The data included 0.7 mils diameter Au bonding wires:

1 gate wires, 15 mils each; 1 drain wires, 20 mils each; 4 source wires, 7 mils each.