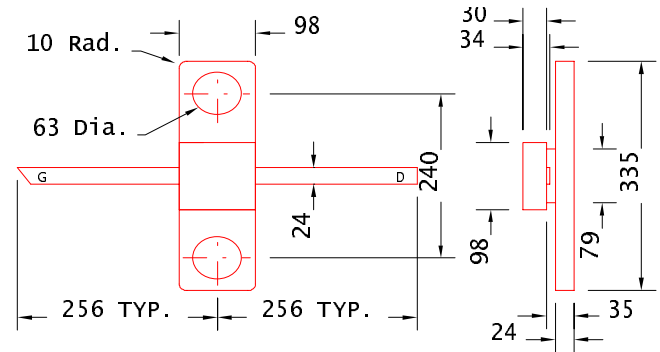


**DATA SHEET**
**High Efficiency Heterojunction Power FET**

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+32.5dBm TYPICAL OUTPUT POWER**
- **5.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 2400 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)**

All Dimensions In Microns

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>P<sub>1dB</sub></b>	Output Power at 1dB Compression V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>dss</sub> f=8GHz f=12GHz	31.0	32.5 32.5		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>dss</sub> f=8GHz f=12GHz	4.5	9.0 5.5		dB
<b>PAE</b>	Power Added Efficiency at 1dB Compression V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>dss</sub> f=12GHz		36		%
<b>I<sub>dss</sub></b>	Saturated Drain Current V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	440	720	940	mA
<b>G<sub>m</sub></b>	Transconductance V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	480	760		mS
<b>V<sub>p</sub></b>	Pinch-off Voltage V <sub>ds</sub> =3V, I <sub>ds</sub> =6mA		-1.0	-2.5	V
<b>BV<sub>gd</sub></b>	Drain Breakdown Voltage I <sub>gd</sub> =2.4mA	-11	-15		V
<b>BV<sub>gs</sub></b>	Source Breakdown Voltage I <sub>gs</sub> =2.4mA	-7	-14		V
<b>R<sub>th</sub></b>	Thermal Resistance		22*		°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	-8V	-3V
<b>I<sub>ds</sub></b>	Drain Current	I <sub>dss</sub>	650mA
<b>I<sub>gsf</sub></b>	Forward Gate Current	120mA	20mA
<b>P<sub>in</sub></b>	Input Power	30dBm	@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	6.3 W	5.2W

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.

**Excelics Semiconductor, Inc., 2908 Scott Blvd., Santa Clara, CA 95054**
**Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: [www.excelics.com](http://www.excelics.com)**

# EPA240B-100F

## DATA SHEET

### High Efficiency Heterojunction Power FET

#### S-PARAMETERS

8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.840	-140.2	11.987	101.0	0.028	38.7	0.393	-158.9
2.0	0.818	-166.5	6.546	79.4	0.036	40.0	0.385	-171.3
3.0	0.803	-178.9	4.587	63.9	0.047	39.6	0.364	180.0
4.0	0.797	167.1	3.588	48.7	0.058	36.1	0.353	173.8
5.0	0.795	153.2	2.968	33.2	0.070	29.7	0.341	163.7
6.0	0.788	144.7	2.521	18.3	0.081	21.7	0.357	145.4
7.0	0.782	134.7	2.167	4.3	0.092	13.7	0.395	134.1
8.0	0.775	124.8	1.895	-8.6	0.101	6.9	0.431	127.5
9.0	0.777	109.4	1.669	-21.9	0.111	-1.9	0.428	128.1
10.0	0.779	99.6	1.509	-34.8	0.123	-11.0	0.413	122.3
11.0	0.755	95.2	1.448	-47.9	0.142	-21.0	0.428	109.0
12.0	0.717	86.7	1.415	-62.1	0.166	-32.0	0.431	102.1
13.0	0.710	70.8	1.334	-77.4	0.187	-44.5	0.382	96.7
14.0	0.708	57.4	1.244	-92.0	0.207	-57.3	0.333	79.6
15.0	0.678	46.4	1.192	-108.9	0.235	-72.7	0.390	62.9
16.0	0.629	35.9	1.127	-124.6	0.264	-87.0	0.401	53.9
17.0	0.617	27.3	1.135	-139.6	0.316	-101.1	0.331	54.9
18.0	0.571	18.2	1.125	-157.4	0.370	-118.5	0.282	52.3
19.0	0.479	11.4	1.084	-176.0	0.433	-137.7	0.323	52.3
20.0	0.481	7.3	1.106	164.8	0.529	-159.3	0.371	56.2