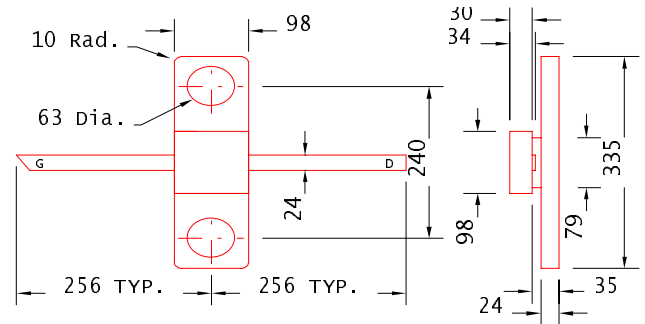


**PRELIMINARY DATA SHEET**
**High Efficiency Heterojunction Power FET**

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+29.5dBm TYPICAL OUTPUT POWER**
- **7.0dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 1200 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 mils

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> =8V, I <sub>ds</sub> =50% I <sub>dss</sub>	28.0	29.5		dBm
<b>G<sub>1dB</sub></b>	Gain at 1dB Compression f=12GHz V <sub>ds</sub> =8V, I <sub>ds</sub> =50% I <sub>dss</sub>	6.0	7.0		dB
<b>I<sub>dss</sub></b>	Saturated Drain Current V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	220	360	500	mA
<b>G<sub>m</sub></b>	Transconductance V <sub>ds</sub> =3V, V <sub>gs</sub> =0V	240	380		mS
<b>V<sub>p</sub></b>	Pinch-off Voltage V <sub>ds</sub> =3V, I <sub>ds</sub> =3.0mA		-1.0	-2.5	V
<b>BV<sub>gd</sub></b>	Drain Breakdown Voltage I <sub>gd</sub> =1.2mA	-12	-15		V
<b>BV<sub>gs</sub></b>	Source Breakdown Voltage I <sub>gs</sub> =1.2mA	-7	-14		V
<b>R<sub>th</sub></b>	Thermal Resistance		43*		°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>	340mA
<b>I<sub>gsf</sub></b>	Forward Gate Current	60mA	10mA
<b>P<sub>in</sub></b>	Input Power	27dBm	@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	3.2W	2.7W

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)**

# EPA120B-100F

## PRELIMINARY 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	0.842	-98.6	14.877	118.2	0.029	44.5	0.278	-77.1
2.0	0.772	-136.2	9.103	90.9	0.037	33.0	0.245	-98.2
3.0	0.740	-154.9	6.574	72.9	0.043	29.9	0.231	-105.6
4.0	0.720	-173.4	5.257	56.2	0.049	26.0	0.227	-111.1
5.0	0.710	168.0	4.420	39.6	0.056	20.5	0.204	-117.8
6.0	0.710	154.6	3.811	23.7	0.063	13.8	0.155	-141.7
7.0	0.716	140.2	3.303	7.8	0.069	5.3	0.156	-175.1
8.0	0.723	127.4	2.879	-7.0	0.074	-2.7	0.198	160.8
9.0	0.744	110.6	2.477	-22.0	0.078	-11.0	0.216	156.8
10.0	0.765	100.8	2.186	-35.9	0.084	-19.7	0.222	146.7
11.0	0.748	97.7	2.064	-49.6	0.096	-29.0	0.265	127.2
12.0	0.703	91.6	1.975	-64.3	0.110	-39.7	0.302	119.6
13.0	0.697	77.4	1.848	-79.1	0.126	-50.2	0.270	119.2
14.0	0.702	61.9	1.740	-95.4	0.143	-63.7	0.223	104.3
15.0	0.668	49.3	1.646	-114.0	0.166	-79.5	0.283	80.1
16.0	0.636	37.2	1.550	-132.7	0.193	-95.5	0.316	69.6
17.0	0.630	27.9	1.482	-149.6	0.231	-109.8	0.264	72.8
18.0	0.607	19.6	1.419	-168.1	0.282	-126.4	0.240	71.7
19.0	0.576	14.3	1.320	171.7	0.342	-146.7	0.313	66.3
20.0	0.653	7.2	1.283	151.8	0.438	-168.1	0.378	68.4