

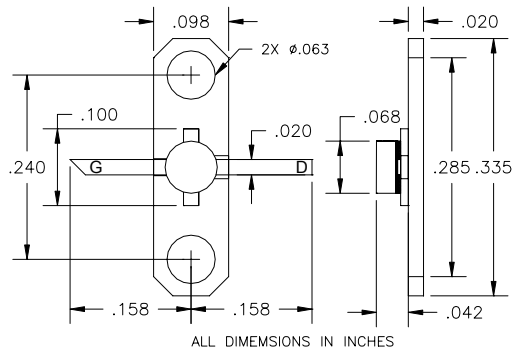


EPA120B-100P

UPDATED 10/30/2006

High Efficiency Heterojunction Power FET

- NON-HERMETIC 100MIL METAL FLANGE PACKAGE
- +29.0dBm TYPICAL OUTPUT POWER
- 11.5dB TYPICAL POWER GAIN AT 12GHZ
- 0.3 X 1200 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY AND HIGH RELIABILITY



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression V _{DS} = 8V, I _{DS} ≈ 50% I _{DSS}	f= 12GHz 27.5	f= 18GHz 29.0 29.0		dBm
G_{1dB}	Gain at 1dB Compression V _{DS} = 8V, I _{DS} ≈ 50% I _{DSS}	f= 12GHz 8.5	f= 18GHz 10.0 7.5		dB
PAE	Power Added Efficiency at 1dB Compression V _{DS} = 8V, I _{DS} ≈ 50% I _{DSS}		f=12GHz 41		%
I_{DSS}	Saturated Drain Current V _{DS} = 3 V, V _{GS} = 0 V	220	360	500	mA
G_M	Transconductance V _{DS} = 3 V, V _{GS} = 0 V	240	380		mS
V_P	Pinch-off Voltage V _{DS} = 3 V, I _{DS} = 3.0 mA		-1.0	-2.5	V
BV_{GD}	Drain Breakdown Voltage I _{GD} = 1.2mA	-13	-15		V
BV_{GS}	Source Breakdown Voltage I _{GS} = 1.2mA	-7	-14		V
R_{TH}	Thermal Resistance (Au-Sn Eutectic Attach)		45*		°C/W

Note: * Overall R_{th} depends on case mounting.

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{DS}	Drain-Source Voltage	12V	8V
V_{GS}	Gate-Source Voltage	-5V	-3V
I_{gf}	Forward Gate Current	5.4 mA	1.8 mA
I_{gr}	Reverse Gate Current	0.9 mA	0.3 mA
P_{in}	Input Power	26 dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175°C	175°C
T_{stg}	Storage Temperature	-65/175°C	-65/175°C
P_t	Total Power Dissipation	3.0 W	3.0 W

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.

Specifications are subject to change without notice.

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page 1 of 2
Revised November 2006



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S-PARAMETERS

$V_{DS} = 8V, I_{DS} \approx \frac{1}{2} I_{DSS}$

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.886	-87.71	14.3124	123.85	0.0268	44.96	0.3521	-61.9
2	0.8246	-131.05	9.0738	94.04	0.034	23.34	0.3151	-95.01
3	0.8044	-153.2	6.4658	75.36	0.0349	12.44	0.3309	-108.22
4	0.799	-171.41	5.1003	59.46	0.0359	5.76	0.3655	-113.63
5	0.7893	172.57	4.2435	43.62	0.0379	-2.01	0.3895	-124.84
6	0.7909	161.76	3.6494	28.44	0.0406	-8.79	0.3918	-143.43
7	0.8063	140.89	2.8637	9.93	0.0355	-19.41	0.4602	-139.7
8	0.8116	136.41	2.6036	2.29	0.0368	-15.21	0.4581	-158.63
9	0.8801	122.73	2.377	-5.45	0.0367	-10.55	0.5078	-168.41
10	0.7926	101.16	2.2349	-30.7	0.0431	-25.49	0.4443	176.98
11	0.812	91.02	1.8419	-42.24	0.0413	-33.63	0.4565	175.3
12	0.8336	87.7	1.6794	-51.45	0.0401	-38.6	0.4877	165.85
13	0.8641	77.96	1.5652	-64.06	0.0419	-43.75	0.4987	152.79
14	0.8396	65.1	1.3631	-78.87	0.0384	-56.18	0.4603	138.32
15	0.8301	63.19	1.3211	-91.22	0.0445	-60.12	0.4783	126.33
16	0.7396	51.8	1.2456	-109.53	0.0468	-75.93	0.4736	111.28
17	0.5725	14.55	0.8638	-120.63	0.0354	-88.27	0.4301	107.19
18	0.7069	36.37	1.248	-115.65	0.0638	-73.92	0.4973	102.65
19	0.8117	26.29	0.9867	-135.45	0.0589	-89.54	0.4262	102.14
20	0.7054	31.13	1.2335	-144.82	0.0785	-91.84	0.4747	108.44
21	0.5985	17.39	1.1556	-170.66	0.0846	-113.27	0.4305	78.98
22	0.7824	-20.53	1.0851	176.01	0.0789	-119.91	0.3756	41.47
23	0.8254	-26.89	1.1022	165.7	0.0915	-129.87	0.3377	33.6
24	0.695	-58.7	1.2817	139.97	0.121	-155.16	0.2897	22.05
25	0.7224	-96.71	1.1194	111.93	0.1192	177.47	0.2786	-38.09
26	0.8361	-85.49	0.9954	98.91	0.1157	166.16	0.3616	-77.2

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page 2 of 2
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