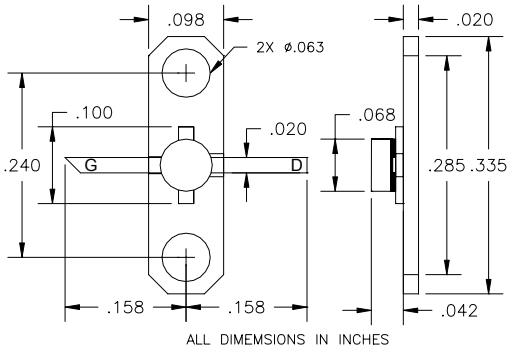
EPA120B-100P

High Efficiency Heterojunction Power FET

UPDATED 10/30/2006

- 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
- Si_3N_4 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 f= 18GHz	27.5	29.0 29.0		dBm
G_{1dB}	Gain at 1dB Compression V_{DS} = 8V, I_{DS} ≈ 50% I_{DSS}	f= 12GHz f= 18GHz	8.5	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 Rth 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
Igf	Forward Gate Current	5.4 mA	1.8 mA
Igr	Reverse Gate Current	0.9 mA	0.3 mA
Pin	Input Power	26 dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	175°C
Tstg	Storage Temperature	-65/175°C	-65/175°C
Pt	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.

EPA120B-100P

UPDATED 10/30/2006

High Efficiency Heterojunction Power FET

S-PARAMETERS

V_{DS} = 8V, $I_{DS} \approx$ ½ I_{DSS}

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	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