

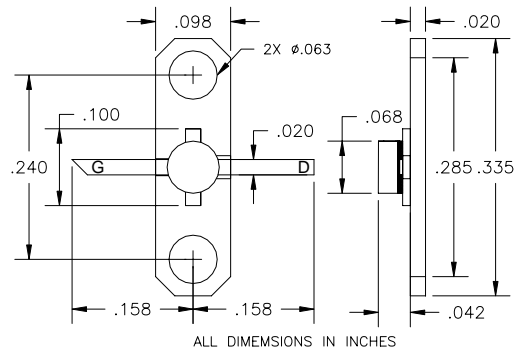


EPA240B-100P

UPDATED 02/15/2005

High Efficiency Heterojunction Power FET

- NON-HERMETIC 100MIL METAL FLANGE PACKAGE
- +32.5dBm TYPICAL OUTPUT POWER
- 10.5dB TYPICAL POWER GAIN AT 12GHz
- 0.3 X 2400 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 _{ds}		f= 12GHz 32.5 f= 18GHz 32.5		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{ds}		f= 12GHz 10.5 f= 18GHz 7.5		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8 V, I _{ds} =50% I _{ds}		44		%
I_{ds}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	440	720	940	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	480	760		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =6mA		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =2.4mA	-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =2.4mA	-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		23*		°C/W

- Overall R_{th} depends on case mounting.

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION AT 25°C

SYMBOLS	PARAMETERS	CONTINUOUS ^{1,2}
V_{ds}	Drain-Source Voltage	8V
V_{gs}	Gate-Source Voltage	-3V
I_{ds}	Drain Current	710mA
I_{gsf}	Forward Gate Current	20mA
P_{in}	Input Power	@ 3dB Compression
T_{ch}	Channel Temperature	150 °C
T_{stg}	Storage Temperature	-65 to +150 °C
P_t	Total Power Dissipation	5.7W

- 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.

Specifications are subject to change without notice.

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EPA240B/EPA240BV

DATA SHEET High Efficiency Heterojunction Power FET

S-PARAMETERS

EPA240B 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.893	-140.0	11.254	105.9	0.024	23.9	0.487	-164.0
2.0	0.905	-158.8	6.029	91.1	0.026	20.1	0.511	-170.6
4.0	0.915	-170.0	3.095	76.0	0.026	24.7	0.533	-173.3
6.0	0.915	-174.7	2.080	64.4	0.027	32.0	0.555	-173.0
8.0	0.922	-177.7	1.559	54.4	0.028	35.9	0.583	-172.9
10.0	0.926	-179.9	1.235	45.7	0.028	44.5	0.606	-173.2
12.0	0.936	178.1	1.008	36.8	0.030	46.5	0.630	-175.8
14.0	0.942	176.3	0.832	27.6	0.030	44.1	0.653	178.4
16.0	0.940	175.3	0.690	18.2	0.031	41.9	0.688	170.7
18.0	0.955	175.0	0.583	9.5	0.033	39.1	0.734	162.8
20.0	0.950	174.1	0.487	1.1	0.035	37.8	0.776	155.7
22.0	0.931	173.7	0.415	-4.4	0.042	42.4	0.809	152.7
24.0	0.942	172.1	0.381	-8.1	0.057	39.6	0.847	151.7
26.0	0.915	169.2	0.351	-11.3	0.068	39.9	0.850	153.6

S-PARAMETERS

EPA240BV 8V, 1/2 Idss

FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.886	-130.3	12.345	110.8	0.025	26.9	0.439	-157.5
2.0	0.905	-156.0	6.735	93.3	0.027	16.9	0.487	-166.8
4.0	0.919	-170.7	3.380	75.6	0.026	14.4	0.521	-170.5
6.0	0.932	-174.6	2.197	64.0	0.024	18.4	0.555	-171.8
8.0	0.938	-176.0	1.591	54.4	0.022	21.2	0.603	-171.4
10.0	0.945	-175.5	1.235	46.8	0.019	27.5	0.646	-171.4
12.0	0.950	-175.2	0.999	39.2	0.019	35.1	0.690	-172.5
14.0	0.952	-176.4	0.840	31.2	0.019	33.8	0.723	-174.9
16.0	0.957	-180.0	0.732	21.5	0.019	27.3	0.757	-179.0
18.0	0.962	173.9	0.637	10.2	0.020	17.1	0.783	175.1
20.0	0.963	166.8	0.551	-1.7	0.022	11.4	0.808	167.8
22.0	0.965	162.0	0.445	-10.8	0.022	8.5	0.858	162.0
24.0	0.963	160.4	0.365	-18.8	0.024	8.3	0.882	157.0
26.0	0.963	161.9	0.307	-23.0	0.028	17.8	0.905	153.5

Note: The data included 0.7 mils diameter Au bonding wires; 4 gate wires, 15 mils each; 4 drain wires, 20 mils each; 10 source wires, 7 mils each; no source wires for EPA240BV.