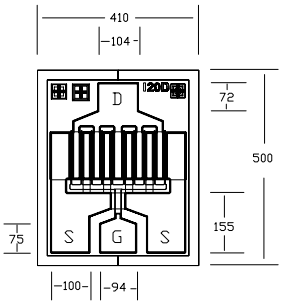
EFA120D

Low Distortion GaAs Power FET

UPDATED 09/05/2006

FEATURES

- **+28.0dBm TYPICAL OUTPUT POWER**
- **19.5dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 1200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION AND PLATED HEAT SINK**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 30mA PER BIN RANGE**



Chip Thickness: 75 ± 20 microns
All Dimensions In Microns

Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	26.0	28.0 28.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	18.0	19.5 14.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		45		%
Idss	Saturated Drain Current	Vds=3V, Vgs=0V	220	340	440	mA
Gm	Transconductance	Vds=3V, Vgs=0V	140	180		mS
Vp	Pinch-off Voltage	Vds=3V,Ids=3.4mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage	Igd=1.2mA	-13	-15		V
BVgs	Source Breakdown Voltage	Igs=1.2mA	-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			40	45	°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-5V	-4V
Igsf	Forward Gate Current	5.4 mA	1.8 mA
Igsr	Reserve Gate Current	0.9 mA	0.3 mA
Pin	Input Power	25 dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	175°C
Tstg	Storage Temperature	-65/175°C	-65/175°C
Pt	Total Power Dissipation	3.3 W	3.3 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.

S-PARAMETERS
8V, 1/2 Idss

Freq	S11		S21		S12		S22	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1	0.918	-74.7	9.820	134.4	0.031	52.7	0.290	-41.9
2	0.878	-117.1	6.762	108.7	0.043	33.4	0.240	-68.5
3	0.858	-141.0	4.898	92.3	0.046	27.4	0.223	-84.0
4	0.852	-156.5	3.781	80.0	0.047	23.7	0.226	-96.2
5	0.849	-167.9	3.041	69.8	0.046	21.4	0.243	-106.1
6	0.849	-176.5	2.558	60.8	0.047	22.4	0.261	-111.3
7	0.846	176.6	2.200	52.9	0.049	24.8	0.282	-117.3
8	0.848	170.3	1.925	45.2	0.049	23.7	0.306	-123.0
9	0.848	164.8	1.720	37.9	0.049	26.5	0.331	-128.9
10	0.851	159.9	1.538	31.0	0.052	28.2	0.354	-134.1
11	0.859	154.9	1.392	23.9	0.054	30.5	0.383	-140.2
12	0.860	151.1	1.261	17.5	0.056	32.3	0.416	-145.8
13	0.865	147.4	1.149	11.3	0.061	30.9	0.449	-151.0
14	0.870	144.0	1.053	5.3	0.065	33.5	0.480	-155.5
15	0.869	140.7	0.962	-0.6	0.068	32.0	0.511	-159.8
16	0.877	137.8	0.893	-6.1	0.073	33.3	0.538	-163.7
17	0.878	134.8	0.823	-11.1	0.079	32.4	0.564	-167.5
18	0.876	131.7	0.766	-16.2	0.085	32.2	0.586	-171.0
19	0.881	128.4	0.719	-21.4	0.093	31.5	0.599	-174.8
20	0.882	124.6	0.671	-26.2	0.103	30.0	0.611	-178.6
21	0.872	116.8	0.662	-33.0	0.116	25.9	0.605	176.8
22	0.875	113.1	0.618	-37.8	0.124	24.2	0.626	172.2
23	0.876	110.2	0.574	-41.6	0.132	22.4	0.637	166.9
24	0.878	107.5	0.524	-45.6	0.141	21.3	0.662	161.9
25	0.876	105.0	0.482	-48.6	0.150	20.4	0.701	156.7
26	0.878	103.0	0.442	-51.6	0.163	17.3	0.714	151.8

Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wires, 15 mils each; 2 drain wires, 12 mils each; 4 source wires, 7 mils each.