电子元器件系列

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EPA080A-70

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

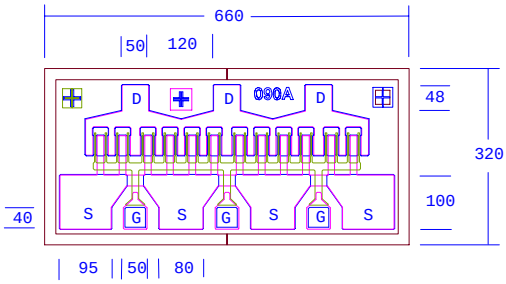
6V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.866	-71.0	12.893	130.8	0.029	55.7	0.443	-37.6
2.0	0.744	-116.0	8.854	100.2	0.039	40.1	0.354	-61.3
3.0	0.694	-144.0	6.494	79.6	0.044	35.2	0.325	-76.0
4.0	0.674	-167.3	5.126	62.2	0.047	34.1	0.316	-87.5
5.0	0.671	174.4	4.223	46.6	0.051	33.5	0.299	-100.8
6.0	0.674	162.0	3.620	32.5	0.057	33.7	0.294	-118.5
7.0	0.678	147.6	3.162	18.9	0.064	33.2	0.314	-130.9
8.0	0.683	135.4	2.803	5.5	0.072	32.0	0.313	-144.8
9.0	0.709	117.2	2.462	-8.7	0.082	26.7	0.333	-156.3
10.0	0.738	102.6	2.179	-22.9	0.091	20.6	0.360	-172.2
11.0	0.750	93.1	2.025	-36.7	0.102	12.4	0.391	168.0
12.0	0.773	82.2	1.874	-51.2	0.115	3.5	0.427	149.7
13.0	0.815	70.3	1.640	-64.5	0.118	-6.0	0.453	133.7
14.0	0.841	59.8	1.424	-76.5	0.119	-14.4	0.485	121.1
15.0	0.848	49.5	1.308	-90.6	0.123	-25.1	0.535	105.0
16.0	0.857	38.3	1.175	-106.6	0.123	-37.7	0.570	86.3
17.0	0.847	30.3	1.017	-117.0	0.122	-42.3	0.574	75.0
18.0	0.853	24.6	0.946	-125.7	0.130	-54.7	0.617	67.3
19.0	0.861	13.5	0.879	-139.3	0.121	-64.6	0.649	54.3
20.0	0.879	3.2	0.810	-153.5	0.121	-76.1	0.701	40.3
21.0	0.898	-2.6	0.753	-164.7	0.120	-85.7	0.701	29.4
22.0	0.864	-11.2	0.714	-175.8	0.122	-95.8	0.688	21.7
23.0	0.855	-26.2	0.684	168.0	0.124	-110.9	0.672	4.6
24.0	0.856	-41.2	0.633	149.2	0.130	-129.7	0.683	-15.7
25.0	0.825	-52.8	0.607	136.3	0.138	-142.9	0.696	-26.3
26.0	0.811	-68.1	0.622	121.5	0.161	-156.6	0.677	-40.3

EPA090A

DATA SHEET
High Efficiency Heterojunction Power FET

- **+28.0dBm TYPICAL OUTPUT POWER**
- **10.0dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 900 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 20mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	26.5	28.0 28.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	11.5	13.0 10.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		160	270	380	mA
Gm	Transconductance Vds=3V, Vgs=0V		180	290		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.0mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			45		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

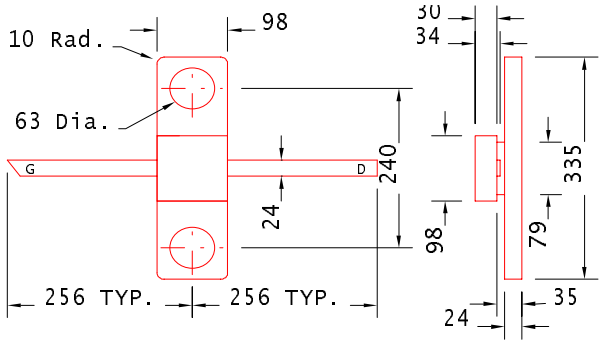
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	315mA
Igsf	Forward Gate Current	45mA	7.5mA
Pin	Input Power	26dBm	@3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	3.0 W	2.5W

EPA080A-100F

DATA SHEET

High Efficiency Heterojunction Power FET

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+27.5dBm TYPICAL OUTPUT POWER**
- **8.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 800 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 f=12GHz Vds=8V, Ids=50% Idss	26.0	27.5		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	7.0	8.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		42		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	130	240	320	mA
Gm	Transconductance Vds=3V, Vgs=0V	160	260		mS
Vp	Pinch-off Voltage Vds=3V, Ids=2.5mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-7	-14		V
Rth	Thermal Resistance		58*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	250mA
Igsf	Forward Gate Current	40mA	7mA
Pin	Input Power	25dBm	@3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	2.5W	2.0W

EPA080A-100F

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

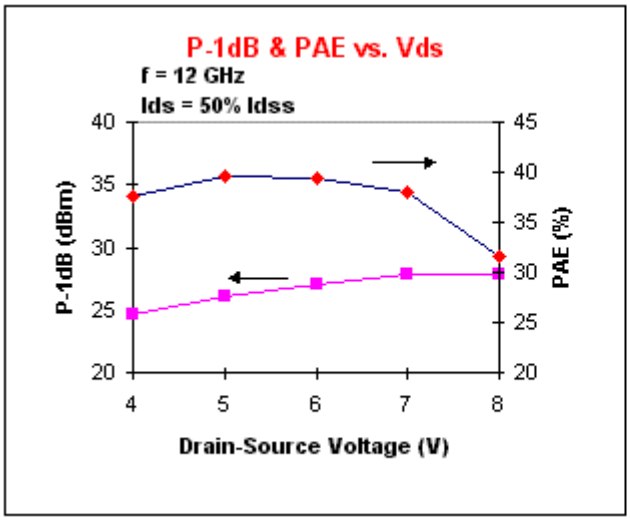
8V, 1/2 Idss

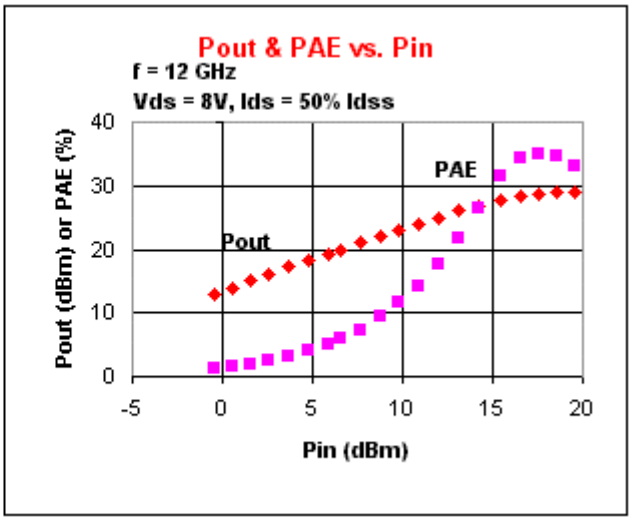
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.891	-72.9	13.691	129.5	0.027	52.8	0.442	-43.0
2.0	0.793	-113.6	9.350	99.6	0.037	34.9	0.383	-64.0
3.0	0.745	-136.8	6.955	79.3	0.041	27.7	0.363	-76.6
4.0	0.713	-157.6	5.601	61.6	0.046	21.5	0.360	-87.0
5.0	0.693	-176.8	4.738	44.8	0.050	16.0	0.349	-95.4
6.0	0.681	170.3	4.131	29.3	0.055	9.8	0.312	-109.7
7.0	0.669	156.6	3.653	13.7	0.059	2.2	0.302	-128.5
8.0	0.655	143.8	3.254	-1.5	0.063	-4.8	0.317	-147.6
9.0	0.667	124.6	2.867	-17.2	0.066	-13.2	0.346	-152.2
10.0	0.679	112.0	2.584	-32.1	0.073	-21.9	0.352	-160.8
11.0	0.650	107.2	2.466	-47.5	0.083	-32.5	0.369	175.6
12.0	0.594	98.6	2.339	-63.8	0.094	-43.9	0.416	159.0
13.0	0.589	80.7	2.163	-79.5	0.105	-54.9	0.417	158.1
14.0	0.601	63.9	2.034	-96.0	0.122	-68.8	0.381	150.6
15.0	0.567	51.1	1.903	-116.3	0.141	-85.8	0.405	121.5
16.0	0.529	41.2	1.756	-135.6	0.162	-102.1	0.452	104.0
17.0	0.531	34.3	1.672	-152.7	0.196	-116.3	0.461	105.2
18.0	0.512	28.0	1.588	-172.7	0.246	-133.5	0.489	96.7
19.0	0.504	23.8	1.406	166.8	0.299	-153.4	0.560	75.9
20.0	0.616	14.9	1.332	148.0	0.401	-173.7	0.629	65.9

EPA090A

DATA SHEET

High Efficiency Heterojunction Power FET





S-PARAMETERS
8V, 1/2 Idss

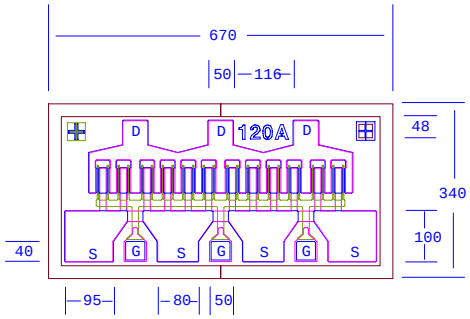
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.913	-76.1	14.462	135.6	0.033	50.3	0.347	-57.3
2.0	0.884	-115.9	9.815	112.5	0.044	31.1	0.295	-90.6
3.0	0.869	-135.9	7.119	98.8	0.048	21.9	0.279	-108.1
4.0	0.869	-147.8	5.534	89.0	0.048	16.9	0.284	-118.8
5.0	0.873	-155.3	4.499	81.4	0.049	13.0	0.294	-125.7
6.0	0.872	-160.8	3.792	74.7	0.048	11.3	0.315	-129.8
7.0	0.871	-165.4	3.265	68.6	0.048	9.2	0.341	-132.7
8.0	0.871	-169.3	2.856	63.0	0.047	7.4	0.367	-134.7
9.0	0.872	-172.6	2.525	57.7	0.045	6.8	0.392	-136.4
10.0	0.875	-175.4	2.267	52.8	0.044	6.3	0.418	-137.6
11.0	0.880	-178.2	2.046	47.9	0.044	5.5	0.440	-139.3
12.0	0.884	179.5	1.861	43.2	0.042	5.1	0.462	-141.2
13.0	0.888	177.3	1.698	38.7	0.041	4.9	0.481	-143.3
14.0	0.890	175.2	1.563	34.1	0.041	5.5	0.497	-145.7
15.0	0.899	172.8	1.457	29.5	0.041	5.7	0.513	-148.5
16.0	0.901	170.7	1.357	24.8	0.040	2.9	0.528	-151.9
17.0	0.906	168.4	1.269	19.9	0.040	2.9	0.543	-155.9
18.0	0.912	166.4	1.193	15.4	0.041	3.9	0.557	-159.7
19.0	0.912	164.3	1.131	10.4	0.042	2.6	0.573	-164.5
20.0	0.913	162.0	1.068	5.6	0.044	1.8	0.591	-168.6
21.0	0.915	160.0	0.971	2.0	0.042	4.5	0.631	-173.0
22.0	0.917	159.2	0.907	-2.5	0.043	5.1	0.660	-176.7
23.0	0.912	158.0	0.851	-6.7	0.043	5.6	0.687	-179.7
24.0	0.912	156.7	0.800	-10.7	0.044	7.0	0.713	178.1
25.0	0.918	155.2	0.754	-14.6	0.047	8.4	0.735	176.2
26.0	0.914	154.4	0.713	-17.5	0.046	10.8	0.761	175.6
27.0	0.912	152.8	0.672	-20.4	0.049	12.8	0.768	175.1
28.0	0.914	151.6	0.643	-23.0	0.052	13.7	0.771	175.3
29.0	0.919	149.8	0.617	-25.6	0.055	15.1	0.781	175.9
30.0	0.917	147.5	0.591	-28.5	0.057	12.5	0.782	175.6
31.0	0.933	146.1	0.567	-31.1	0.058	14.1	0.779	175.5
32.0	0.932	144.1	0.545	-33.7	0.057	14.0	0.781	174.3
33.0	0.931	142.9	0.523	-36.9	0.058	13.6	0.778	171.9
34.0	0.937	140.9	0.502	-40.4	0.057	13.3	0.777	168.7
35.0	0.951	139.6	0.482	-43.7	0.058	14.9	0.783	163.5
36.0	0.953	139.1	0.464	-47.4	0.060	12.2	0.792	157.1
37.0	0.969	138.2	0.449	-51.3	0.063	7.4	0.808	150.0
38.0	0.982	136.7	0.435	-55.6	0.065	-2.0	0.810	142.8
39.0	0.998	134.0	0.417	-61.8	0.067	-11.4	0.810	136.7
40.0	0.977	132.3	0.402	-67.4	0.069	-20.3	0.810	131.8

Note: The data included 0.7 mils diameter Au bonding wires:
3 gate wires, 15 mils each; 3 drain wires, 20 mils each; 8 source wires, 7 mils each.

EPA120A

DATA SHEET
High Efficiency Heterojunction Power FET

- **+29.5dBm TYPICAL OUTPUT POWER**
- **9.5dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 1200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 30mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

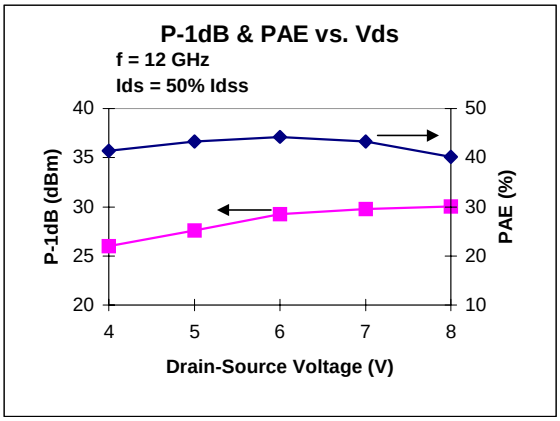
SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	28.0	29.5 29.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	10.0	12.0 9.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		220	360	500	mA
Gm	Transconductance Vds=3V, Vgs=0V		240	380		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.5mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.2mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.2mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			37		^{o}C/W

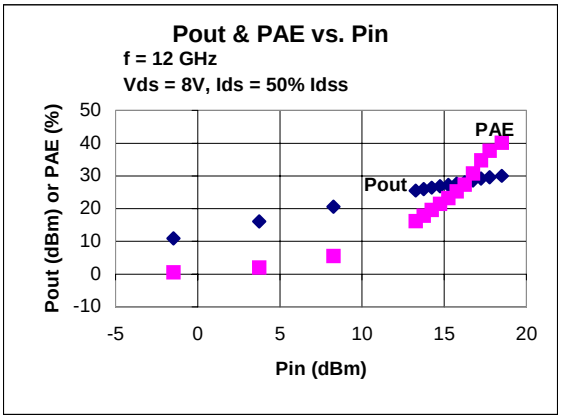
MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	385mA
Igsf	Forward Gate Current	60mA	10mA
Pin	Input Power	27dBm	@3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	3.7W	3.1 W

EPA120A

DATA SHEET
High Efficiency Heterojunction Power FET





S-PARAMETERS
8V, 1/2 Idss

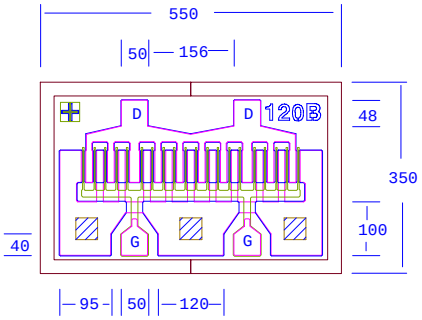
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.890	-98.0	15.016	124.1	0.029	40.0	0.262	-100.0
2.0	0.878	-132.7	9.107	103.0	0.036	26.8	0.278	-127.9
3.0	0.871	-148.6	6.343	91.3	0.037	20.5	0.290	-138.9
4.0	0.871	-157.2	4.875	82.8	0.037	19.1	0.307	-142.9
5.0	0.865	-163.0	3.927	75.8	0.036	18.9	0.325	-145.1
6.0	0.870	-167.0	3.304	69.5	0.036	20.4	0.345	-146.0
7.0	0.873	-169.9	2.838	64.1	0.036	21.0	0.367	-147.1
8.0	0.878	-173.0	2.483	58.4	0.035	21.0	0.391	-148.0
9.0	0.876	-175.1	2.192	53.7	0.034	21.1	0.407	-149.2
10.0	0.879	-177.1	1.960	49.0	0.032	24.3	0.428	-150.3
11.0	0.885	-178.9	1.774	44.4	0.032	25.5	0.450	-152.0
12.0	0.896	179.2	1.616	39.8	0.032	27.6	0.469	-154.4
13.0	0.904	177.4	1.474	34.9	0.032	27.3	0.490	-157.4
14.0	0.905	175.7	1.343	30.3	0.033	27.3	0.507	-160.9
15.0	0.911	174.5	1.235	25.5	0.033	28.1	0.526	-165.2
16.0	0.906	173.3	1.126	20.7	0.034	27.9	0.551	-169.8
17.0	0.913	172.6	1.044	16.4	0.035	25.9	0.576	-174.1
18.0	0.922	171.3	0.971	11.5	0.036	23.3	0.604	-178.8
19.0	0.925	169.9	0.899	6.6	0.037	25.8	0.637	176.8
20.0	0.920	168.6	0.827	1.8	0.039	24.4	0.663	172.6
21.0	0.910	168.0	0.760	-2.2	0.042	25.1	0.686	169.6
22.0	0.907	166.8	0.715	-5.9	0.045	26.2	0.711	167.1
23.0	0.910	165.7	0.676	-9.1	0.049	27.8	0.736	165.3
24.0	0.911	164.1	0.642	-12.8	0.056	28.2	0.758	163.7
25.0	0.893	161.9	0.600	-15.8	0.060	31.5	0.766	162.5
26.0	0.883	161.5	0.573	-17.2	0.065	31.4	0.763	163.6

Note: The data included 0.7 mils diameter Au bonding wires:
3 gate wires, 15 mils each; 3 drain wires, 20 mils each; 8 source wires, 7 mils each.

EPA120B/EPA120BV

DATA SHEET
High Efficiency Heterojunction Power FET

- **+29.5dBm TYPICAL OUTPUT POWER**
- **9.0dB TYPICAL POWER GAIN FOR EPA120B AND 10.5dB FOR EPA120BV AT 18GHz**
- **0.3 X 1200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **EPA120BV WITH VIA HOLE SOURCE GROUNDING**
- **Idss SORTED IN 30mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EPA120B			EPA120BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	28.0	29.5 29.5		28.0	29.5 29.5		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	10.0	11.5 9.0		11.5	13.0 10.5		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		45			46		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	220	360	500	220	360	500	mA
Gm	Transconductance Vds=3V, Vgs=0V	240	380		240	380		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.0mA		-1.0	-2.5		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.2mA	-11	-15		-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.2mA	-7	-14		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		40			30		°C/W

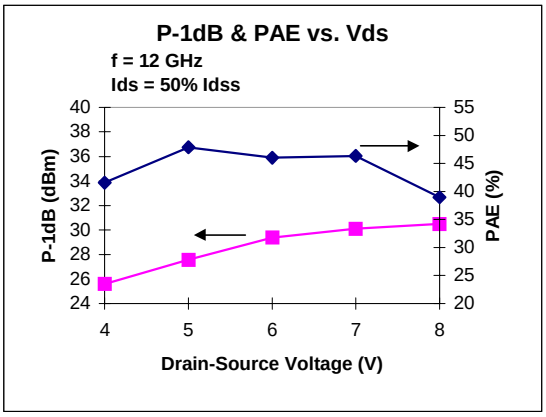
MAXIMUM RATINGS AT 25^{O}C

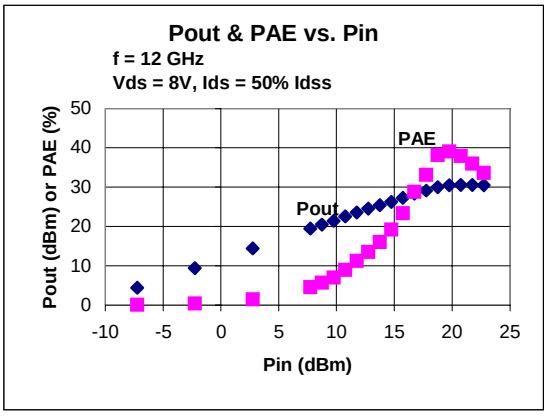
SYMBOLS	PARAMETERS	EPA120B		EPA120BV	
		ABSOLUTE[1]	CONTINUOUS[2]	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V	-8V	-3V
Ids	Drain Current	Idss	355mA	Idss	470mA
Igsf	Forward Gate Current	60mA	10mA	60mA	10mA
Pin	Input Power	27dBm	@ 3dB Compression	27dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C	-65/175°C	-65/150°C
Pt	Total Power Dissipation	3.4W	2.8W	4.5W	3.8W

EPA120B/EPA120BV

DATA SHEET
High Efficiency Heterojunction Power FET

EPA120B





S-PARAMETERS
EPA120B 8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.873	-97.8	14.614	124.8	0.030	40.1	0.245	-89.7
2.0	0.866	-133.3	8.974	103.2	0.035	27.0	0.239	-119.4
4.0	0.865	-159.6	4.841	81.9	0.038	19.8	0.258	-137.9
6.0	0.864	-170.9	3.287	67.7	0.037	21.8	0.296	-142.5
8.0	0.872	-177.9	2.476	55.8	0.037	23.5	0.344	-145.9
10.0	0.877	176.9	1.974	45.6	0.035	27.7	0.385	-149.2
12.0	0.890	171.7	1.633	35.0	0.036	30.8	0.429	-154.4
14.0	0.899	166.4	1.367	24.3	0.039	30.5	0.472	-161.9
16.0	0.901	161.5	1.148	13.5	0.041	29.9	0.519	-171.5
18.0	0.917	156.9	0.980	2.7	0.045	27.3	0.575	178.6
20.0	0.908	152.3	0.819	-7.9	0.051	26.1	0.635	169.2
22.0	0.896	149.4	0.698	-16.0	0.058	26.3	0.686	162.5
24.0	0.903	145.8	0.616	-23.4	0.069	26.7	0.734	157.7
26.0	0.886	143.8	0.552	-28.0	0.084	27.1	0.750	155.7

EPA120BV 8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.887	-88.4	15.05	130.0	0.029	41.8	0.272	-73.8
2.0	0.879	-127.4	9.715	107.1	0.036	25.4	0.256	-107.7
4.0	0.887	-157.2	5.309	84.0	0.038	11.4	0.274	-129.7
6.0	0.899	-168.8	3.554	69.5	0.036	6.6	0.316	-137.2
8.0	0.905	-175.1	2.651	58.1	0.035	3.3	0.372	-140.3
10.0	0.909	-179.4	2.091	48.2	0.032	1.0	0.430	-143.1
12.0	0.913	176.6	1.726	38.2	0.030	-0.8	0.484	-147.7
14.0	0.916	171.5	1.462	27.9	0.030	-2.9	0.528	-154.0
16.0	0.925	165.2	1.263	16.8	0.030	-6.7	0.570	-162.0
18.0	0.930	157.9	1.088	4.6	0.030	-10.1	0.611	-171.8
20.0	0.939	151.1	0.936	-7.4	0.031	-14.1	0.654	178.3

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
21.0	0.946	149.8	0.824	-11.5	0.029	-15.2	0.700	174.9
22.0	0.956	148.9	0.752	-16.0	0.030	-13.2	0.720	170.6
24.0	0.967	148.0	0.636	-24.1	0.029	-11.8	0.769	164.6
26.0	0.967	148.0	0.554	-30.0	0.029	-4.9	0.799	162.4
28.0	0.956	148.0	0.503	-34.2	0.033	0.1	0.828	161.4
30.0	0.951	146.2	0.473	-39.5	0.034	-3.5	0.850	161.0
32.0	0.937	141.5	0.443	-47.2	0.033	-11.3	0.854	158.1
34.0	0.931	134.2	0.403	-57.4	0.029	-15.4	0.858	151.4
36.0	0.949	125.4	0.363	-69.3	0.029	-29.0	0.881	140.4
38.0	0.969	117.5	0.316	-81.0	0.038	-56.8	0.910	127.9
40.0	0.981	113.5	0.284	-92.8	0.050	-85.1	0.930	119.2

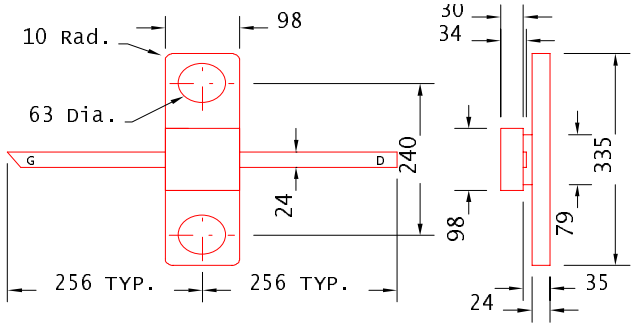
Note: The data included 0.7 mils diameter Au bonding wires; 2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 7 mils each; no source wires for EPA120BV.

EPA120B-100F

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_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 f=12GHz Vds=8V, Ids=50% Idss	28.0	29.5		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	6.0	7.0		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V	220	360	500	mA
Gm	Transconductance Vds=3V, Vgs=0V	240	380		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.0mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.2mA	-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.2mA	-7	-14		V
Rth	Thermal Resistance		43*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	340mA
Igsf	Forward Gate Current	60mA	10mA
Pin	Input Power	27dBm	@3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	3.2W	2.7W

EPA120B-100F

PRELIMINARY DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

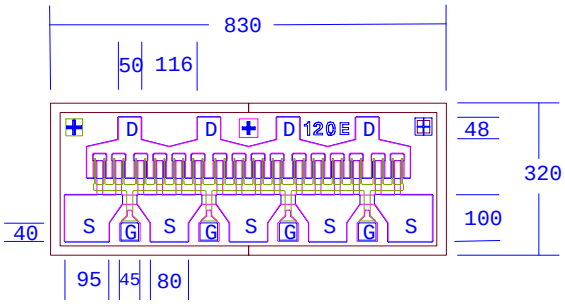
8V, 1/2 Idss

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

EPA120E

DATA SHEET
High Efficiency Heterojunction Power FET

- **+29.5dBm TYPICAL OUTPUT POWER**
- **9.5dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 1200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 30mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

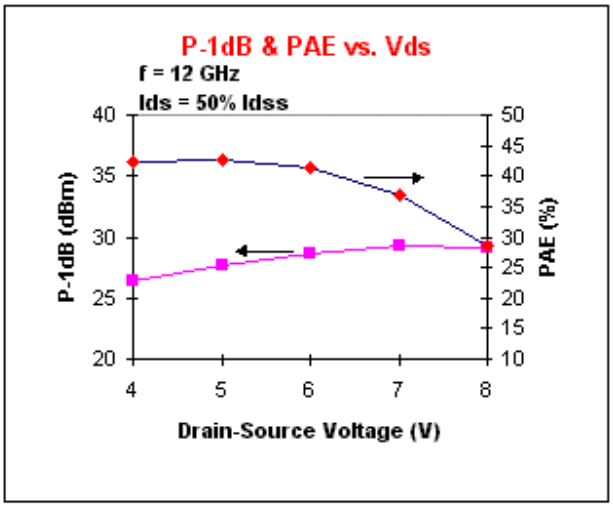
SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	28.0	29.5 29.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	10.0	12.0 9.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		46		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		210	360	510	mA
Gm	Transconductance Vds=3V, Vgs=0V		240	380		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.5mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.2mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.2mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			35		^{o}C/W

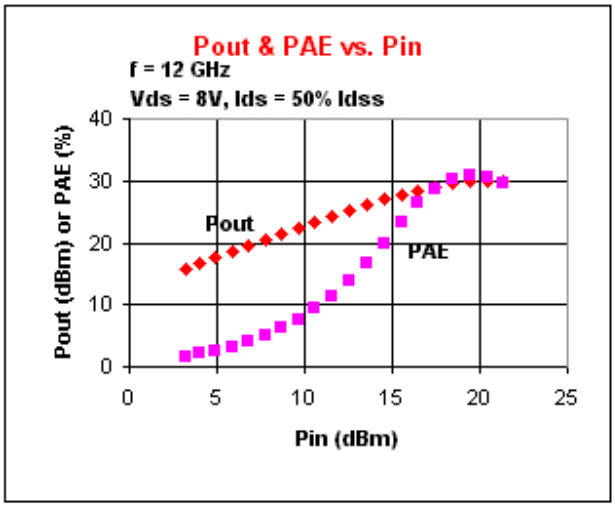
MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	405mA
Igsf	Forward Gate Current	60mA	10mA
Pin	Input Power	27dBm	@3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	3.9W	3.2W

EPA120E

DATA SHEET
High Efficiency Heterojunction Power FET





S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.898	-97.8	14.488	124.9	0.034	39.3	0.300	-95.1
2.0	0.885	-134.7	8.805	103.0	0.041	22.6	0.313	-125.6
3.0	0.882	-150.7	6.129	90.7	0.042	16.0	0.322	-135.8
4.0	0.887	-159.7	4.668	81.9	0.042	10.9	0.338	-140.7
5.0	0.896	-165.0	3.747	74.9	0.042	9.3	0.349	-143.7
6.0	0.898	-168.8	3.128	68.6	0.040	8.5	0.366	-145.2
7.0	0.901	-171.8	2.674	62.8	0.040	7.3	0.390	-146.7
8.0	0.904	-174.2	2.329	57.5	0.039	6.7	0.411	-148.1
9.0	0.908	-176.0	2.057	52.2	0.037	5.3	0.433	-150.2
10.0	0.912	-177.2	1.842	47.7	0.037	5.6	0.458	-152.2
11.0	0.916	-178.7	1.657	42.9	0.035	5.4	0.483	-154.7
12.0	0.917	-179.9	1.501	38.2	0.035	6.4	0.511	-157.7
13.0	0.920	178.8	1.370	33.5	0.033	6.8	0.538	-160.3
14.0	0.922	177.5	1.256	28.9	0.033	6.5	0.564	-163.1
15.0	0.927	175.6	1.163	24.2	0.033	4.8	0.590	-165.9
16.0	0.927	173.8	1.077	19.4	0.033	5.8	0.616	-168.7
17.0	0.929	171.4	0.998	14.4	0.033	3.9	0.638	-171.4
18.0	0.934	169.1	0.934	9.9	0.034	6.0	0.658	-173.5
19.0	0.934	166.8	0.880	5.2	0.034	5.7	0.675	-176.4
20.0	0.936	164.2	0.827	0.5	0.035	4.2	0.692	-178.4

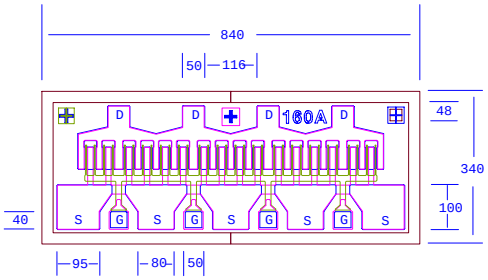
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
21.0	0.938	162.3	0.751	-2.6	0.036	7.9	0.725	179.6
22.0	0.938	161.2	0.701	-6.4	0.036	6.4	0.743	177.5
23.0	0.939	160.1	0.659	-10.5	0.037	7.6	0.758	175.3
24.0	0.939	159.3	0.622	-14.1	0.039	10.6	0.769	173.4
25.0	0.948	158.8	0.592	-18.1	0.040	12.3	0.776	170.9
26.0	0.946	158.7	0.559	-21.2	0.041	12.6	0.783	168.3
27.0	0.945	158.5	0.535	-24.4	0.044	15.2	0.790	166.0
28.0	0.946	158.0	0.513	-27.1	0.046	16.3	0.791	164.0
29.0	0.958	157.6	0.493	-30.1	0.049	16.5	0.790	161.3
30.0	0.948	156.9	0.472	-33.6	0.050	11.6	0.799	158.5
31.0	0.961	155.8	0.451	-36.8	0.051	12.6	0.802	156.0
32.0	0.955	154.5	0.430	-40.1	0.049	10.4	0.813	152.9
33.0	0.951	153.2	0.405	-42.9	0.048	13.5	0.824	150.1
34.0	0.959	151.2	0.388	-46.3	0.048	11.3	0.836	147.6
35.0	0.963	148.9	0.369	-49.0	0.048	13.2	0.856	144.8
36.0	0.967	147.5	0.348	-51.4	0.050	9.7	0.875	141.4
37.0	0.978	145.4	0.338	-54.7	0.052	7.8	0.891	138.2
38.0	0.993	143.3	0.325	-58.0	0.055	0.1	0.891	134.7
39.0	1.005	139.3	0.320	-64.0	0.057	-12.6	0.883	131.9
40.0	0.994	137.0	0.312	-67.9	0.058	-21.3	0.876	130.0

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.

EPA160A

DATA SHEET
High Efficiency Heterojunction Power FET

- **+31.0dBm TYPICAL OUTPUT POWER**
- **8.5dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 1600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 40mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

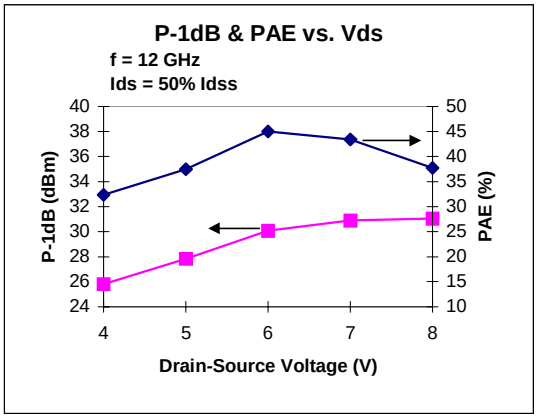
SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	9.5	11.5 8.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		290	480	660	mA
Gm	Transconductance Vds=3V, Vgs=0V		320	500		mS
Vp	Pinch-off Voltage Vds=3V, Ids=4.5mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.6mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.6mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			30		^{o}C/W

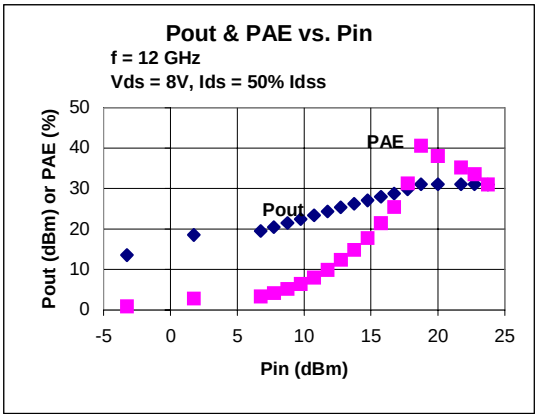
MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	475mA
Igsf	Forward Gate Current	80mA	14mA
Pin	Input Power	28dBm	@3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	4.5W	3.8W

EPA160A

DATA SHEET
High Efficiency Heterojunction Power FET





S-PARAMETERS
8V, 1/2 Idss

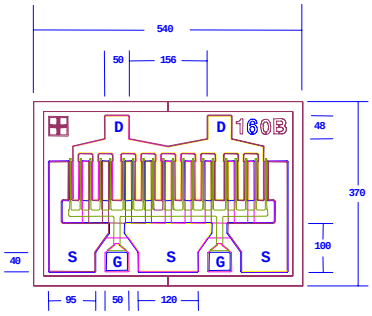
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.891	-118.3	14.073	114.9	0.028	32.7	0.344	-141.1
2.0	0.890	-146.2	7.912	96.6	0.031	22.3	0.385	-156.6
3.0	0.889	-157.7	5.382	86.8	0.031	20.5	0.401	-162.4
4.0	0.892	-163.6	4.093	79.3	0.032	19.1	0.416	-164.1
5.0	0.887	-167.5	3.275	73.1	0.031	21.8	0.431	-164.8
6.0	0.893	-170.0	2.741	67.3	0.031	24.5	0.449	-164.8
7.0	0.898	-171.6	2.341	62.4	0.031	26.6	0.467	-164.9
8.0	0.901	-173.3	2.036	57.4	0.031	27.6	0.485	-164.8
9.0	0.901	-174.1	1.793	53.2	0.029	28.8	0.496	-165.0
10.0	0.906	-174.9	1.604	49.2	0.029	33.3	0.511	-165.2
11.0	0.912	-175.3	1.449	45.1	0.028	35.6	0.526	-166.2
12.0	0.921	-175.9	1.316	40.9	0.029	36.4	0.538	-168.1
13.0	0.929	-176.3	1.202	36.6	0.029	36.0	0.553	-170.8
14.0	0.929	-176.6	1.096	32.2	0.030	36.4	0.564	-174.4
15.0	0.934	-176.7	1.010	27.8	0.030	37.1	0.578	-179.0
16.0	0.929	-176.6	0.920	23.2	0.031	33.7	0.597	175.9
17.0	0.933	-175.9	0.849	19.1	0.031	32.2	0.623	171.0
18.0	0.943	-176.0	0.790	14.4	0.033	30.4	0.652	165.8
19.0	0.943	-176.3	0.731	9.7	0.034	31.5	0.684	161.2
20.0	0.941	-176.7	0.672	5.2	0.036	31.0	0.710	157.2
21.0	0.930	-176.9	0.616	1.7	0.039	31.3	0.734	155.0
22.0	0.925	-177.3	0.578	-1.6	0.042	31.5	0.764	153.3
23.0	0.926	-177.9	0.545	-4.1	0.047	32.0	0.790	152.4
24.0	0.926	-179.1	0.518	-6.9	0.051	33.7	0.807	152.1
25.0	0.906	179.0	0.492	-8.9	0.057	34.8	0.817	152.4
26.0	0.906	178.1	0.471	-10.2	0.064	36.7	0.811	154.7

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.

EPA160B

DATA SHEET
High Efficiency Heterojunction Power FET

- **+31.0dBm TYPICAL OUTPUT POWER**
- **5.5dB TYPICAL POWER GAIN AT 18GHz**
- **0.3 X 1600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 40mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

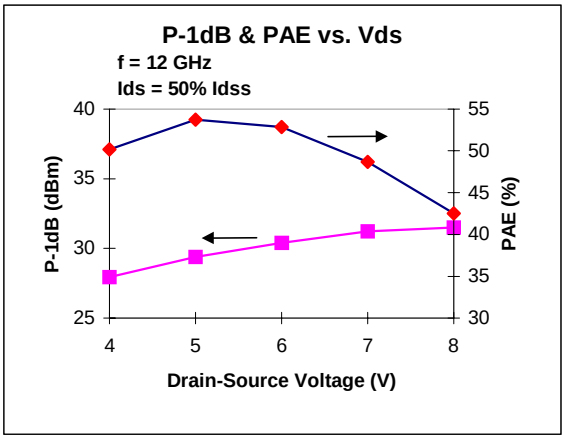
SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	9.0	10.5 5.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		290	480	660	mA
Gm	Transconductance Vds=3V, Vgs=0V		320	500		mS
Vp	Pinch-off Voltage Vds=3V, Ids=4.5mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.6mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.6mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			33		^{o}C/W

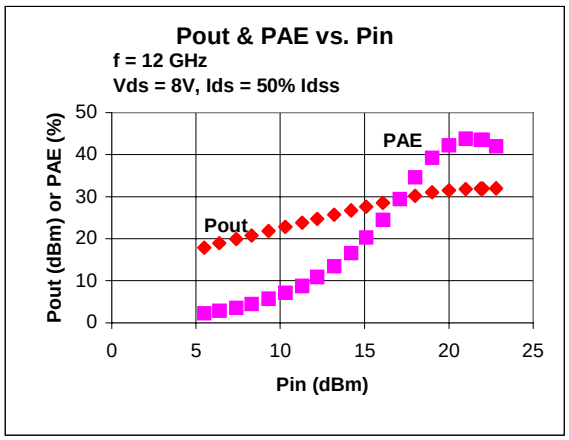
MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	435mA
Igsf	Forward Gate Current	80mA	14mA
Pin	Input Power	28dBm	@3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	4.1W	3.4W

EPA160B

DATA SHEET
High Efficiency Heterojunction Power FET





S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.902	-115.3	15.468	116.0	0.025	38.1	0.298	-138.8
2.0	0.884	-146.5	8.678	96.8	0.028	27.8	0.342	-156.8
3.0	0.881	-158.7	5.971	86.9	0.030	28.6	0.351	-163.1
4.0	0.881	-166.4	4.579	79.4	0.031	30.7	0.359	-165.6
5.0	0.880	-172.1	3.705	72.6	0.032	35.1	0.367	-165.7
6.0	0.878	-176.6	3.113	66.5	0.034	38.3	0.381	-165.8
7.0	0.879	179.0	2.703	60.7	0.036	40.0	0.396	-164.7
8.0	0.882	174.5	2.374	55.1	0.038	41.6	0.416	-163.6
9.0	0.881	169.9	2.110	49.6	0.038	44.4	0.437	-162.9
10.0	0.887	165.5	1.900	44.4	0.040	45.0	0.461	-161.9
11.0	0.891	160.6	1.718	38.8	0.042	45.8	0.491	-161.5
12.0	0.898	155.6	1.557	33.2	0.044	45.9	0.521	-161.7
13.0	0.905	151.0	1.411	27.7	0.044	45.4	0.554	-162.8
14.0	0.908	146.6	1.277	22.3	0.046	43.1	0.580	-164.2
15.0	0.910	143.2	1.151	17.2	0.047	42.3	0.605	-166.4
16.0	0.912	140.2	1.051	12.1	0.048	39.5	0.626	-168.6
17.0	0.920	137.9	0.956	7.7	0.050	37.6	0.645	-171.6
18.0	0.934	135.9	0.880	3.0	0.052	37.6	0.665	-174.5
19.0	0.934	134.4	0.810	-1.7	0.054	34.6	0.684	-177.7
20.0	0.932	133.9	0.742	-5.7	0.057	33.8	0.697	178.4
21.0	0.923	134.3	0.684	-8.6	0.060	32.2	0.700	174.7
22.0	0.934	135.0	0.641	-11.5	0.063	32.4	0.707	171.7
23.0	0.946	134.6	0.616	-14.3	0.068	32.5	0.718	168.7
24.0	0.948	133.8	0.579	-17.7	0.072	33.3	0.719	166.0
25.0	0.949	133.0	0.558	-20.0	0.079	32.7	0.722	163.7
26.0	0.935	131.3	0.527	-22.3	0.084	33.0	0.723	162.4

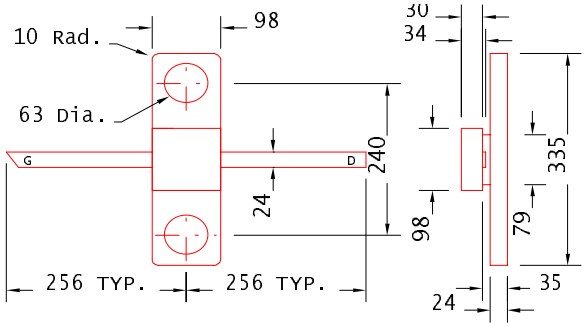
Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 7 mils each.

EPA160B-100F

DATA SHEET

High Efficiency Heterojunction Power FET

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+31.0dBm TYPICAL OUTPUT POWER**
- **5.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 1600 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 f=12GHz Vds=8V, Ids=50% Idss	29.0	31.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	4.5	5.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		38		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	290	480	660	mA
Gm	Transconductance Vds=3V, Vgs=0V	320	500		mS
Vp	Pinch-off Voltage Vds=3V, Ids=4.5mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.6mA	-11	-15		V
BVgs	Source Breakdown Voltage Igs=1.6mA	-7	-14		V
Rth	Thermal Resistance		35*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	410mA
Igsf	Forward Gate Current	80mA	14mA
Pin	Input Power	28dBm	@3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	4.0W	3.3W

EPA160B-100F

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

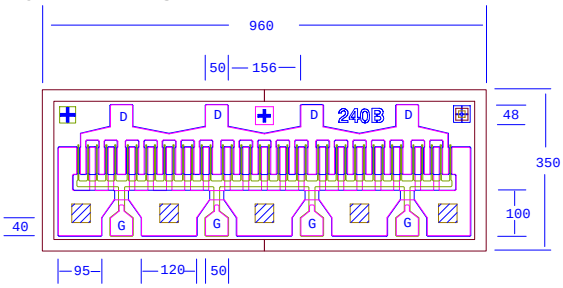
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.816	-114.7	14.973	112.1	0.026	44.1	0.238	-125.0
2.0	0.764	-149.8	8.770	85.9	0.035	38.9	0.234	-145.2
3.0	0.738	-167.1	6.236	68.2	0.045	37.9	0.219	-154.4
4.0	0.722	175.5	4.917	51.8	0.054	33.9	0.217	-159.9
5.0	0.716	158.4	4.084	35.4	0.064	26.3	0.204	-169.1
6.0	0.710	147.3	3.489	19.9	0.075	18.2	0.204	168.1
7.0	0.708	135.2	3.022	4.9	0.083	9.8	0.231	152.6
8.0	0.703	123.8	2.658	-9.0	0.093	1.6	0.266	143.8
9.0	0.710	108.2	2.342	-23.4	0.101	-8.2	0.258	145.3
10.0	0.714	98.5	2.125	-37.4	0.113	-18.0	0.235	139.8
11.0	0.679	93.5	2.051	-52.2	0.133	-29.3	0.254	124.4
12.0	0.626	83.5	1.999	-68.5	0.156	-42.0	0.278	118.8
13.0	0.622	65.9	1.877	-85.7	0.178	-56.2	0.232	117.6
14.0	0.625	49.7	1.750	-102.7	0.202	-70.9	0.169	103.0
15.0	0.576	34.8	1.652	-122.4	0.234	-88.9	0.241	75.7
16.0	0.532	22.8	1.529	-141.1	0.268	-105.9	0.247	66.0
17.0	0.546	13.3	1.493	-159.2	0.327	-122.7	0.197	79.9
18.0	0.516	3.1	1.428	-179.6	0.399	-142.7	0.177	84.7
19.0	0.529	-4.4	1.306	159.0	0.472	-165.7	0.254	79.4
20.0	0.641	-17.8	1.259	137.8	0.593	169.3	0.319	78.6

EPA240B/EPA240BV

DATA SHEET
High Efficiency Heterojunction Power FET

- **+32.5dBm TYPICAL OUTPUT POWER**
- **8.0dB TYPICAL POWER GAIN FOR EPA240B AND 9.5dB FOR EPA240BV AT 18GHz**
- **0.3 X 2400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **EPA240BV WITH VIA HOLE SOURCE GROUNDING**
- **Idss SORTED IN 60mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EPA240B			EPA240BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	31.0	32.5 32.5		31.0	32.5 32.5		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	9.0	10.5 8.0		10.5	12.0 9.5		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		44			45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	440	720	940	440	720	940	mA
Gm	Transconductance Vds=3V, Vgs=0V	480	760		480	760		mS
Vp	Pinch-off Voltage Vds=3V, Ids=6mA		-1.0	-2.5		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=2.4 mA	-11	-15		-11	-15		V
BVgs	Source Breakdown Voltage Igs=2.4mA	-7	-14		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		20			15		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	EPA240B		EPA240BV	
		ABSOLUTE[1]	CONTINUOUS[2]	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V	-8V	-3V
Ids	Drain Current	Idss	710mA	Idss	Idss
Igsf	Forward Gate Current	120mA	20mA	120mA	20mA
Pin	Input Power	30dBm	@ 3dB Compression	30dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C	-65/175°C	-65/150°C
Pt	Total Power Dissipation	6.8W	5.7W	9.1W	7.6W

EPA240B/EPA240BV

DATA SHEET
High Efficiency Heterojunction Power FET

S-PARAMETERS
EPA240B 8V, 1/2 Idss

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

EPA240BV 8V, 1/2 Idss

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

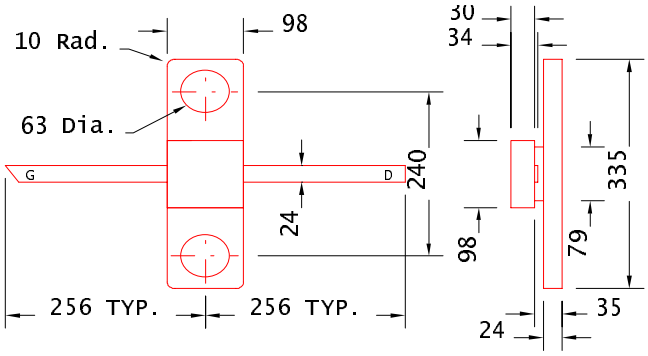
Note: The data included 0.7 mils diameter Au bonding wires; 4 gate wires, 15 mils each; 4 drain wires, 20 mils each; 10 source wires, 7 mils each; no source wires for EPA240BV.

EPA240B-100F

DATA SHEET

High Efficiency Heterojunction Power FET

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+32.5dBm TYPICAL OUTPUT POWER**
- **5.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 2400 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 Vds=8V, Ids=50% Idss	f=8GHz f=12GHz	 31.0	32.5 32.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=8GHz f=12GHz	 4.5	9.0 5.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		36		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		440	720	940	mA
Gm	Transconductance Vds=3V, Vgs=0V		480	760		mS
Vp	Pinch-off Voltage Vds=3V, Ids=6mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=2.4mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=2.4mA		-7	-14		V
Rth	Thermal Resistance			22*		°C/W

- **Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	650mA
Igsf	Forward Gate Current	120mA	20mA
Pin	Input Power	30dBm	@3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	6.3 W	5.2W

EPA240B-100F

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

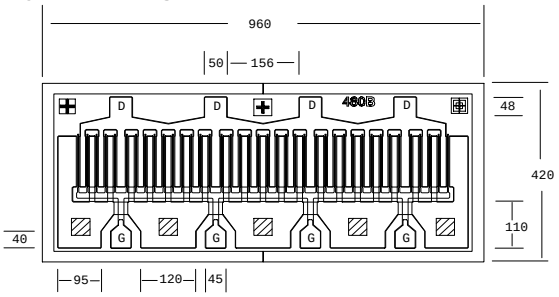
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.840	-140.2	11.987	101.0	0.028	38.7	0.393	-158.9
2.0	0.818	-166.5	6.546	79.4	0.036	40.0	0.385	-171.3
3.0	0.803	-178.9	4.587	63.9	0.047	39.6	0.364	180.0
4.0	0.797	167.1	3.588	48.7	0.058	36.1	0.353	173.8
5.0	0.795	153.2	2.968	33.2	0.070	29.7	0.341	163.7
6.0	0.788	144.7	2.521	18.3	0.081	21.7	0.357	145.4
7.0	0.782	134.7	2.167	4.3	0.092	13.7	0.395	134.1
8.0	0.775	124.8	1.895	-8.6	0.101	6.9	0.431	127.5
9.0	0.777	109.4	1.669	-21.9	0.111	-1.9	0.428	128.1
10.0	0.779	99.6	1.509	-34.8	0.123	-11.0	0.413	122.3
11.0	0.755	95.2	1.448	-47.9	0.142	-21.0	0.428	109.0
12.0	0.717	86.7	1.415	-62.1	0.166	-32.0	0.431	102.1
13.0	0.710	70.8	1.334	-77.4	0.187	-44.5	0.382	96.7
14.0	0.708	57.4	1.244	-92.0	0.207	-57.3	0.333	79.6
15.0	0.678	46.4	1.192	-108.9	0.235	-72.7	0.390	62.9
16.0	0.629	35.9	1.127	-124.6	0.264	-87.0	0.401	53.9
17.0	0.617	27.3	1.135	-139.6	0.316	-101.1	0.331	54.9
18.0	0.571	18.2	1.125	-157.4	0.370	-118.5	0.282	52.3
19.0	0.479	11.4	1.084	-176.0	0.433	-137.7	0.323	52.3
20.0	0.481	7.3	1.106	164.8	0.529	-159.3	0.371	56.2

EPA480B/EPA480BV

PRELIMINARY DATA SHEET
High Efficiency Heterojunction Power FET

- **+35.5dBm TYPICAL OUTPUT POWER**
- **7.5dB TYPICAL POWER GAIN FOR EPA480B AND 12.0dB FOR EPA480BV AT 12GHz**
- **0.4X 4800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **EPA480BV WITH VIA HOLE SOURCE GROUNDING**
- **Idss SORTED IN 120mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EPA480B			EPA480BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	34.0	35.5		34.0	35.5 35.5		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	6.0	7.5		10.0	12.0 9.5		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		40			45		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	880	1440	1880	880	1440	1880	mA
Gm	Transconductance Vds=3V, Vgs=0V	960	1520		960	1520		mS
Vp	Pinch-off Voltage Vds=3V, Ids=14mA		-1.0	-2.5		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=4.8mA	-11	-15		-11	-15		V
BVgs	Source Breakdown Voltage Igs=4.8mA	-7	-14		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		10			8		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	EPA480B		EPA480BV	
		ABSOLUTE[1]	CONTINUOUS[2]	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V	-8V	-3V
Ids	Drain Current	Idss	1.4A	Idss	1.75A
Igsf	Forward Gate Current	240mA	40mA	240mA	40mA
Pin	Input Power	33dBm	@ 3dB Compression	33dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	14W	11W	17W	14W

EPA480B/EPA480BV

PRELIMINARY DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS
EPA480B 8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.923	-153.6	13.123	99.4	0.019	17.3	0.557	-165.5
1.000	0.920	-167.7	6.682	89.5	0.019	15.1	0.570	-170.6
2.000	0.919	-176.1	3.342	79.1	0.020	20.4	0.581	-171.4
3.000	0.920	-179.8	2.214	71.0	0.020	27.7	0.594	-170.2
4.000	0.922	177.5	1.644	63.7	0.022	35.3	0.611	-168.8
5.000	0.923	175.3	1.298	56.8	0.023	42.5	0.631	-167.6
6.000	0.925	173.3	1.065	50.2	0.025	49.0	0.653	-166.7
7.000	0.927	171.4	0.896	44.0	0.028	54.6	0.675	-166.1
8.000	0.930	169.6	0.768	38.2	0.031	59.3	0.698	-165.8
9.000	0.932	167.9	0.667	32.7	0.035	63.0	0.721	-165.7
10.000	0.934	166.1	0.585	27.6	0.038	65.8	0.742	-165.8

EPA480BV 8V, 1/2 Idss

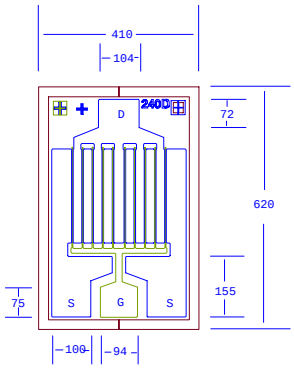
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.941	-156.9	8.989	96.7	0.013	18.0	0.666	-174.6
2.0	0.948	-170.0	4.575	84.1	0.014	15.0	0.675	-176.9
3.0	0.952	-176.1	3.030	75.8	0.013	14.9	0.686	-176.2
4.0	0.951	-179.7	2.237	68.8	0.013	18.3	0.699	-175.1
5.0	0.956	176.7	1.718	63.1	0.013	22.1	0.722	-172.7
6.0	0.962	175.6	1.390	57.8	0.012	27.2	0.736	-171.5
7.0	0.965	176.1	1.163	53.3	0.012	31.5	0.755	-171.0
8.0	0.966	177.9	0.992	49.3	0.012	37.6	0.772	-171.9
9.0	0.972	179.6	0.863	45.6	0.012	41.0	0.789	-172.3
10.0	0.967	-179.0	0.760	42.0	0.011	45.2	0.805	-172.8
11.0	0.969	-177.8	0.682	38.8	0.012	47.5	0.816	-173.1
12.0	0.969	-177.3	0.613	35.3	0.012	51.2	0.818	-173.6
14.0	0.965	178.4	0.511	27.6	0.014	52.8	0.827	-172.3
16.0	0.970	169.2	0.438	18.0	0.014	46.9	0.854	-170.5
18.0	0.972	158.8	0.367	7.9	0.013	37.8	0.870	-170.6
20.0	0.979	152.1	0.299	-1.2	0.013	41.1	0.877	-172.8
22.0	0.969	163.2	0.233	-6.9	0.014	32.2	0.922	171.4
24.0	0.978	158.9	0.192	-10.9	0.015	39.3	0.923	175.7
26.0	0.977	158.9	0.169	-11.6	0.018	44.7	0.934	180.0

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 EPA480BV.

EPA240D

DATA SHEET
High Efficiency Heterojunction Power FET

- **+33dBm TYPICAL OUTPUT POWER**
- **20.0 dB TYPICAL POWER GAIN AT 2GHz**
- **0.4 X 2400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 60mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}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	31.0	33.0 33.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	18.5	20.0 15.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		55		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		440	720	940	mA
Gm	Transconductance Vds=3V, Vgs=0V		480	760		mS
Vp	Pinch-off Voltage Vds=3V, Ids=6mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=2.4mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=2.4mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			23		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	620mA
Igsf	Forward Gate Current	120mA	20mA
Pin	Input Power	30dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	6.0 W	5.0W

EPA240D

DATA SHEET
High Efficiency Heterojunction Power FET

S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.932	-84.1	15.622	132.6	0.023	49.4	0.267	-50.6
1.000	0.885	-124.4	10.061	109.7	0.029	33.4	0.194	-76.5
1.500	0.868	-144.6	7.154	97.1	0.031	27.8	0.165	-92.0
2.000	0.861	-156.7	5.496	88.3	0.032	26.3	0.156	-103.5
2.500	0.859	-165.1	4.443	81.3	0.033	26.8	0.158	-113.0
3.000	0.858	-171.6	3.720	75.2	0.034	28.5	0.166	-121.5
3.500	0.859	-176.9	3.194	69.7	0.034	30.9	0.179	-129.2
4.000	0.860	178.6	2.794	64.5	0.035	33.8	0.194	-136.4
4.500	0.862	174.6	2.478	59.5	0.037	36.8	0.212	-143.3
5.000	0.864	171.0	2.223	54.7	0.039	39.7	0.232	-149.8
5.500	0.867	167.6	2.012	50.0	0.041	42.4	0.255	-156.0
6.000	0.870	164.4	1.833	45.4	0.044	44.7	0.279	-162.0
6.500	0.873	161.4	1.680	40.9	0.048	46.5	0.304	-167.8
7.000	0.877	158.5	1.546	36.5	0.051	47.8	0.331	-173.5
7.500	0.880	155.8	1.428	32.2	0.055	48.5	0.359	-178.9
8.000	0.884	153.1	1.323	27.9	0.060	48.7	0.388	175.8
8.500	0.888	150.5	1.229	23.8	0.065	48.5	0.417	170.6
9.000	0.892	147.9	1.143	19.7	0.069	47.8	0.447	165.6
9.500	0.896	145.4	1.064	15.7	0.074	46.8	0.477	160.7
10.000	0.900	143.0	0.993	11.8	0.079	45.5	0.506	155.9

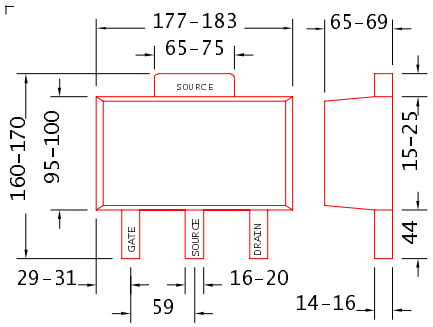
Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wires, 20 mils each; 1 drain wires, 12 mils each; 4 source wires, 7 mils each.

EPA240D-SOT89

DATA SHEET
DC-6GHz High Efficiency Heterojunction Power FET

Features

- **LOW COST SURFACE-MOUNT PLASTIC PACKAGE**
- **+33dBm TYPICAL OUTPUT POWER**
- **14.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.4dB TYPICAL NOISE FIGURE AT 2GHz**
- **+40dBm TYPICAL OUTPUT 3rd ORDER INTERCEPT POINT AT 2GHz**
- **0.4 X 2400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY AND HIGH RELIABILITY**



Applications

- **Analog and Digital Wireless System**
- **High Dynamic Range LNA**
- **HPA**

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f = 2GHz Vds=8V, Ids=350mA	31.5	33.0		dBm
G_{1dB}	Gain at 1dB Compression f = 2GHz Vds=8V, Ids=350mA	12.0	14.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=350mA f = 2GHz		55		%
NF	Noise Figure f = 2GHz Vds=5V, Ids=150mA Vds=5V, Ids=350mA		0.4 0.8		dB
IP3	Output 3rd Order Intercept Point f = 2GHz Vds=5-8V, Ids=350mA Vds=5V, Ids=150mA		40 38		dBm
Idss	Saturated Drain Current Vds=3V, Vgs=0V	440	720	940	mA
Gm	Transconductance Vds=3V, Vgs=0V	480	760		mS
Vp	Pinch-off Voltage Vds=3V, Ids=6mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=2.4mA	-11	-15		V
BVgs	Source Breakdown Voltage Igs=2.4mA	-7	-14		V
Rth	Thermal Resistance		25*		°C/W

* Overall Rth depends on case mounting.

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	570mA
Igsf	Forward Gate Current	120mA	20mA
Pin	Input Power	30dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	5.5 W	4.6 W

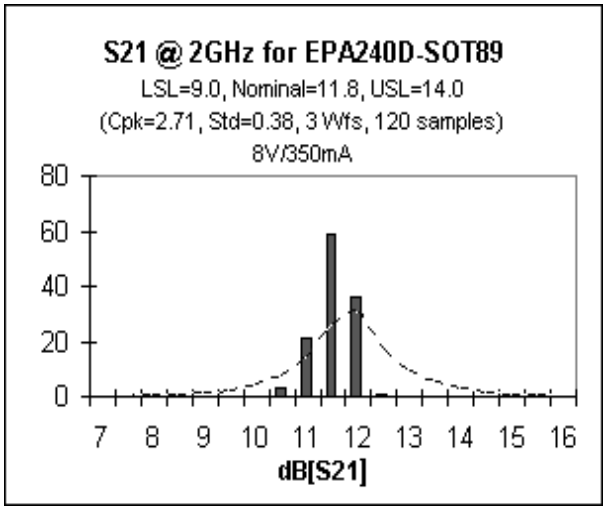
EPA240D-SOT89

DATA SHEET

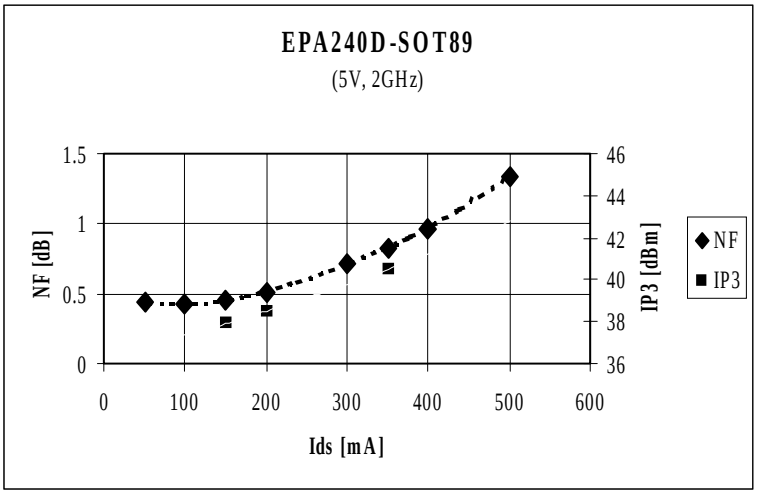
DC-6GHz High Efficiency Heterojunction Power FET

Typical Performance

S21 Distribution



Noise Figure & IP3



S-PARAMETERS

8V, 350mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.905	-80.2	40.502	134.6	0.018	56.7	0.397	-114.3
0.2	0.864	-117.6	26.481	114.1	0.025	33.5	0.494	-143.0
0.3	0.861	-137.2	19.078	103.0	0.024	28.7	0.510	-155.1
0.4	0.860	-149.8	14.721	95.6	0.026	26.6	0.528	-163.2
0.5	0.856	-158.0	11.930	90.2	0.027	25.5	0.533	-169.2
1.0	0.849	178.4	6.110	71.2	0.032	24.5	0.524	177.1
1.5	0.780	161.3	4.969	57.7	0.047	24.4	0.409	162.2
2.0	0.777	146.9	3.783	43.8	0.056	21.1	0.407	152.0
2.5	0.767	133.6	3.113	30.5	0.066	15.5	0.395	143.0
3.0	0.756	120.0	2.687	16.4	0.078	7.8	0.377	132.7
3.5	0.760	104.2	2.371	1.2	0.089	-1.2	0.354	120.2
4.0	0.756	87.3	2.078	-15.3	0.098	-13.5	0.358	101.7
4.5	0.780	70.9	1.777	-31.4	0.103	-24.6	0.392	81.7
5.0	0.815	56.0	1.516	-46.2	0.105	-35.6	0.456	66.5
5.5	0.845	43.5	1.296	-59.8	0.105	-45.9	0.510	56.0
6.0	0.859	32.0	1.118	-72.4	0.104	-55.2	0.543	46.7
6.5	0.864	21.8	0.978	-84.3	0.098	-63.7	0.569	36.2
7.0	0.877	11.6	0.870	-97.1	0.094	-71.0	0.599	23.9
7.5	0.888	0.2	0.760	-111.0	0.088	-74.8	0.624	10.9
8.0	0.864	-10.7	0.623	-123.5	0.097	-78.4	0.645	-1.3
8.5	0.854	-18.9	0.520	-132.5	0.100	-93.6	0.682	-10.0
9.0	0.861	-24.6	0.445	-140.4	0.087	-109.6	0.723	-16.6
9.5	0.879	-28.9	0.384	-147.6	0.076	-119.7	0.739	-21.3
10.0	0.884	-31.7	0.336	-156.2	0.059	-139.2	0.741	-23.9

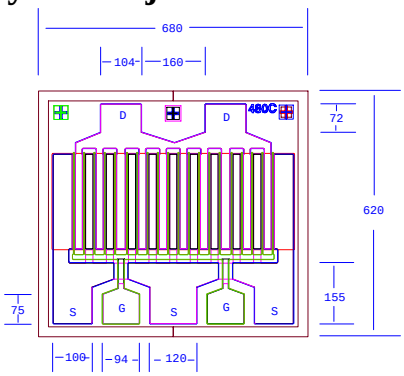
5V, 150mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.874	-73.6	36.578	140.1	0.024	32.5	0.371	-136.7
0.2	0.903	-113.7	25.627	118.3	0.024	38.5	0.507	-147.1
0.3	0.887	-135.1	18.754	106.3	0.025	31.5	0.548	-158.5
0.4	0.877	-148.4	14.600	98.4	0.027	27.0	0.569	-165.9
0.5	0.870	-157.0	11.886	92.5	0.029	26.1	0.579	-171.7
1.0	0.855	178.6	6.137	73.2	0.034	24.2	0.576	174.7
1.5	0.781	161.6	5.042	59.5	0.050	23.3	0.469	159.3
2.0	0.775	147.1	3.852	45.8	0.060	19.7	0.467	148.8
2.5	0.763	133.6	3.177	32.6	0.071	13.4	0.453	139.2
3.0	0.752	120.0	2.748	18.5	0.083	5.8	0.436	128.1
3.5	0.755	104.3	2.427	3.5	0.094	-4.1	0.413	115.2
4.0	0.751	87.4	2.126	-13.0	0.104	-16.2	0.418	97.0
4.5	0.775	70.9	1.815	-28.9	0.108	-28.0	0.453	78.2
5.0	0.810	56.1	1.543	-43.5	0.108	-39.2	0.513	63.4
5.5	0.841	43.6	1.318	-56.7	0.107	-49.3	0.563	53.0
6.0	0.854	32.2	1.137	-69.1	0.105	-58.9	0.592	43.6
6.5	0.860	22.0	0.995	-80.6	0.100	-67.3	0.616	33.2
7.0	0.873	11.8	0.886	-93.1	0.094	-74.5	0.642	21.2
7.5	0.885	0.5	0.776	-106.6	0.087	-78.0	0.662	8.2
8.0	0.863	-10.6	0.639	-118.7	0.095	-80.8	0.677	-3.9
8.5	0.852	-18.7	0.536	-127.7	0.100	-95.5	0.710	-12.2
9.0	0.861	-24.5	0.457	-135.3	0.086	-111.9	0.747	-18.5
9.5	0.878	-28.6	0.397	-142.2	0.077	-121.5	0.762	-23.0
10.0	0.882	-31.5	0.346	-150.4	0.059	-142.6	0.756	-25.6

EPA480C

DATA SHEET
High Efficiency Heterojunction Power FET

- **+36.0dBm TYPICAL OUTPUT POWER**
- **19.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 4800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 120mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}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	34.0	36.0 36.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	17.5	19.0 14.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		55		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		880	1440	1880	mA
Gm	Transconductance Vds=3V, Vgs=0V		960	1560		mS
Vp	Pinch-off Voltage Vds=3V, Ids=14mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=4.8mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=4.8mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			12		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	1.2A
Igsf	Forward Gate Current	240mA	40mA
Pin	Input Power	33dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	11.4 W	9.5 W

EPA480C

DATA SHEET
High Efficiency Heterojunction Power FET

S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.932	-128.5	13.854	111.4	0.020	30.2	0.327	-151.2
1.000	0.921	-154.5	7.443	95.4	0.022	23.1	0.358	-162.2
1.500	0.919	-164.7	5.021	87.1	0.023	23.8	0.372	-165.2
2.000	0.918	-170.4	3.769	81.0	0.023	26.8	0.387	-166.4
2.500	0.919	-174.4	3.006	75.8	0.024	30.7	0.403	-167.0
3.000	0.920	-177.4	2.491	71.1	0.025	35.1	0.421	-167.6
3.500	0.921	-179.9	2.120	66.7	0.026	39.6	0.441	-168.4
4.000	0.922	177.9	1.839	62.5	0.027	43.9	0.461	-169.3
4.500	0.923	176.0	1.619	58.5	0.029	47.9	0.483	-170.5
5.000	0.925	174.2	1.441	54.7	0.032	51.4	0.505	-171.9
5.500	0.927	172.5	1.295	51.0	0.034	54.4	0.527	-173.5
6.000	0.928	170.8	1.172	47.5	0.037	56.8	0.549	-175.3
6.500	0.930	169.3	1.067	44.1	0.040	58.7	0.571	-177.2
7.000	0.932	167.8	0.977	40.8	0.044	60.1	0.592	-179.3
7.500	0.933	166.3	0.898	37.7	0.047	61.0	0.613	178.5
8.000	0.935	164.8	0.829	34.7	0.051	61.6	0.633	176.3
8.500	0.936	163.4	0.768	31.9	0.055	61.8	0.652	174.0
9.000	0.938	162.0	0.713	29.1	0.059	61.7	0.671	171.6
9.500	0.940	160.6	0.665	26.6	0.063	61.4	0.689	169.3
10.000	0.941	159.2	0.621	24.1	0.067	60.9	0.706	166.9

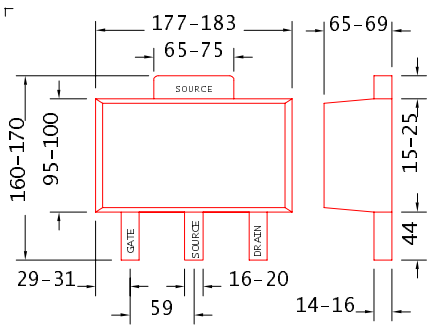
Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 20 mils each; 2 drain wires, 12 mils each; 6 source wires, 7 mils each.

EPA480C-SOT89

DATA SHEET
DC-6GHz High Efficiency Heterojunction Power FET

Features

- **LOW COST SURFACE-MOUNT PLASTIC PACKAGE**
- **+36dBm TYPICAL OUTPUT POWER**
- **13.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.5dB TYPICAL NOISE FIGURE AT 2GHz**
- **+43dBm TYPICAL OUTPUT 3rd ORDER INTERCEPT POINT AT 2GHz**
- **0.4 X 4800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY AND HIGH RELIABILITY**



Applications

- **Analog and Digital Wireless System**
- **High Dynamic Range LNA**
- **HPA**

ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f = 2GHz Vds=8V, Ids=750mA	34.5	36.0		dBm
G_{1dB}	Gain at 1dB Compression f = 2GHz Vds=8V, Ids=750mA	11.0	13.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=750mA f = 2GHz		50		%
NF	Noise Figure f = 2GHz Vds=5V, Ids=300mA Vds=5-8V, Ids=750mA		0.5 1.2		dB
IP3	Output 3rd Order Intercept Point f = 2GHz Vds=5-8V, Ids=750mA Vds=5V, Ids=300mA		43 41		dBm
Idss	Saturated Drain Current Vds=3V, Vgs=0V	880	1440	1880	mA
Gm	Transconductance Vds=3V, Vgs=0V	960	1560		mS
Vp	Pinch-off Voltage Vds=3V, Ids=14mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=4.8mA	-11	-15		V
BVgs	Source Breakdown Voltage Igs=4.8mA	-7	-14		V
Rth	Thermal Resistance		14*		^{o}C/W

* Overall Rth depends on case mounting.

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	1.05A
Igsf	Forward Gate Current	240mA	40mA
Pin	Input Power	33dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	10 W	8.4 W

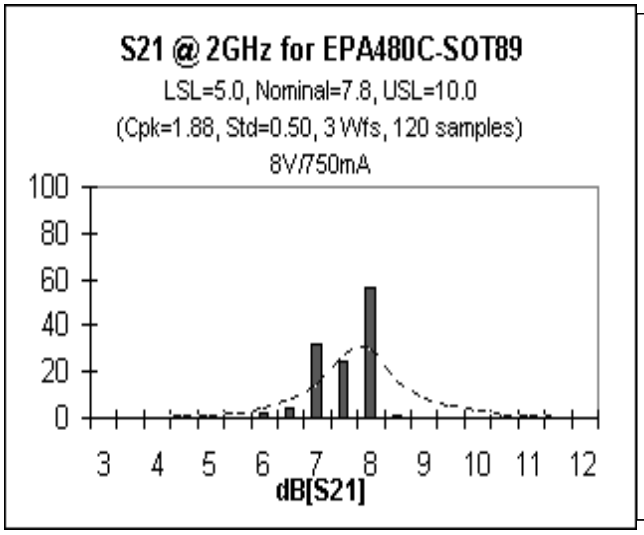
EPA480C-SOT89

DATA SHEET

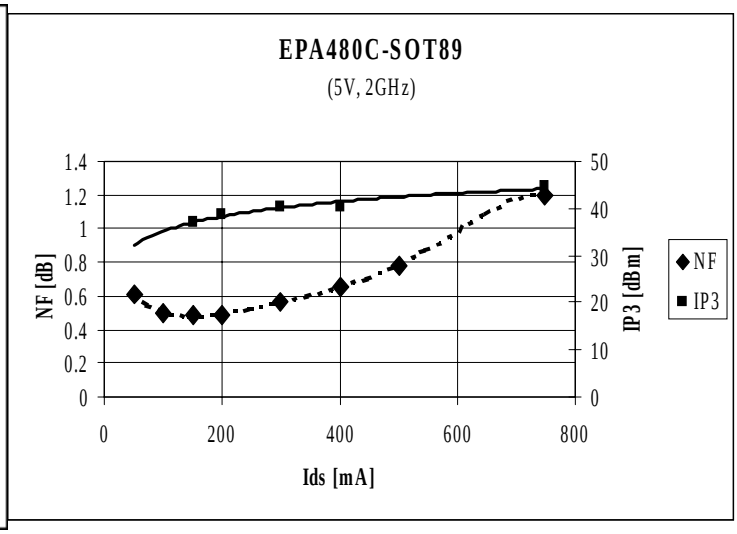
DC-6GHz High Efficiency Heterojunction Power FET

Typical Performance

S21 Distribution



Noise Figure & IP3



S-PARAMETERS

8V, 750mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.917	-118.9	31.148	119.1	0.017	41.6	0.696	-165.9
0.2	0.918	-146.6	17.708	102.7	0.015	28.6	0.720	-172.5
0.3	0.935	-159.4	12.132	94.9	0.017	30.6	0.722	-176.2
0.4	0.935	-166.5	9.200	89.6	0.017	33.5	0.725	-178.9
0.5	0.931	-172.0	7.382	85.7	0.018	33.9	0.724	179.3
1.0	0.921	174.2	3.742	71.2	0.027	42.4	0.711	171.5
1.5	0.876	161.6	3.201	60.2	0.047	43.1	0.629	158.9
2.0	0.866	152.3	2.452	49.3	0.061	40.0	0.622	151.8
2.5	0.850	144.2	2.053	38.7	0.076	35.2	0.607	145.2
3.0	0.843	135.1	1.821	27.3	0.093	28.8	0.578	137.7
3.5	0.829	123.0	1.654	14.5	0.112	20.0	0.548	129.0
4.0	0.814	108.9	1.524	0.4	0.132	9.3	0.545	117.8
4.5	0.820	94.0	1.364	-14.5	0.146	-2.5	0.552	104.8
5.0	0.834	80.8	1.206	-28.1	0.156	-13.9	0.575	91.8
5.5	0.850	70.4	1.070	-40.1	0.163	-23.9	0.594	79.5
6.0	0.857	62.6	0.969	-51.4	0.170	-34.4	0.615	68.0
6.5	0.868	54.4	0.892	-61.9	0.174	-42.0	0.642	57.3
7.0	0.869	43.7	0.845	-73.0	0.185	-50.8	0.653	48.8
7.5	0.873	30.2	0.791	-85.9	0.192	-60.6	0.660	39.0
8.0	0.863	16.3	0.705	-98.8	0.201	-70.6	0.657	26.9
8.5	0.863	5.8	0.621	-109.3	0.199	-84.0	0.676	15.0
9.0	0.872	-1.7	0.547	-118.7	0.183	-94.7	0.696	5.3
9.5	0.869	-6.7	0.484	-126.2	0.179	-102.3	0.696	-2.9
10.0	0.860	-9.5	0.439	-134.2	0.163	-115.2	0.700	-7.4

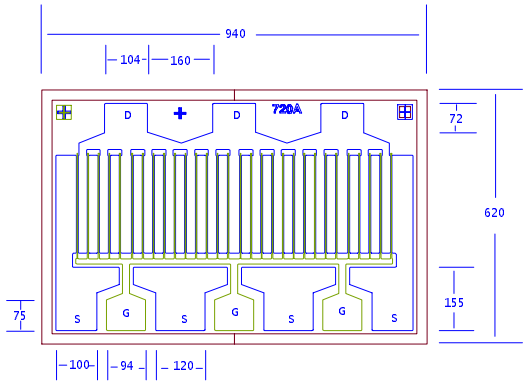
5V, 150mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	0.928	-112.1	28.454	121.6	0.018	41.0	0.675	-161.0
0.2	0.931	-143.9	16.571	104.7	0.020	33.2	0.744	-169.5
0.3	0.938	-157.7	11.424	96.5	0.020	26.5	0.747	-174.5
0.4	0.937	-165.4	8.690	91.0	0.023	26.6	0.754	-178.0
0.5	0.932	-171.2	6.989	87.0	0.024	27.2	0.756	180.0
1.0	0.918	174.6	3.558	72.4	0.032	33.9	0.747	171.4
1.5	0.872	162.1	3.066	61.6	0.051	35.7	0.674	158.7
2.0	0.862	152.7	2.349	50.9	0.065	33.2	0.666	151.2
2.5	0.845	144.5	1.971	40.4	0.080	30.0	0.653	144.1
3.0	0.837	135.4	1.756	29.0	0.097	23.3	0.625	136.1
3.5	0.823	123.2	1.597	16.5	0.116	15.0	0.593	126.9
4.0	0.807	109.1	1.475	2.5	0.135	5.1	0.589	115.5
4.5	0.814	94.2	1.325	-12.2	0.148	-6.4	0.596	102.2
5.0	0.828	80.9	1.172	-25.6	0.157	-17.9	0.616	89.5
5.5	0.843	70.6	1.042	-37.6	0.164	-27.6	0.633	77.1
6.0	0.850	62.8	0.943	-48.5	0.171	-37.7	0.650	65.6
6.5	0.861	54.6	0.871	-58.9	0.174	-45.5	0.674	55.0
7.0	0.861	43.9	0.827	-69.7	0.185	-54.0	0.684	46.7
7.5	0.864	30.5	0.778	-82.4	0.192	-63.4	0.687	36.6
8.0	0.857	16.7	0.697	-95.2	0.199	-73.1	0.684	24.5
8.5	0.857	6.1	0.618	-105.6	0.197	-86.1	0.699	13.3
9.0	0.869	-1.4	0.545	-115.0	0.183	-96.5	0.718	3.4
9.5	0.864	-6.5	0.487	-122.7	0.178	-104.6	0.720	-4.4
10.0	0.856	-9.2	0.439	-130.6	0.163	-117.5	0.715	-9.0

EPA720A

DATA SHEET
High Efficiency Heterojunction Power FET

- **+37.5dBm TYPICAL OUTPUT POWER**
- **19.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.4 X 7200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 180mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f= 2GHz Vds=8V, Ids=50% Idss f= 4GHz	36.0	37.5 37.5		dBm
G_{1dB}	Gain at 1dB Compression f= 2GHz Vds=8V, Ids=50% Idss f= 4GHz	17.5	19.0 14.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=2GHz		52		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	1320	2160	2820	mA
Gm	Transconductance Vds=3V, Vgs=0V	1440	2280		mS
Vp	Pinch-off Voltage Vds=3V, Ids=22mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=7.2mA	-11	-15		V
BVgs	Source Breakdown Voltage Igs=7.2mA	-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		6		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	1.6A
Igsf	Forward Gate Current	360mA	60mA
Pin	Input Power	35dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	23 W	19 W

EPA720A

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

8V, 1/2 Idss

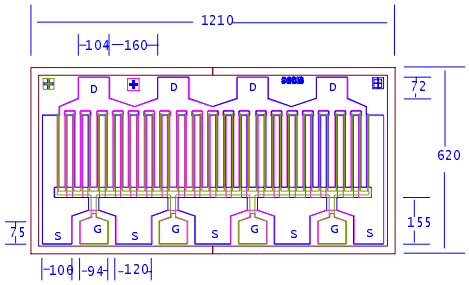
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.947	-146.8	11.090	102.6	0.016	22.4	0.501	-168.2
1.000	0.944	-164.2	5.705	90.6	0.017	20.3	0.520	-172.3
1.500	0.944	-170.7	3.808	83.9	0.017	23.5	0.531	-173.1
2.000	0.944	-174.4	2.844	78.6	0.018	28.1	0.542	-173.3
2.500	0.945	-176.9	2.259	74.0	0.019	33.2	0.555	-173.4
3.000	0.945	-178.8	1.865	69.7	0.020	38.3	0.570	-173.5
3.500	0.946	179.5	1.582	65.7	0.021	43.3	0.586	-173.7
4.000	0.947	178.1	1.367	61.9	0.022	47.9	0.603	-174.2
4.500	0.948	176.8	1.199	58.3	0.024	52.1	0.621	-174.8
5.000	0.949	175.6	1.064	54.9	0.026	55.6	0.639	-175.6
5.500	0.951	174.5	0.952	51.6	0.028	58.6	0.657	-176.6
6.000	0.952	173.4	0.859	48.5	0.031	61.1	0.674	-177.7
6.500	0.953	172.3	0.780	45.5	0.033	63.0	0.691	-178.9
7.000	0.954	171.3	0.712	42.7	0.036	64.5	0.708	179.8
7.500	0.955	170.3	0.653	40.1	0.039	65.5	0.724	178.4
8.000	0.956	169.3	0.601	37.6	0.042	66.3	0.739	176.9
8.500	0.957	168.3	0.556	35.3	0.045	66.8	0.753	175.4
9.000	0.958	167.3	0.516	33.2	0.048	67.0	0.767	173.9
9.500	0.959	166.3	0.481	31.2	0.052	67.0	0.780	172.3
10.000	0.960	165.4	0.449	29.3	0.055	66.8	0.792	170.7

Note: The data included 0.7 mils diameter Au bonding wires:
3 gate wires, 20 mils each; 3 drain wires, 12 mils each; 8 source wires, 7 mils each.

EPA960B

PRELIMINARY DATA SHEET
High Efficiency Heterojunction Power FET

- **+38.5dBm TYPICAL OUTPUT POWER**
- **18.5dB TYPICAL POWER GAIN AT 2GHz**
- **0.5 X 9600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 240mA PER BIN RANGE**



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	37.0	38.5 38.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	17.0	18.5 13.5		dB
Idss	Saturated Drain Current	Vds=3V, Vgs=0V	1760	2880	3760	mA
Gm	Transconductance	Vds=3V, Vgs=0V	1920	3120		mS
Vp	Pinch-off Voltage	Vds=3V, Ids=28mA		-1.0	-2.5	V
BVgd	Drain Breakdown Voltage	Igd=9.6mA	-11	-15		V
BVgs	Source Breakdown Voltage	Igs=9.6mA	-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			5		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	2.8A
Igsf	Forward Gate Current	480mA	80mA
Pin	Input Power	36dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	27 W	23 W

EPA960B

PRELIMINARY DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

8V, 1/2 Idss

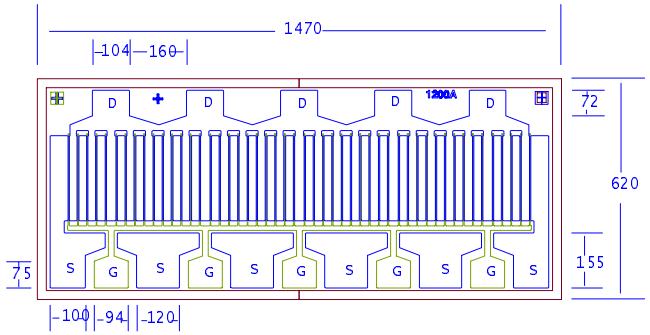
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.959	-155.9	9.081	98.1	0.013	18.6	0.607	-173.3
1.000	0.957	-168.7	4.601	88.2	0.014	19.1	0.618	-175.4
1.500	0.957	-173.4	3.060	82.3	0.014	23.6	0.626	-175.7
2.000	0.958	-176.1	2.280	77.5	0.015	29.0	0.636	-175.7
2.500	0.958	-177.9	1.807	73.2	0.015	34.7	0.647	-175.6
3.000	0.959	-179.4	1.489	69.1	0.016	40.2	0.659	-175.6
3.500	0.960	179.4	1.260	65.3	0.017	45.4	0.673	-175.8
4.000	0.961	178.4	1.087	61.7	0.019	50.1	0.687	-176.1
4.500	0.961	177.4	0.951	58.3	0.020	54.3	0.702	-176.5
5.000	0.962	176.5	0.842	55.0	0.022	57.8	0.716	-177.1
5.500	0.963	175.6	0.752	52.0	0.024	60.8	0.731	-177.8
6.000	0.964	174.8	0.677	49.1	0.026	63.3	0.746	-178.6
6.500	0.965	174.0	0.614	46.4	0.028	65.2	0.759	-179.5
7.000	0.966	173.2	0.559	43.8	0.030	66.8	0.773	179.6
7.500	0.966	172.4	0.512	41.5	0.033	67.9	0.786	178.5
8.000	0.967	171.7	0.472	39.3	0.035	68.8	0.798	177.4
8.500	0.968	170.9	0.436	37.3	0.038	69.4	0.809	176.3
9.000	0.968	170.2	0.404	35.4	0.040	69.8	0.820	175.1
9.500	0.969	169.4	0.376	33.8	0.043	70.0	0.830	173.9
10.000	0.970	168.7	0.351	32.2	0.046	70.0	0.840	172.7

Note: The data included 0.7 mils diameter Au bonding wires:
4 gate wires, 20 mils each; 4 drain wires, 12 mils each; 10 source wires, 7 mils each.

EPA1200A

DATA SHEET
High Efficiency Heterojunction Power FET

- **+39.5dBm TYPICAL OUTPUT POWER**
- **18.0dB TYPICAL POWER GAIN AT 2GHz**
- **0.4 X 12,000 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY**
- **Idss SORTED IN 300mA PER BIN RANGE**



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	38.0	39.5 39.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f= 2GHz f= 4GHz	16.5	18.0 13.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=2GHz		43		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		2200	3600	4700	mA
Gm	Transconductance Vds=3V, Vgs=0V		2400	3800		mS
Vp	Pinch-off Voltage Vds=3V, Ids=36mA			-1.0	-2.5	V
BVgd	Drain Breakdown Voltage Igd=12mA		-11	-15		V
BVgs	Source Breakdown Voltage Igs=12mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			4		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-3V
Ids	Drain Current	Idss	3.5A
Igsf	Forward Gate Current	600mA	100mA
Pin	Input Power	37dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	34 W	28 W

DATA SHEET

High Efficiency Heterojunction Power FET

S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.500	0.966	-161.3	7.649	95.5	0.011	16.3	0.675	-175.7
1.000	0.966	-171.3	3.849	86.9	0.012	18.6	0.683	-176.9
1.500	0.966	-175.0	2.555	81.4	0.012	23.8	0.690	-177.0
2.000	0.966	-177.1	1.901	76.8	0.012	29.7	0.698	-176.9
2.500	0.967	-178.5	1.505	72.7	0.013	35.7	0.707	-176.8
3.000	0.967	-179.6	1.239	68.7	0.014	41.4	0.718	-176.8
3.500	0.968	179.4	1.047	65.1	0.015	46.7	0.729	-176.8
4.000	0.969	178.6	0.902	61.6	0.016	51.5	0.742	-177.1
4.500	0.969	177.8	0.788	58.3	0.017	55.6	0.754	-177.4
5.000	0.970	177.1	0.697	55.2	0.019	59.2	0.767	-177.8
5.500	0.971	176.4	0.622	52.2	0.020	62.2	0.779	-178.4
6.000	0.971	175.7	0.559	49.5	0.022	64.6	0.791	-179.0
6.500	0.972	175.0	0.506	46.9	0.024	66.6	0.803	-179.7
7.000	0.973	174.4	0.461	44.6	0.026	68.2	0.814	179.5
7.500	0.973	173.8	0.422	42.4	0.028	69.4	0.825	178.7
8.000	0.974	173.2	0.388	40.4	0.030	70.4	0.835	177.8
8.500	0.974	172.6	0.358	38.6	0.032	71.1	0.845	176.9
9.000	0.975	172.0	0.332	36.9	0.035	71.6	0.854	175.9
9.500	0.975	171.4	0.309	35.4	0.037	71.9	0.862	175.0
10.000	0.976	170.8	0.288	34.1	0.039	72.1	0.870	174.0

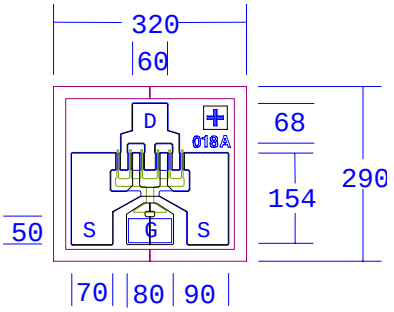
Note: The data included 0.7 mils diameter Au bonding wires:
5 gate wires, 20 mils each; 5 drain wires, 12 mils each; 12 source wires, 7 mils each.

EFA018A

DATA SHEET

Low Distortion GaAs Power FET

- **VERY HIGH fmax: 100GHz**
- **+18.5dBm TYPICAL OUTPUT POWER**
- **11.5dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.1dB NOISE FIGURE AND 10.5dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 180 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 5mA PER BIN RANGE**



Chip Thickness: 75 ± 13 microns
All Dimensions In Microns

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	16.5	18.5* 18.5*		dBm
G_{1dB}	Gain at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	9.5	11.5 9.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz		35		%
NF	Noise Figure Vds=2V, Ids=15mA	f=12GHz		1.1		dB
Ga	Associated Gain Vds=2V, Ids=15mA	f=12GHz		10.5		dB
Idss	Saturated Drain Current	Vds=3V, Vgs=0V	25	50	80	mA
Gm	Transconductance	Vds=3V, Vgs=0V	20	30		mS
Vp	Pinch-off Voltage	Vds=3V, Ids=1.0mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage	Igd=0.5mA	-10	-15		V
BVgs	Source Breakdown Voltage	Igs=0.5mA	-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			185		°C/W

***P_{1dB} = 19.5dBm can be obtained with 8v/50% Idss bias. Consult factory for wafer selection.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	6V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	Idss
Igsf	Forward Gate Current	4mA	0.7mA
Pin	Input Power	17dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	740mW	625mW

EFA018A

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS
6V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.989	-9.7	3.058	171.1	0.011	80.4	0.785	-3.1
2.0	0.982	-19.5	3.018	163.5	0.021	79.1	0.783	-6.9
3.0	0.972	-29.1	2.977	156.0	0.031	73.7	0.779	-10.4
4.0	0.960	-39.0	2.929	148.3	0.041	67.8	0.771	-14.2
5.0	0.942	-49.2	2.894	140.5	0.049	63.0	0.761	-18.0
6.0	0.927	-58.8	2.819	132.9	0.057	56.4	0.751	-21.6
7.0	0.910	-67.9	2.744	125.3	0.063	51.1	0.740	-25.4
8.0	0.894	-77.1	2.658	118.2	0.070	45.2	0.730	-28.8
9.0	0.876	-85.4	2.569	111.3	0.076	40.1	0.718	-32.2
10.0	0.861	-93.4	2.488	104.5	0.078	34.8	0.703	-35.5
11.0	0.852	-101.3	2.427	98.1	0.083	30.9	0.696	-38.6
12.0	0.837	-108.9	2.348	92.1	0.086	26.1	0.683	-41.2
13.0	0.824	-117.1	2.292	85.8	0.091	21.0	0.670	-44.0
14.0	0.812	-125.0	2.246	79.6	0.096	17.5	0.658	-46.4
15.0	0.801	-134.3	2.207	73.2	0.098	12.9	0.641	-49.0
16.0	0.789	-143.8	2.195	66.5	0.102	8.8	0.628	-51.2
17.0	0.783	-153.6	2.146	59.8	0.105	4.9	0.611	-53.9
18.0	0.773	-164.4	2.094	52.8	0.111	0.2	0.589	-56.3
19.0	0.773	-175.1	2.051	45.8	0.112	-3.5	0.568	-59.6
20.0	0.774	175.0	1.983	38.7	0.116	-7.7	0.549	-62.9
21.0	0.780	166.2	1.889	31.8	0.115	-13.0	0.521	-68.7
22.0	0.789	158.1	1.793	25.4	0.116	-15.9	0.510	-73.4
23.0	0.793	151.4	1.695	19.1	0.113	-19.1	0.505	-78.9
24.0	0.800	145.8	1.616	13.3	0.113	-21.4	0.509	-84.3
25.0	0.800	142.4	1.532	8.3	0.113	-25.2	0.518	-89.1
26.0	0.800	139.5	1.470	4.3	0.110	-25.8	0.527	-94.4
27.0	0.806	137.7	1.420	-0.9	0.110	-26.8	0.542	-99.3
28.0	0.809	135.5	1.386	-5.3	0.108	-29.3	0.546	-104.5
29.0	0.802	133.5	1.371	-9.7	0.109	-29.2	0.549	-109.7
30.0	0.798	131.8	1.342	-14.2	0.108	-31.0	0.561	-114.3
31.0	0.788	127.8	1.322	-19.1	0.106	-33.7	0.561	-119.4
32.0	0.793	122.2	1.298	-25.0	0.109	-36.8	0.551	-124.4
33.0	0.778	117.3	1.254	-29.9	0.106	-41.4	0.537	-129.5
34.0	0.771	111.3	1.222	-36.5	0.107	-43.8	0.520	-135.9
35.0	0.805	103.9	1.194	-42.3	0.102	-50.4	0.506	-142.6
36.0	0.821	97.8	1.150	-48.1	0.097	-53.1	0.497	-149.9
37.0	0.855	88.5	1.114	-55.0	0.100	-58.5	0.502	-157.1
38.0	0.882	84.3	1.057	-60.8	0.096	-61.8	0.515	-164.8
39.0	0.892	78.0	0.986	-67.9	0.097	-69.1	0.525	-172.3
40.0	0.912	74.5	0.922	-73.7	0.098	-71.4	0.545	-178.8

S-PARAMETERS
2V, 15mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	1.013	-7.4	2.545	172.5	0.015	85.8	0.534	-4.0
2.0	1.007	-14.7	2.538	166.5	0.030	78.5	0.531	-8.9
3.0	1.001	-22.3	2.528	159.9	0.044	74.9	0.526	-14.0
4.0	0.993	-30.0	2.519	153.4	0.058	69.9	0.518	-19.3
5.0	0.983	-38.7	2.525	145.9	0.072	63.8	0.499	-25.3
6.0	0.971	-47.3	2.499	138.9	0.085	58.5	0.488	-31.2
7.0	0.961	-55.9	2.462	131.8	0.097	52.9	0.475	-37.5
8.0	0.944	-64.1	2.407	124.7	0.107	46.9	0.464	-43.7
9.0	0.929	-72.4	2.347	117.8	0.116	41.5	0.451	-49.7
10.0	0.915	-79.8	2.282	111.5	0.124	36.4	0.440	-55.0
11.0	0.899	-86.9	2.227	105.2	0.131	31.5	0.431	-59.9
12.0	0.891	-94.0	2.166	99.5	0.138	27.0	0.422	-64.5
13.0	0.878	-100.9	2.124	93.5	0.146	22.2	0.409	-68.7
14.0	0.862	-108.3	2.093	87.7	0.153	17.6	0.394	-72.7
15.0	0.850	-116.0	2.072	82.0	0.160	13.1	0.377	-76.7
16.0	0.841	-124.1	2.057	75.8	0.168	8.8	0.355	-81.8
17.0	0.824	-133.9	2.039	69.1	0.178	3.5	0.331	-87.2
18.0	0.819	-144.1	2.013	62.4	0.185	-2.0	0.296	-94.2
19.0	0.808	-155.0	1.973	55.1	0.190	-7.3	0.266	-102.1
20.0	0.800	-165.8	1.924	47.7	0.195	-13.2	0.235	-113.2
21.0	0.808	-175.2	1.784	40.4	0.189	-18.4	0.223	-133.0
22.0	0.795	176.9	1.695	34.6	0.188	-22.6	0.215	-144.3
23.0	0.820	169.5	1.628	28.5	0.186	-27.0	0.226	-155.0
24.0	0.816	164.8	1.539	23.0	0.185	-30.6	0.237	-162.2
25.0	0.824	159.8	1.486	18.3	0.181	-34.1	0.257	-167.1
26.0	0.838	157.1	1.424	13.9	0.179	-36.3	0.270	-169.9
27.0	0.820	154.5	1.362	9.9	0.177	-39.0	0.282	-172.4
28.0	0.827	152.5	1.317	5.9	0.175	-41.0	0.284	-173.1
29.0	0.825	150.3	1.291	1.8	0.176	-43.3	0.294	-175.0
30.0	0.825	147.0	1.266	-2.5	0.176	-46.1	0.296	-175.6
31.0	0.815	143.5	1.240	-6.3	0.175	-48.5	0.292	-179.4
32.0	0.816	138.1	1.217	-11.6	0.173	-52.9	0.290	176.4
33.0	0.801	133.0	1.165	-16.2	0.170	-57.2	0.277	169.0
34.0	0.808	126.0	1.135	-21.5	0.169	-62.0	0.275	162.0
35.0	0.811	120.1	1.092	-26.5	0.168	-66.3	0.268	149.4
36.0	0.830	111.8	1.049	-31.6	0.163	-72.0	0.295	137.7
37.0	0.857	106.2	0.996	-37.4	0.160	-77.8	0.319	125.0
38.0	0.883	100.1	0.952	-43.0	0.158	-83.8	0.359	116.9
39.0	0.914	94.9	0.890	-49.1	0.155	-88.9	0.405	109.5
40.0	0.918	91.0	0.821	-54.9	0.148	-95.5	0.453	106.1

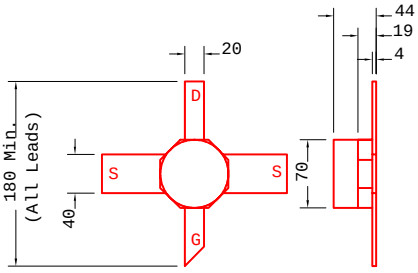
Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wire, 15 mils each; 1 drain wire, 20 mils each; 6 source wires, 8 mils each.

EFA018A-70

DATA SHEET

Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+18.5dBm TYPICAL OUTPUT POWER**
- **10.5dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.1dB NOISE FIGURE AND 10.5dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 180 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	16.5	18.5 18.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	9.0	10.5 8.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz		33		%
NF	Noise Figure Vds=2V, Ids=15mA	f=12GHz		1.1		dB
Ga	Associated Gain Vds=2V, Ids=15mA	f=12GHz		10.5		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V		25	50	80	mA
Gm	Transconductance Vds=3V, Vgs=0V		20	30		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0 mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=0.5mA		-10	-15		V
BVgs	Source Breakdown Voltage Igs=0.5mA		-6	-14		V
Rth	Thermal Resistance			480*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	40mA
Igsf	Forward Gate Current	4mA	0.7mA
Pin	Input Power	17dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150 °C
Tstg	Storage Temperature	-65/175°C	-65/150 °C
Pt	Total Power Dissipation	285mW	240mW

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

6V, 1/2 Idss

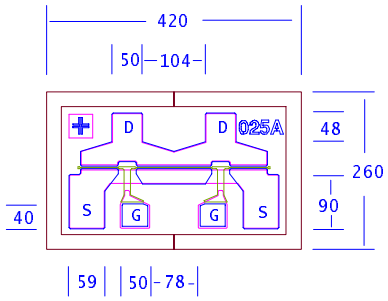
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.992	-15.2	2.467	164.6	0.013	80.7	0.813	-9.6
2.0	0.973	-31.3	2.404	148.7	0.024	66.9	0.799	-21.0
3.0	0.948	-47.1	2.307	133.4	0.033	56.3	0.788	-32.1
4.0	0.927	-62.2	2.278	119.2	0.040	47.1	0.778	-40.9
5.0	0.896	-76.8	2.271	105.4	0.046	38.0	0.757	-49.5
6.0	0.862	-89.8	2.217	91.4	0.050	28.7	0.730	-60.6
7.0	0.824	-103.6	2.144	77.5	0.050	18.8	0.709	-71.2
8.0	0.785	-116.7	2.099	64.5	0.047	8.7	0.679	-80.0
9.0	0.745	-137.4	2.141	50.1	0.043	6.9	0.675	-85.5
10.0	0.712	-157.8	2.132	34.6	0.041	4.4	0.658	-95.2
11.0	0.685	-167.8	2.113	21.5	0.039	4.7	0.636	-109.4
12.0	0.659	178.6	2.119	8.0	0.039	11.3	0.625	-121.6
13.0	0.661	151.4	2.080	-9.0	0.043	10.3	0.608	-130.8
14.0	0.678	126.4	1.968	-26.0	0.047	7.7	0.598	-141.9
15.0	0.668	112.7	1.941	-42.0	0.053	3.2	0.600	-161.3
16.0	0.663	96.6	1.927	-58.8	0.059	-4.7	0.592	-179.9
17.0	0.681	77.3	1.733	-74.2	0.059	-3.2	0.558	170.3
18.0	0.716	64.4	1.654	-86.1	0.081	-17.9	0.607	158.0
19.0	0.704	48.0	1.596	-103.7	0.070	-34.8	0.622	135.6
20.0	0.736	30.3	1.560	-120.9	0.071	-45.7	0.677	119.0
21.0	0.799	18.9	1.480	-136.6	0.072	-58.3	0.666	107.4
22.0	0.786	7.3	1.378	-151.5	0.067	-77.2	0.676	95.1
23.0	0.753	-11.7	1.305	-170.3	0.060	-97.4	0.674	76.0
24.0	0.771	-30.9	1.249	169.6	0.055	-120.5	0.671	57.6
25.0	0.753	-43.1	1.245	152.3	0.055	-141.1	0.655	42.6
26.0	0.720	-58.4	1.255	136.8	0.060	-161.3	0.649	28.8

EFA025A

DATA SHEET

Low Distortion GaAs Power FET

- **+21.0dBm TYPICAL OUTPUT POWER**
- **11.0dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.5 dB NOISE FIGURE AND 10 dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 250 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 5mA PER BIN RANGE**



Chip Thickness: 75 ± 13 microns
All Dimensions In Microns

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression	f=12GHz	19	21		dBm
	Vds=8V, Ids=50% Idss	f=18GHz		21		
G_{1dB}	Gain at 1dB Compression	f=12GHz	9	11		dB
	Vds=8V, Ids=50% Idss	f=18GHz		9		
PAE	Power Added efficiency at 1dB Compression					%
	Vds=8V, Ids=50% Idss	f=12GHz		38		
NF	Noise Figure Vds=3V,Ids=15mA	f=12GHz		1.5		dB
GA	Associated Gain Vds=3V,Ids=15mA	f=12GHz		10		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V		35	65	105	mA
Gm	Transconductance Vds=3V, Vgs=0V		30	40		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0mA			-2	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			155		°C/W

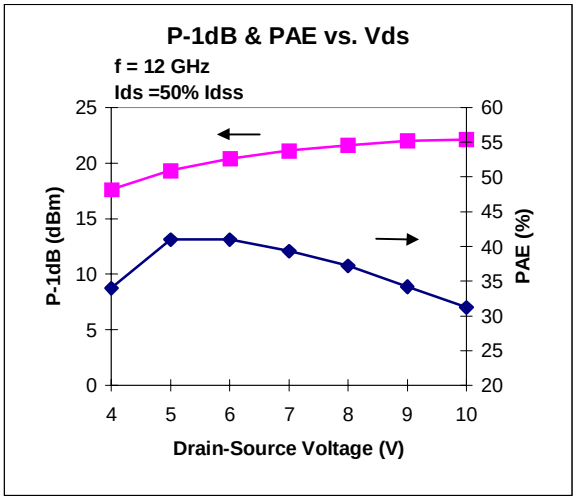
MAXIMUM RATINGS AT 25°C

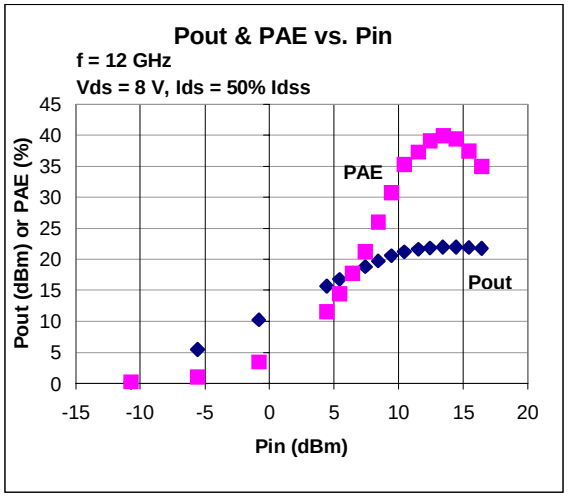
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	90mA
Igsf	Forward Gate Current	6mA	1mA
Pin	Input Power	19dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	880mW	730mW

EFA025A

DATA SHEET

Low Distortion GaAs Power FET





S-PARAMETERS
3V, 15mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.995	-13.5	3.600	168.7	0.023	81.5	0.606	-8.1
2.0	0.976	-26.7	3.527	158.2	0.044	72.7	0.595	-15.9
3.0	0.957	-39.7	3.434	148.1	0.064	64.8	0.569	-24.3
4.0	0.931	-53.0	3.313	137.7	0.081	57.1	0.544	-33.3
5.0	0.906	-63.9	3.119	128.8	0.094	50.5	0.536	-41.2
6.0	0.875	-74.0	2.938	120.2	0.106	44.0	0.512	-48.3
7.0	0.846	-84.0	2.796	111.9	0.116	38.1	0.496	-57.0
8.0	0.818	-93.6	2.625	103.9	0.124	32.4	0.484	-64.2
9.0	0.797	-102.4	2.468	96.8	0.129	27.4	0.475	-69.6
10.0	0.781	-110.6	2.330	90.0	0.133	22.2	0.456	-75.0
11.0	0.762	-119.0	2.206	83.1	0.137	17.6	0.448	-81.0
12.0	0.752	-127.5	2.075	76.5	0.139	13.3	0.429	-86.0
13.0	0.749	-134.0	1.940	70.6	0.138	9.3	0.432	-92.2
14.0	0.747	-138.4	1.825	65.8	0.137	6.7	0.444	-93.6
15.0	0.745	-142.8	1.763	61.5	0.140	4.3	0.432	-93.1
16.0	0.738	-150.1	1.728	55.4	0.145	0.7	0.399	-99.1
17.0	0.729	-157.5	1.648	49.0	0.147	-3.4	0.400	-107.7
18.0	0.727	-163.1	1.574	43.9	0.147	-6.1	0.397	-110.9
19.0	0.729	-167.9	1.532	38.6	0.150	-8.7	0.376	-117.7
20.0	0.718	-173.0	1.482	32.5	0.152	-12.3	0.386	-129.5
21.0	0.709	-175.0	1.429	28.1	0.153	-14.5	0.393	-134.4
22.0	0.709	178.6	1.365	22.5	0.153	-17.5	0.386	-142.4
23.0	0.706	173.1	1.295	16.6	0.150	-20.2	0.403	-150.8
24.0	0.714	166.8	1.211	11.0	0.145	-23.3	0.434	-158.6
25.0	0.735	162.8	1.147	6.6	0.141	-24.7	0.455	-160.4
26.0	0.738	161.3	1.056	2.9	0.132	-26.2	0.490	-165.6

S-PARAMETERS
8V,Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.96	-14.6	4.413	167.5	0.017	52.8	0.699	-5.5
2.0	0.954	-29.2	4.255	156.5	0.031	58.8	0.698	-12.1
3.0	0.923	-42.9	4.083	145.2	0.044	56.1	0.684	-18.9
4.0	0.898	-55.1	3.865	135.2	0.054	51.5	0.665	-25.3
5.0	0.871	-66.3	3.651	125.5	0.063	46.3	0.644	-31.6
6.0	0.848	-76.4	3.422	116.7	0.069	42.2	0.625	-37.4
7.0	0.824	-85.7	3.203	108.7	0.074	37.8	0.608	-43.0
8.0	0.811	-94.4	3.021	100.7	0.078	32.7	0.595	-48.7
9.0	0.785	-102.5	2.81	93.5	0.08	27.9	0.577	-54.0
10.0	0.77	-109.7	2.639	87.0	0.079	23.8	0.564	-58.7
11.0	0.762	-116.6	2.49	80.6	0.08	20.3	0.553	-63.4
12.0	0.756	-123.4	2.358	74.1	0.079	17.6	0.541	-67.9
13.0	0.757	-129.6	2.239	68.2	0.081	13.9	0.531	-72.3
14.0	0.756	-135.5	2.136	62.2	0.08	11.7	0.517	-76.9
15.0	0.761	-140.7	2.051	56.3	0.079	8.7	0.506	-82.2
16.0	0.762	-146.0	1.965	50.0	0.082	7.9	0.496	-88.9
17.0	0.763	-150.2	1.891	44.2	0.084	5.2	0.477	-96.8
18.0	0.766	-154.6	1.837	38.0	0.087	3.9	0.465	-106.0
19.0	0.762	-158.5	1.775	31.4	0.089	1.7	0.462	-115.8
20.0	0.751	-162.4	1.7	24.6	0.092	-0.7	0.465	-127.1
21.0	0.73	-165.4	1.594	18.2	0.093	-3.3	0.473	-138.2
22.0	0.71	-167.8	1.52	12.8	0.093	-3.1	0.489	-148.5
23.0	0.707	-169.4	1.457	7.9	0.093	-0.8	0.519	-156.4
24.0	0.71	-171.7	1.41	2.5	0.097	-0.2	0.555	-163.8
25.0	0.72	-175.6	1.351	-3.6	0.101	2.4	0.578	-170.1
26.0	0.712	-178.1	1.29	-7.2	0.103	3.8	0.603	-173.3

Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 4 source wires, 7 mils each.

DATA SHEET

Low Distortion GaAs Power FET

EFA025A
Noise Parameters
Vds=3V, Ids=15mA

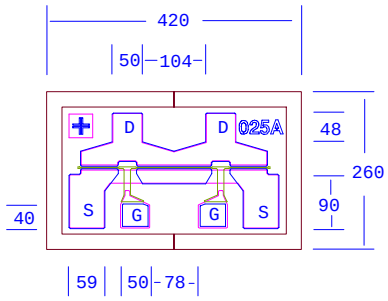
Freq.	Popt		Nfmin	
(GHz)	(MAG)	(ANG)	(dB)	Rn/50
2	0.71	17	0.53	0.58
4	0.67	35	0.65	0.52
6	0.81	48	0.85	0.49
8	0.71	63	1.05	0.44
10	0.65	79	1.35	0.38
12	0.70	95	1.55	0.34
14	0.65	105	1.90	0.29
16	0.61	120	2.25	0.25
18	0.70	135	2.60	0.17
20	0.65	145	2.90	0.15
22	0.64	153	3.20	0.12
24	0.69	164	3.50	0.08
26	0.70	175	3.80	0.05

EFA025AL

DATA SHEET

High Gain GaAs Power FET

- **+20.0dBm TYPICAL OUTPUT POWER**
- **11.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 250 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 5mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	17.0	20.0 20.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	9.5	11.5 9.0		dB
PAE	Power Added efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		38		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		20	45	65	mA
Gm	Transconductance Vds=3V, Vgs=0V		30	50		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0mA			-1.5	-2.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			155		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	Idss
Igsf	Forward Gate Current	6mA	1mA
Pin	Input Power	19dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	880mW	730mW

EFA025AL

DATA SHEET

High Gain GaAs Power FET

S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.990	-19.8	5.439	163.7	0.014	78.3	0.787	-7.4
2.0	0.970	-38.4	5.095	150.4	0.027	68.7	0.772	-14.1
3.0	0.927	-55.0	4.719	137.3	0.037	58.7	0.751	-20.6
4.0	0.895	-69.0	4.328	126.3	0.043	52.7	0.727	-26.3
5.0	0.862	-81.3	3.961	116.0	0.049	45.8	0.709	-32.1
6.0	0.838	-91.8	3.630	107.0	0.051	41.8	0.692	-37.1
7.0	0.815	-101.4	3.327	98.8	0.054	37.2	0.681	-42.0
8.0	0.802	-110.2	3.078	90.9	0.055	33.0	0.675	-46.6
9.0	0.779	-118.3	2.822	83.7	0.056	28.4	0.663	-51.0
10.0	0.769	-125.4	2.613	77.3	0.053	25.0	0.655	-54.8
11.0	0.765	-132.3	2.436	71.1	0.052	23.8	0.651	-58.5
12.0	0.764	-139.0	2.285	64.8	0.051	22.4	0.645	-62.0
13.0	0.769	-144.9	2.150	58.9	0.051	20.1	0.636	-65.3
14.0	0.771	-150.5	2.032	53.3	0.050	19.7	0.628	-69.1
15.0	0.779	-155.4	1.945	47.5	0.051	20.2	0.619	-73.7
16.0	0.781	-159.8	1.852	41.3	0.053	20.5	0.614	-79.6
17.0	0.786	-163.1	1.783	35.8	0.056	19.3	0.593	-86.9
18.0	0.793	-166.7	1.732	29.6	0.061	17.0	0.580	-95.4
19.0	0.794	-170.0	1.674	22.7	0.063	16.1	0.577	-105.2
20.0	0.786	-173.1	1.607	15.7	0.067	14.6	0.582	-116.6
21.0	0.773	-175.2	1.505	9.1	0.070	12.7	0.590	-128.3
22.0	0.762	-177.7	1.437	3.0	0.071	13.3	0.604	-138.3
23.0	0.763	-179.9	1.368	-2.4	0.076	16.5	0.637	-146.1
24.0	0.762	176.7	1.305	-8.5	0.083	16.6	0.678	-153.2
25.0	0.759	173.1	1.235	-14.3	0.088	16.8	0.703	-158.7
26.0	0.753	170.5	1.168	-18.0	0.092	17.9	0.721	-161.8

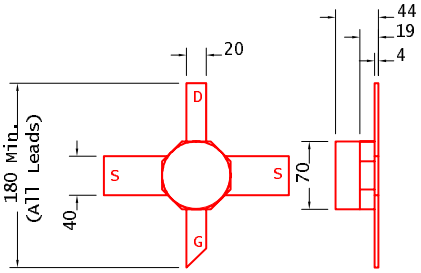
Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 4 source wires, 7 mils each.

EFA025A-70

DATA SHEET

Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+20.0dBm TYPICAL OUTPUT POWER**
- **10.0dB TYPICAL POWER GAIN AT 12GHz**
- **TYPICAL 1.5dB NOISE FIGURE AND 10dB ASSOCIATED GAIN AT 12GHz**
- **0.3 X 250 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression	f=12GHz	17	20		dBm
	Vds=6V, Ids=50% Idss	f=18GHz		20		
G_{1dB}	Gain at 1dB Compression	f=12GHz	8.5	10		dB
	Vds=6V, Ids=50% Idss	f=18GHz		7		
PAE	Power Added Efficiency at 1dB Compression					%
	Vds=6V, Ids=50% Idss	f=12GHz		35		
NF	Noise Figure Vds=3V,Ids=15mA	f=12GHz		1.5		dB
GA	Associated Gain Vds=3V,Ids=15mA	f=12GHz		10		dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V		35	65	105	mA
Gm	Transconductance Vds=3V, Vgs=0V		30	40		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0 mA			-2	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-10	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-6	-14		V
Rth	Thermal Resistance			370*		^{O}C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	52mA
Igsf	Forward Gate Current	6mA	1mA
Pin	Input Power	20dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150 ^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150 ^{o}C
Pt	Total Power Dissipation	370mW	310mW

EFA025A-70

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS
3V,15mA

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.0	1.020	-17.0	4.385	159.6	0.030	75.6	0.549	-22.5
2.0	0.956	-37.8	3.291	142.6	0.043	64.4	0.611	-28.0
3.0	0.911	-56.4	3.114	125.5	0.060	52.4	0.601	-41.2
4.0	0.867	-73.0	2.944	109.6	0.072	42.4	0.577	-52.4
5.0	0.814	-89.2	2.856	93.8	0.084	32.3	0.535	-63.9
6.0	0.748	-105.5	2.697	78.2	0.089	22.3	0.514	-78.5
7.0	0.689	-124.2	2.523	64.0	0.092	14.6	0.511	-85.8
8.0	0.656	-144.7	2.424	49.6	0.096	6.5	0.489	-92.9
9.0	0.636	-151.0	2.334	36.0	0.098	-2.9	0.384	-111.2
10.0	0.584	-166.5	2.283	21.7	0.096	-4.4	0.390	-131.4
11.0	0.545	164.8	2.150	7.2	0.095	-10.8	0.432	-132.6
12.0	0.552	142.3	2.040	-5.8	0.095	-15.2	0.409	-133.6
13.0	0.589	134.6	1.982	-20.5	0.102	-21.4	0.351	-168.6
14.0	0.563	120.6	1.877	-36.0	0.100	-31.0	0.371	162.5
15.0	0.571	96.0	1.672	-50.1	0.096	-35.6	0.387	166.7
16.0	0.607	73.2	1.625	-63.4	0.098	-41.9	0.374	168.3
17.0	0.625	77.3	1.617	-78.1	0.108	-49.6	0.392	116.3
18.0	0.618	58.5	1.411	-92.5	0.105	-58.9	0.476	108.4
19.0	0.643	42.1	1.361	-102.2	0.109	-68.8	0.428	110.5
20.0	0.691	26.8	1.329	-116.0	0.103	-80.6	0.411	101.9
21.0	0.653	22.4	1.294	-135.8	0.105	-95.7	0.539	62.8
22.0	0.634	13.4	1.160	-146.5	0.103	-105.5	0.620	64.2
23.0	0.655	-8.1	1.172	-161.2	0.110	-120.8	0.479	61.0
24.0	0.646	-25.3	1.170	178.6	0.119	-141.1	0.478	34.5
25.0	0.563	-39.9	1.074	160.7	0.118	-159.4	0.624	17.3
26.0	0.596	-47.4	1.048	149.8	0.132	-169.1	0.562	15.8

S-PARAMETERS
6V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.985	-18.8	3.482	161.4	0.013	76.6	0.803	-11.3
2.0	0.953	-38	3.329	142.7	0.025	65.9	0.786	-24.1
3.0	0.913	-56	3.108	125.5	0.031	54.2	0.768	-36
4.0	0.872	-73.2	2.97	109.5	0.037	46.2	0.755	-45.6
5.0	0.825	-89.3	2.867	94.3	0.04	38.8	0.731	-54.5
6.0	0.779	-102.7	2.713	79.7	0.04	34.4	0.703	-66.2
7.0	0.734	-117.1	2.559	65.3	0.039	30.9	0.685	-76.8
8.0	0.688	-130.5	2.448	52.1	0.033	33.5	0.66	-85.6
9.0	0.642	-152.3	2.42	37.6	0.037	44.6	0.661	-91.4
10.0	0.614	-173.2	2.355	21.8	0.044	48.1	0.654	-102.2
11.0	0.591	177.4	2.312	8.6	0.054	50.4	0.642	-117.7
12.0	0.572	163.7	2.282	-5.4	0.071	50.2	0.641	-131.9
13.0	0.598	138.2	2.188	-22	0.086	40.5	0.638	-144.4
14.0	0.631	115.4	2.036	-38.8	0.097	29.4	0.642	-158.9
15.0	0.631	102.2	1.97	-54.9	0.112	18.3	0.667	179.8
16.0	0.634	87.3	1.909	-72.4	0.126	5.6	0.685	158.4
17.0	0.658	70.3	1.685	-87.7	0.128	-2.1	0.665	145.1
18.0	0.694	59	1.58	-99.5	0.15	-17.2	0.731	132.5
19.0	0.672	42	1.467	-116.1	0.137	-30.5	0.761	113.1
20.0	0.707	25.5	1.399	-132.9	0.143	-43.3	0.836	96.6
21.0	0.761	14.9	1.29	-148.4	0.143	-56.3	0.826	84.7
22.0	0.736	3.9	1.184	-161.3	0.138	-68.7	0.83	76
23.0	0.703	-15.3	1.103	-178.5	0.134	-84.6	0.824	58.8
24.0	0.723	-33.5	1.043	162.6	0.134	-101.6	0.841	41.2
25.0	0.705	-44.7	1.017	146.3	0.14	-117.8	0.843	28.4
26.0	0.676	-59.8	1.017	131.8	0.156	-131	0.831	16.6

EFA025A-70
Noise Parameters
Vds=3V, Ids=15mA

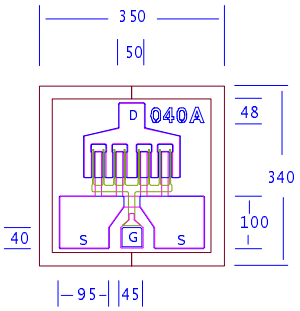
Freq.	Popt		Nfmin	
(GHz)	(MAG)	(ANG)	(dB)	Rn/50
2	0.83	28	0.53	0.58
4	0.75	59	0.65	0.48
6	0.65	85	0.85	0.33
8	0.58	128	1.05	0.21
10	0.45	147	1.35	0.11
12	0.40	-170	1.55	0.10
14	0.41	-111	1.90	0.27
16	0.47	-69	2.25	0.58
18	0.53	-44	2.60	1.00
20	0.62	-14	2.90	1.38
22	0.57	1	3.20	1.68
24	0.59	39	3.50	1.77
26	0.57	66	3.80	1.10

EFA040A

DATA SHEET

Low Distortion GaAs Power FET

- **+23.0dBm TYPICAL OUTPUT POWER**
- **10.5 dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 10mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	21.0	23.0 23.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	9.0	10.5 8.0		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss	 f=12GHz		 35		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		60	105	160	mA
Gm	Transconductance Vds=3V, Vgs=0V		45	60		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0 mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			105		^{o}C/W

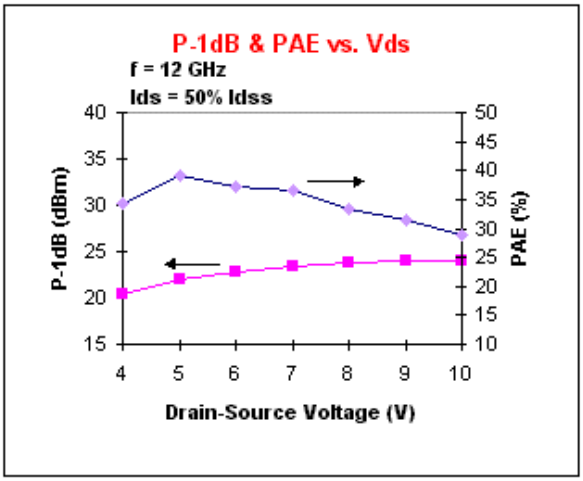
MAXIMUM RATINGS AT 25^{O}C

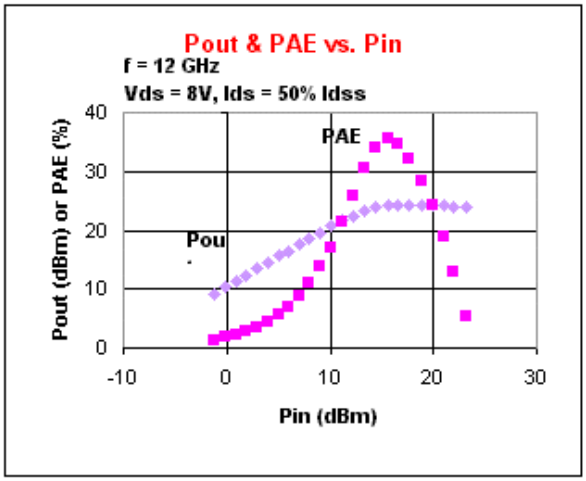
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	135mA
Igsf	Forward Gate Current	10mA	2mA
Pin	Input Power	22dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	1.3W	1.1W

EFA040A

DATA SHEET

Low Distortion GaAs Power FET





S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.989	-21.4	4.677	163.5	0.019	78.1	0.665	-7.4
2.0	0.970	-41.5	4.457	149.3	0.036	67.0	0.646	-15.3
3.0	0.942	-60.3	4.164	135.7	0.049	56.3	0.615	-22.4
4.0	0.915	-77.6	3.845	123.2	0.060	47.3	0.584	-29.1
5.0	0.888	-94.0	3.529	111.1	0.068	38.6	0.550	-36.2
6.0	0.870	-107.0	3.204	100.9	0.072	32.1	0.526	-42.3
7.0	0.856	-118.1	2.914	91.6	0.075	27.0	0.508	-48.4
8.0	0.846	-127.2	2.663	83.2	0.077	21.2	0.496	-54.3
9.0	0.840	-135.1	2.442	75.5	0.078	16.6	0.487	-60.1
10.0	0.834	-142.0	2.258	68.4	0.077	13.1	0.482	-65.4
11.0	0.833	-148.6	2.115	61.5	0.078	10.0	0.478	-70.9
12.0	0.829	-154.2	1.985	54.8	0.078	6.9	0.476	-76.3
13.0	0.828	-160.2	1.880	48.1	0.078	3.7	0.471	-81.7
14.0	0.826	-166.5	1.799	41.4	0.079	1.1	0.465	-86.7
15.0	0.823	-173.0	1.721	34.6	0.079	-1.5	0.457	-92.5
16.0	0.824	180.0	1.652	27.4	0.080	-4.8	0.446	-98.7
17.0	0.823	172.7	1.583	19.9	0.082	-7.8	0.434	-106.0
18.0	0.822	165.6	1.510	12.5	0.082	-10.9	0.422	-114.2
19.0	0.824	159.0	1.436	5.0	0.082	-13.6	0.412	-123.8
20.0	0.827	153.0	1.358	-2.3	0.083	-16.4	0.409	-134.1
21.0	0.845	151.3	1.218	-8.6	0.078	-18.8	0.445	-148.8
22.0	0.853	148.1	1.144	-14.9	0.076	-20.1	0.467	-158.9
23.0	0.859	145.0	1.073	-20.7	0.076	-19.7	0.496	-166.3
24.0	0.862	143.0	1.012	-26.4	0.073	-20.1	0.533	-173.2
25.0	0.870	141.1	0.965	-31.9	0.074	-18.3	0.565	-179.5
26.0	0.866	139.5	0.915	-36.9	0.074	-17.5	0.595	176.0

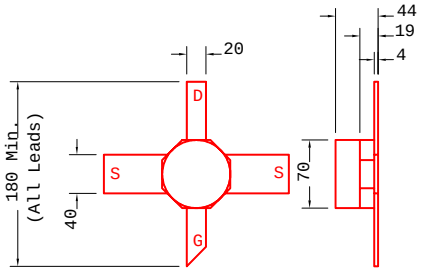
Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wires, 15 mils each; 1 drain wires, 20 mils each; 4 source wires, 7 mils each.

EFA040A-70

DATA SHEET

Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+22.0dBm TYPICAL OUTPUT POWER**
- **8.0dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 400 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	20.0	22.0 22.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	6.5	8.0 5.0		dB
PAE	Gain at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz		33		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		60	105	160	mA
Gm	Transconductance Vds=3V, Vgs=0V		45	60		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.0 mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-10	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-6	-14		V
Rth	Thermal Resistance			250*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	75mA
Igsf	Forward Gate Current	10mA	1.5mA
Pin	Input Power	21dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150 °C
Tstg	Storage Temperature	-65/175°C	-65/150 °C
Pt	Total Power Dissipation	550mW	445mW

EFA040A-70

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

6V, 1/2 Idss

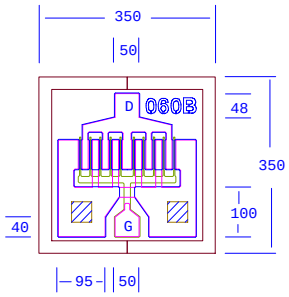
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.971	-30.2	4.747	154.4	0.021	72.3	0.714	-14.0
2.0	0.908	-59.1	4.348	130.0	0.037	55.5	0.681	-29.1
3.0	0.842	-84.8	3.860	108.4	0.047	42.9	0.651	-42.1
4.0	0.782	-109.8	3.516	88.8	0.052	33.0	0.626	-52.4
5.0	0.726	-133.4	3.212	70.4	0.055	24.9	0.592	-62.1
6.0	0.686	-152.0	2.939	53.7	0.055	20.6	0.558	-74.9
7.0	0.652	-172.6	2.687	37.1	0.055	16.8	0.543	-86.4
8.0	0.626	167.7	2.492	21.4	0.054	16.2	0.517	-96.6
9.0	0.631	140.1	2.292	4.2	0.057	17.8	0.511	-104.6
10.0	0.652	117.8	2.096	-12.5	0.063	14.5	0.497	-118.4
11.0	0.659	103.2	2.002	-28.6	0.073	9.8	0.485	-137.9
12.0	0.681	86.0	1.899	-45.5	0.083	2.8	0.480	-157.0
13.0	0.739	69.3	1.706	-61.4	0.088	-6.5	0.463	-173.7
14.0	0.776	55.3	1.513	-76.5	0.091	-16.1	0.465	168.8
15.0	0.787	41.1	1.400	-94.1	0.095	-29.4	0.498	144.8
16.0	0.798	25.7	1.269	-113.2	0.094	-44.6	0.518	120.3
17.0	0.789	15.5	1.103	-126.3	0.092	-50.4	0.516	105.9
18.0	0.803	7.3	1.043	-138.6	0.101	-67.9	0.574	93.1
19.0	0.821	-7.7	0.928	-155.5	0.085	-83.5	0.604	75.9
20.0	0.846	-19.7	0.854	-171.7	0.080	-98.6	0.657	59.9
21.0	0.829	-28.2	0.801	173.6	0.076	-113.9	0.654	47.1
22.0	0.795	-39.9	0.760	160.1	0.076	-129.4	0.650	38.6
23.0	0.808	-56.6	0.695	142.7	0.075	-147.4	0.629	20.9
24.0	0.819	-69.7	0.633	124.1	0.078	-168.0	0.617	0.1
25.0	0.756	-84.3	0.617	107.6	0.089	176.3	0.618	-14.7
26.0	0.754	-103.8	0.634	90.8	0.117	161.8	0.599	-30.8

EFA060B/EFA060BV

DATA SHEET

Low Distortion GaAs Power FET

- **+25.0dBm TYPICAL OUTPUT POWER**
- **10.5dB TYPICAL POWER GAIN FOR EFA060B AND 12.0dB FOR EFA060BV AT 12GHz**
- **0.3 X 600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **EFA060BV WITH VIA HOLE SOURCE GROUNDING**
- **Idss SORTED IN 10mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EFA060B			EFA060BV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	23.0	25.0 25.0		23.0	25.0 25.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	9.0	10.5 8.0		10.5	12.0 10.0		dB
PAE	Gain at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		35			36		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	100	170	240	100	170	240	mA
Gm	Transconductance Vds=3V, Vgs=0V	70	90		70	90		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.5mA		-2.0	-3.5		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-12	-15		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-7	-14		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		75			55		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

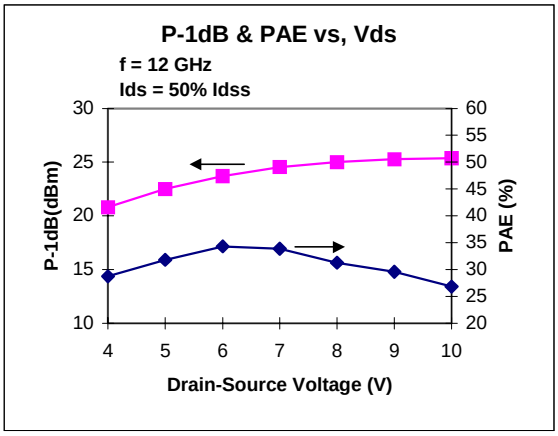
SYMBOLS	PARAMETERS	EFA060B		EFA060BV	
		ABSOLUTE[1]	CONTINUOUS[2]	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V	-8V	-4V
Ids	Drain Current	Idss	190mA	Idss	Idss
Igsf	Forward Gate Current	15mA	2.5mA	15mA	2.5mA
Pin	Input Power	23dBm	@ 3dB Compression	23dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	1.8W	1.5W	2.5W	2.1W

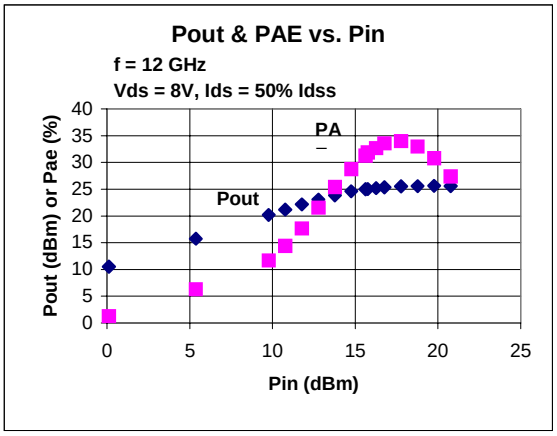
EFA060B/EFA060BV

DATA SHEET

Low Distortion GaAs Power FET

EFA060B





EFA060B
S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.981	-31.1	6.867	158.9	0.020	73.0	0.540	-11.0
2.0	0.955	-58.2	6.229	140.5	0.037	60.1	0.500	-22.2
3.0	0.920	-80.1	5.422	125.4	0.048	48.3	0.457	-30.0
4.0	0.889	-97.0	4.722	112.7	0.054	39.5	0.421	-36.6
5.0	0.869	-110.8	4.163	101.8	0.058	33.4	0.396	-42.8
6.0	0.855	-121.8	3.692	92.3	0.060	28.1	0.373	-49.0
7.0	0.843	-130.5	3.322	83.9	0.061	24.4	0.361	-54.9
8.0	0.837	-139.1	3.033	75.6	0.062	19.3	0.352	-61.5
9.0	0.825	-146.9	2.769	67.7	0.062	15.3	0.344	-68.7
10.0	0.818	-153.2	2.566	60.9	0.061	12.0	0.338	-76.0
11.0	0.815	-160.1	2.419	53.4	0.062	9.2	0.336	-84.8
12.0	0.813	-168.3	2.278	45.5	0.062	5.6	0.335	-94.3
13.0	0.819	-175.0	2.135	37.8	0.062	2.3	0.332	-104.7
14.0	0.817	178.5	2.018	30.1	0.063	0.2	0.335	-115.4
15.0	0.816	171.4	1.887	22.1	0.063	-3.2	0.340	-127.6
16.0	0.824	164.7	1.755	13.9	0.063	-6.5	0.353	-139.9
17.0	0.835	160.1	1.619	6.6	0.064	-8.5	0.369	-152.7
18.0	0.847	156.0	1.505	-0.6	0.064	-10.1	0.391	-164.3
19.0	0.854	151.9	1.385	-8.1	0.064	-10.7	0.421	-175.1
20.0	0.856	150.2	1.256	-15.0	0.064	-12.0	0.455	175.1
21.0	0.852	148.9	1.137	-20.4	0.064	-11.5	0.487	166.1
22.0	0.863	149.8	1.040	-25.3	0.064	-10.4	0.522	158.2
23.0	0.871	150.5	0.976	-29.6	0.064	-7.2	0.551	151.6
24.0	0.879	149.1	0.913	-35.4	0.066	-4.5	0.579	145.6
25.0	0.878	147.4	0.862	-40.4	0.069	-1.7	0.604	141.7
26.0	0.876	147.5	0.803	-44.2	0.070	0.7	0.619	136.2

EFA060BV
S-PARAMETERS
8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.969	-31.6	7.567	157.9	0.021	71.4	0.580	-14.0
2.0	0.939	-60.4	6.840	139.5	0.038	57.0	0.548	-27.1
3.0	0.900	-85.0	5.997	123.4	0.051	44.0	0.506	-37.2
4.0	0.879	-105.5	5.203	109.8	0.058	33.6	0.470	-45.4
5.0	0.866	-122.6	4.517	98.0	0.062	24.7	0.440	-52.1
6.0	0.859	-135.6	3.933	88.2	0.063	18.4	0.423	-57.8
7.0	0.860	-145.8	3.475	79.9	0.064	12.8	0.412	-62.8
8.0	0.860	-154.1	3.108	72.1	0.065	8.5	0.406	-68.0
9.0	0.861	-160.9	2.812	65.1	0.065	4.3	0.403	-73.3
10.0	0.861	-166.7	2.575	58.7	0.065	0.1	0.406	-78.6
11.0	0.859	-172.2	2.380	52.1	0.065	-3.1	0.408	-84.9
12.0	0.858	-177.9	2.225	45.4	0.065	-6.5	0.414	-91.0
13.0	0.853	176.4	2.083	38.7	0.066	-10.1	0.417	-97.5
14.0	0.846	169.8	1.963	31.6	0.066	-13.8	0.426	-104.1
15.0	0.845	163.0	1.847	24.3	0.067	-18.1	0.435	-110.6
16.0	0.843	156.0	1.724	17.0	0.067	-21.2	0.447	-117.0
17.0	0.844	148.9	1.610	9.6	0.068	-26.2	0.458	-123.4
18.0	0.849	141.9	1.497	2.5	0.066	-29.8	0.470	-129.3
19.0	0.856	135.8	1.384	-4.4	0.065	-33.0	0.483	-135.2
20.0	0.865	131.1	1.278	-10.7	0.065	-35.6	0.498	-140.7
21.0	0.882	130.5	1.175	-15.9	0.063	-38.7	0.518	-149.1
22.0	0.888	128.4	1.091	-21.1	0.062	-39.2	0.542	-155.0
23.0	0.898	127.4	1.016	-25.8	0.060	-40.2	0.565	-160.1
24.0	0.902	126.6	0.953	-30.5	0.059	-39.8	0.589	-165.2
25.0	0.905	126.3	0.911	-34.6	0.058	-40.5	0.613	-169.8
26.0	0.899	124.8	0.860	-39.1	0.058	-40.6	0.640	-172.6

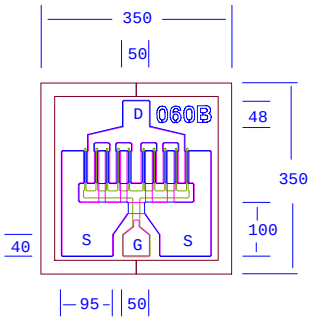
Note: The data included 0.7 mils diameter Au bonding wires; 1 gate wires, 15 mils each; 1 drain wires, 20 mils each; 4 source wires, 7 mils each; no source wires for EFA060BV.

EFC060B

PRELIMINARY DATA SHEET

Low Distortion GaAs Power FET

- **+25.0dBm TYPICAL OUTPUT POWER**
- **10.5dB TYPICAL POWER GAIN AT 12GHz**
- **HIGH BVgd FOR 10V BIAS**
- **0.3 X 600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 10mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=10V, Ids=50% Idss	f=12GHz f=18GHz	23.0	25.0 25.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=10V, Ids=50% Idss	f=12GHz f=18GHz	9.0	10.5 8.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=10V, Idss=50% Idss	f=12GHz		35		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		80	130	180	mA
Gm	Transconductance Vds=3V, Vgs=0V		50	70		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.5mA			-2.5	-4.0	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-15	-20		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-10	-17		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			75		^{o}C/W

MAXIMUM RATINGS AT 25^{O}C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	14V	10V
Vgs	Gate-Source Voltage	-8V	-4.5V
Ids	Drain Current	Idss	150mA
Igsf	Forward Gate Current	15mA	2.5mA
Pin	Input Power	23dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	1.8W	1.5W

EFC060B

PRELIMINARY DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS
10V, 1/2 Idss

Freq	S11	S11	S21	S21	S12	S12	S22	S22
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.000	1.000	-22.2	4.497	162.6	0.022	75.2	0.568	-9.8
2.000	0.976	-43.5	4.274	147.4	0.042	65.1	0.553	-19.6
3.000	0.948	-64.1	3.993	132.7	0.059	53.7	0.524	-28.6
4.000	0.924	-82.9	3.676	119.0	0.072	43.1	0.492	-36.9
5.000	0.896	-100.8	3.334	105.8	0.080	34.2	0.446	-45.2
6.000	0.879	-115.2	3.005	94.5	0.086	26.7	0.418	-52.3
7.000	0.869	-127.1	2.720	84.8	0.089	20.4	0.398	-59.4
8.000	0.856	-136.5	2.487	75.7	0.091	15.0	0.380	-67.9
9.000	0.843	-145.4	2.291	67.0	0.092	9.0	0.374	-78.0
10.000	0.835	-154.1	2.119	58.4	0.092	4.2	0.384	-86.9
11.000	0.826	-162.9	1.955	50.4	0.092	0.3	0.395	-93.9
12.000	0.829	-170.1	1.826	42.7	0.091	-3.8	0.409	-100.1
13.000	0.825	-176.9	1.706	35.1	0.091	-7.5	0.415	-106.5
14.000	0.826	176.5	1.614	27.7	0.091	-10.6	0.426	-113.9
15.000	0.826	169.4	1.508	20.1	0.089	-15.0	0.435	-119.9
16.000	0.834	162.5	1.412	12.6	0.088	-17.6	0.439	-124.7
17.000	0.839	157.6	1.331	5.7	0.088	-20.3	0.432	-131.7
18.000	0.846	153.9	1.274	-1.0	0.089	-22.6	0.422	-141.5
19.000	0.844	150.1	1.218	-8.7	0.089	-25.8	0.422	-154.1
20.000	0.845	144.5	1.151	-16.6	0.089	-29.1	0.444	-166.5
21.000	0.851	134.1	1.055	-24.7	0.086	-31.9	0.476	-168.6
22.000	0.856	129.4	0.975	-31.0	0.084	-32.8	0.502	-177.0
23.000	0.866	126.8	0.907	-37.7	0.081	-34.5	0.543	175.0
24.000	0.869	124.1	0.841	-43.7	0.078	-34.4	0.574	168.2
25.000	0.874	121.9	0.775	-49.4	0.077	-34.9	0.618	162.2
26.000	0.876	118.6	0.711	-55.1	0.074	-32.9	0.660	158.1

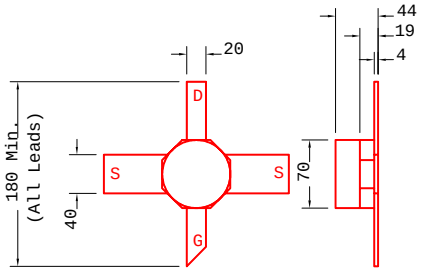
Note: The data included 0.7 mils diameter Au bonding wires:
1 gate wires, 15 mils each; 1 drain wires, 20 mils each; 4 source wires, 7 mils each.

EFA060B-70

DATA SHEET

Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+24.0dBm TYPICAL OUTPUT POWER**
- **7.5 dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	22.0	24.0 24.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz f=18GHz	6.0	7.5 5.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=6V, Ids=50% Idss	f=12GHz		 33		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		100	170	240	mA
Gm	Transconductance Vds=3V, Vgs=0V		70	90		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.5mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-10	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-6	-14		V
Rth	Thermal Resistance			175*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	10V	6V
Vgs	Gate-Source Voltage	-6V	-4V
Ids	Drain Current	Idss	110mA
Igsf	Forward Gate Current	15mA	2.5mA
Pin	Input Power	22dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150 °C
Tstg	Storage Temperature	-65/175°C	-65/150 °C
Pt	Total Power Dissipation	780mW	650mW

EFA060B-70

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

6V, 1/2 Idss

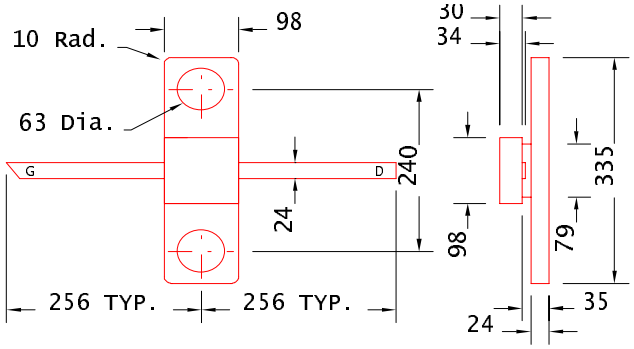
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.959	-36.8	5.607	150.2	0.021	69.7	0.673	-15.7
2.0	0.881	-70.5	4.945	123.1	0.036	52.6	0.632	-31.5
3.0	0.810	-99.4	4.231	100.1	0.044	41.1	0.600	-44.6
4.0	0.753	-126.7	3.718	79.4	0.046	32.4	0.577	-54.8
5.0	0.712	-151.3	3.295	60.6	0.048	28.1	0.546	-64.9
6.0	0.687	-169.6	2.954	43.8	0.050	27.6	0.516	-78.2
7.0	0.669	170.6	2.667	27.3	0.052	27.4	0.508	-90.3
8.0	0.660	152.5	2.440	11.7	0.055	30.2	0.490	-101.7
9.0	0.676	127.8	2.207	-5.2	0.064	29.7	0.490	-111.1
10.0	0.701	108.4	2.002	-21.9	0.074	23.8	0.482	-126.3
11.0	0.712	95.0	1.914	-38.1	0.087	16.1	0.478	-147.5
12.0	0.734	79.3	1.812	-55.4	0.100	6.7	0.485	-168.1
13.0	0.786	64.1	1.623	-71.5	0.107	-4.6	0.477	173.7
14.0	0.814	50.9	1.436	-86.6	0.108	-14.9	0.486	155.8
15.0	0.822	36.8	1.325	-104.7	0.113	-29.1	0.532	132.1
16.0	0.827	21.3	1.192	-124.5	0.113	-45.2	0.560	107.3
17.0	0.815	10.9	1.036	-138.3	0.111	-52.3	0.563	92.5
18.0	0.824	2.0	0.978	-151.3	0.119	-69.9	0.622	79.4
19.0	0.842	-12.9	0.870	-168.6	0.103	-84.5	0.654	62.6
20.0	0.865	-25.0	0.793	174.4	0.098	-99.1	0.709	45.8
21.0	0.837	-34.9	0.737	158.8	0.095	-113.3	0.716	32.5
22.0	0.803	-48.2	0.703	144.6	0.099	-127.5	0.707	22.7
23.0	0.828	-65.6	0.636	126.3	0.099	-145.0	0.692	3.5
24.0	0.832	-79.0	0.563	107.3	0.104	-163.0	0.696	-18.6
25.0	0.762	-97.6	0.529	90.4	0.119	-179.7	0.727	-31.7
26.0	0.779	-120.5	0.523	72.5	0.149	163.3	0.710	-48.8

EFA060B-100F

DATA SHEET

Low Distortion GaAs Power FET

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+25.0dBm TYPICAL OUTPUT POWER**
- **8.0dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 600 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	23.0	25.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	6.5	8.0		dB
PAE	Power Added Efficiency at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss		33		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	100	170	240	mA
Gm	Transconductance Vds=3V, Vgs=0V	70	90		mS
Vp	Pinch-off Voltage Vds=3V, Ids=1.5mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-7	-14		V
Rth	Thermal Resistance		78*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	190mA
Igsf	Forward Gate Current	15mA	2.5mA
Pin	Input Power	23dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	1.8 W	1.5 W

EFA060B-100F

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

8V, 1/2 Idss

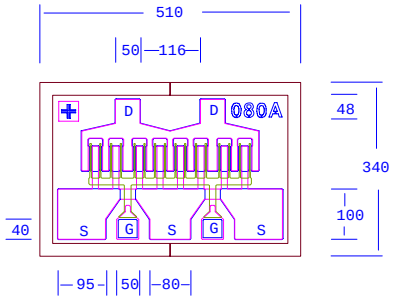
Freq	--S11--		--S21--		--S12--		--S22--	
GHz	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
1.0	0.966	-38.4	6.259	147.0	0.018	65.5	0.599	-25.0
2.0	0.912	-70.3	5.205	120.6	0.031	46.2	0.599	-42.0
3.0	0.865	-93.4	4.360	100.3	0.036	31.3	0.598	-53.5
4.0	0.827	-112.8	3.903	82.2	0.039	21.6	0.596	-62.5
5.0	0.794	-134.9	3.581	63.6	0.046	12.1	0.577	-70.8
6.0	0.779	-152.5	3.266	46.5	0.051	2.4	0.510	-81.0
7.0	0.749	-176.2	3.032	27.9	0.057	-8.3	0.481	-92.5
8.0	0.720	162.1	2.825	9.0	0.059	-20.0	0.472	-105.6
9.0	0.716	149.3	2.662	-8.3	0.060	-25.5	0.462	-121.5
10.0	0.700	140.4	2.451	-25.2	0.064	-30.0	0.462	-140.5
11.0	0.676	125.9	2.284	-40.3	0.074	-39.9	0.478	-151.9
12.0	0.654	105.8	2.169	-58.6	0.082	-52.8	0.485	-159.1
13.0	0.650	91.8	2.087	-76.6	0.092	-65.3	0.450	-172.9
14.0	0.628	82.4	2.069	-94.6	0.109	-76.0	0.420	167.6
15.0	0.585	60.5	2.007	-115.6	0.134	-90.7	0.404	150.1
16.0	0.584	34.3	1.844	-136.5	0.154	-107.1	0.341	140.2
17.0	0.605	24.6	1.717	-156.3	0.188	-121.2	0.309	122.6
18.0	0.573	19.1	1.754	-176.3	0.257	-137.0	0.317	92.6
19.0	0.521	-7.8	1.761	157.1	0.352	-159.4	0.291	72.1
20.0	0.627	-44.0	1.630	132.8	0.451	175.2	0.145	49.3

EFA080A

DATA SHEET

Low Distortion GaAs Power FET

- **+26.0dBm TYPICAL OUTPUT POWER**
- **10.0dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 15mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	24.0	26.0 26.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss f=18GHz	8.0	10.0 7.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		35		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	130	210	300	mA
Gm	Transconductance Vds=3V, Vgs=0V	90	120		mS
Vp	Pinch-off Voltage Vds=3V, Ids=2.0mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		55		°C/W

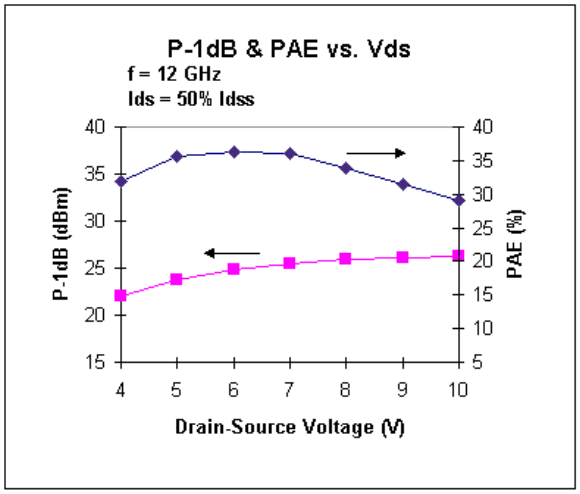
MAXIMUM RATINGS AT 25°C

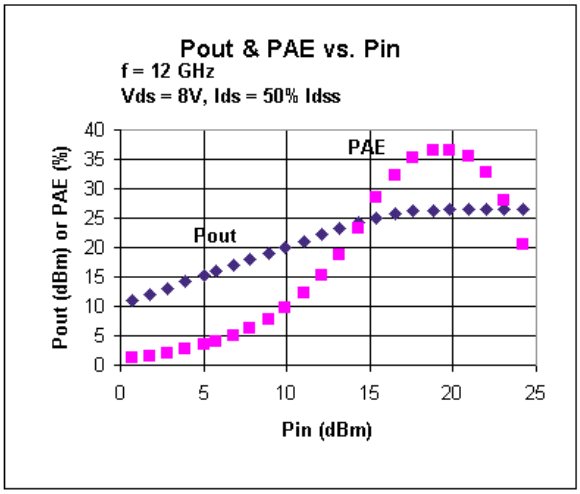
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	260mA
Igsf	Forward Gate Current	20mA	4mA
Pin	Input Power	25dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	2.5 W	2.1 W

EFA080A

DATA SHEET

Low Distortion GaAs Power FET





S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.983	-38.9	6.602	158.2	0.029	65.4	0.421	-24.5
2.0	0.949	-71.6	5.927	135.8	0.050	49.2	0.380	-45.7
3.0	0.916	-96.5	4.998	118.0	0.061	36.4	0.343	-62.4
4.0	0.894	-115.4	4.191	104.1	0.066	27.2	0.326	-75.6
5.0	0.879	-130.5	3.536	92.2	0.068	19.6	0.327	-87.3
6.0	0.873	-140.5	3.028	82.8	0.069	14.5	0.339	-95.6
7.0	0.871	-148.3	2.628	74.6	0.068	10.3	0.359	-102.4
8.0	0.869	-154.1	2.311	67.5	0.067	7.4	0.382	-107.5
9.0	0.872	-158.8	2.058	61.1	0.065	3.8	0.408	-111.9
10.0	0.872	-162.7	1.857	55.2	0.063	3.0	0.433	-115.1
11.0	0.873	-166.5	1.689	49.5	0.061	1.8	0.457	-118.4
12.0	0.876	-169.7	1.557	43.9	0.060	1.0	0.478	-121.4
13.0	0.879	-173.3	1.446	38.4	0.058	-0.9	0.495	-124.4
14.0	0.880	-177.4	1.356	32.9	0.059	-2.3	0.511	-127.6
15.0	0.882	178.3	1.276	27.2	0.057	-2.9	0.522	-131.2
16.0	0.886	173.2	1.207	20.9	0.057	-4.6	0.532	-135.3
17.0	0.889	168.2	1.141	14.6	0.057	-5.7	0.542	-140.3
18.0	0.892	162.8	1.075	8.3	0.058	-7.1	0.557	-145.3
19.0	0.897	157.9	1.010	1.7	0.057	-8.0	0.568	-151.5
20.0	0.905	153.4	0.949	-4.6	0.057	-9.8	0.585	-157.6
21.0	0.923	152.7	0.829	-9.6	0.053	-9.0	0.627	-165.3
22.0	0.928	150.2	0.769	-14.6	0.053	-9.5	0.650	-170.5
23.0	0.936	147.8	0.713	-19.7	0.052	-7.8	0.680	-174.4
24.0	0.939	146.5	0.664	-23.8	0.052	-5.4	0.706	-177.2
25.0	0.945	145.2	0.624	-27.3	0.053	-3.9	0.728	-179.7
26.0	0.944	144.7	0.592	-30.4	0.053	0.4	0.753	179.1

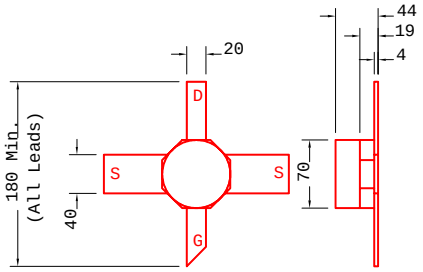
Note: The data included 0.7 mils diameter Au bonding wires:
2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 6 source wires, 7 mils each.

EFA080A-70

DATA SHEET

Low Distortion GaAs Power FET

- **NON-HERMETIC LOW COST CERAMIC 70mil PACKAGE**
- **+23.5dBm TYPICAL OUTPUT POWER**
- **7.0 dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=5V, Ids=50% Idss	f=12GHz f=18GHz	21.5	23.5 23.5		dBm
G_{1dB}	Gain at 1dB Compression Vds=5V, Ids=50% Idss	f=12GHz f=18GHz	6.0	7.0 4.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=5V, Ids=50% Idss	f=12GHz		30		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		130	210	300	mA
Gm	Transconductance Vds=3V, Vgs=0V		90	120		mS
Vp	Pinch-off Voltage Vds=3V, Ids=2.0mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA		-10	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA		-6	-14		V
Rth	Thermal Resistance			135*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	8V	5V
Vgs	Gate-Source Voltage	-5V	-4V
Ids	Drain Current	Idss	185mA
Igsf	Forward Gate Current	20mA	4mA
Pin	Input Power	22dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150 °C
Tstg	Storage Temperature	-65/175°C	-65/150 °C
Pt	Total Power Dissipation	1.1W	0.9W

EFA080A-70

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS

8V, 1/2 Idss

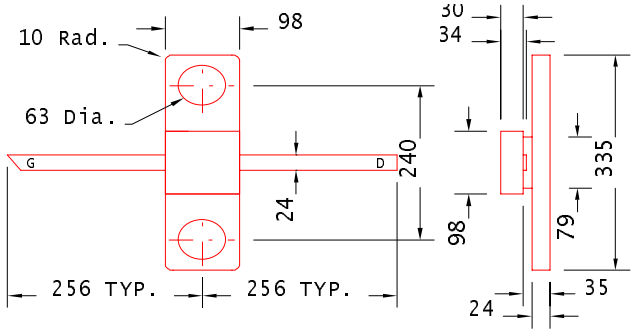
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.909	-42.3	6.038	146.2	0.032	59.9	0.452	-26.1
2.0	0.826	-77.0	5.067	118.9	0.049	45.3	0.405	-47.4
3.0	0.766	-104.2	4.189	96.7	0.059	33.8	0.383	-64.2
4.0	0.724	-128.4	3.590	77.3	0.064	26.9	0.366	-77.3
5.0	0.691	-148.9	3.129	59.7	0.068	21.6	0.338	-90.8
6.0	0.672	-163.0	2.766	44.3	0.072	18.6	0.317	-108.5
7.0	0.653	-178.5	2.487	29.4	0.075	15.9	0.322	-122.3
8.0	0.639	167.4	2.266	14.8	0.079	14.7	0.306	-136.5
9.0	0.645	144.9	2.073	-1.1	0.087	11.4	0.308	-148.4
10.0	0.658	126.6	1.885	-16.7	0.096	5.8	0.317	-166.1
11.0	0.655	116.0	1.793	-31.1	0.109	-0.3	0.337	171.2
12.0	0.667	101.8	1.690	-46.7	0.124	-7.8	0.366	150.2
13.0	0.719	84.9	1.512	-62.2	0.133	-17.2	0.387	131.4
14.0	0.752	70.5	1.334	-76.1	0.138	-25.8	0.419	116.3
15.0	0.754	57.6	1.230	-91.4	0.148	-37.2	0.480	98.5
16.0	0.763	43.0	1.113	-108.5	0.152	-49.6	0.527	78.5
17.0	0.760	32.5	0.951	-120.4	0.153	-55.6	0.535	66.4
18.0	0.779	25.1	0.886	-129.9	0.169	-66.8	0.584	58.5
19.0	0.788	10.8	0.815	-144.0	0.166	-77.8	0.627	45.7
20.0	0.818	-1.5	0.742	-158.2	0.169	-89.6	0.679	32.6
21.0	0.833	-8.6	0.680	-169.6	0.171	-99.0	0.684	22.4
22.0	0.808	-17.7	0.639	179.7	0.181	-108.3	0.671	15.3
23.0	0.803	-34.1	0.601	164.5	0.188	-122.5	0.659	-0.8
24.0	0.820	-48.4	0.550	147.3	0.191	-139.2	0.662	-20.3
25.0	0.788	-59.1	0.524	135.1	0.202	-151.7	0.666	-31.0
26.0	0.782	-73.7	0.538	121.1	0.236	-164.9	0.639	-45.2

EFA080A-100F

DATA SHEET

Low Distortion GaAs Power FET

- **HERMETIC 100mil CERAMIC FLANGE PACKAGE**
- **+26.0dBm TYPICAL OUTPUT POWER**
- **7.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 800 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	24.0	26.0		dBm
G_{1dB}	Gain at 1dB Compression f=12GHz Vds=8V, Ids=50% Idss	6.0	7.5		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss f=12GHz		32		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V	130	210	300	mA
Gm	Transconductance Vds=3V, Vgs=0V	90	120		mS
Vp	Pinch-off Voltage Vds=3V, Ids=2.0mA		-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.0mA	-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.0mA	-7	-14		V
Rth	Thermal Resistance		58*		°C/W

*** Overall Rth depends on case mounting.**

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	250mA
Igsf	Forward Gate Current	20mA	4mA
Pin	Input Power	25dBm	@ 3dB Compression
Tch	Channel Temperature	175°C	150°C
Tstg	Storage Temperature	-65/175°C	-65/150°C
Pt	Total Power Dissipation	2.5 W	2.0W

EFA080A-100F

DATA SHEET

Low Distortion GaAs Power FET

S-PARAMETERS
8V, 1/2 Idss

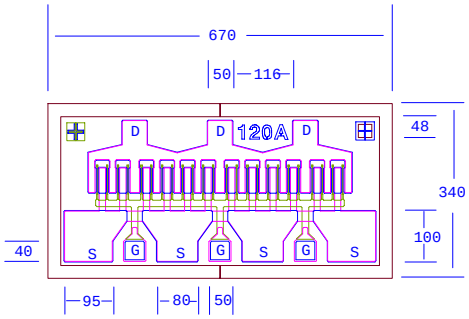
FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.959	-47.5	6.007	149.5	0.028	54.7	0.450	-32.8
2.0	0.898	-81.6	5.050	119.7	0.042	38.4	0.446	-53.9
3.0	0.854	-104.9	4.182	97.3	0.050	26.7	0.442	-68.6
4.0	0.817	-126.2	3.635	78.0	0.054	17.3	0.442	-80.0
5.0	0.785	-147.2	3.268	59.5	0.059	8.8	0.426	-89.3
6.0	0.761	-163.3	2.964	42.1	0.063	1.0	0.378	-104.4
7.0	0.738	179.2	2.690	24.1	0.065	-8.3	0.357	-124.2
8.0	0.718	163.2	2.414	6.9	0.064	-16.5	0.366	-145.0
9.0	0.731	140.3	2.132	-10.6	0.064	-24.6	0.395	-150.2
10.0	0.753	125.5	1.913	-26.3	0.067	-31.4	0.401	-158.8
11.0	0.742	121.7	1.826	-41.3	0.074	-39.8	0.403	178.4
12.0	0.707	115.5	1.752	-56.8	0.083	-47.6	0.430	162.0
13.0	0.709	96.7	1.655	-72.8	0.093	-57.3	0.425	160.0
14.0	0.708	77.6	1.567	-90.4	0.106	-69.1	0.375	151.1
15.0	0.680	65.4	1.509	-110.8	0.125	-85.0	0.394	120.4
16.0	0.658	53.2	1.419	-130.8	0.144	-99.9	0.436	102.6
17.0	0.664	42.2	1.354	-148.0	0.173	-111.8	0.430	103.8
18.0	0.654	33.6	1.316	-167.6	0.223	-127.5	0.436	97.7
19.0	0.623	26.4	1.216	171.4	0.277	-146.8	0.500	80.0
20.0	0.697	15.6	1.201	151.3	0.380	-167.1	0.566	72.0

EFA120A

DATA SHEET

Low Distortion GaAs Power FET

- **+28.0dBm TYPICAL OUTPUT POWER**
- **9.5dB TYPICAL POWER GAIN AT 12GHz**
- **0.3 X 1200 MICRON RECESSED "MUSHROOM" GATE**
- **Si_3N_4 PASSIVATION**
- **ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY**
- **Idss SORTED IN 20mA PER BIN RANGE**



ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOLS	PARAMETERS/TEST CONDITIONS		MIN	TYP	MAX	UNIT
P_{1dB}	Output Power at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	26.0	28.0 28.0		dBm
G_{1dB}	Gain at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz f=18GHz	8.0	9.5 7.0		dB
PAE	Power Added Efficiency at 1dB Compression Vds=8V, Ids=50% Idss	f=12GHz		34		%
Idss	Saturated Drain Current Vds=3V, Vgs=0V		200	340	440	mA
Gm	Transconductance Vds=3V, Vgs=0V		140	180		mS
Vp	Pinch-off Voltage Vds=3V, Ids=3.0mA			-2.0	-3.5	V
BVgd	Drain Breakdown Voltage Igd=1.2mA		-12	-15		V
BVgs	Source Breakdown Voltage Igs=1.2mA		-7	-14		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)			37		^{o}C/W

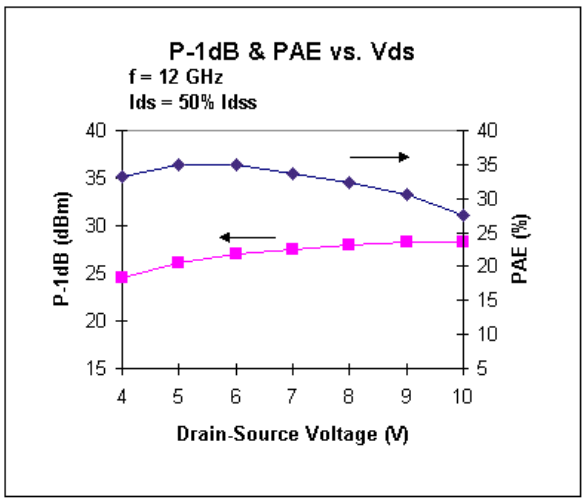
MAXIMUM RATINGS AT 25^{O}C

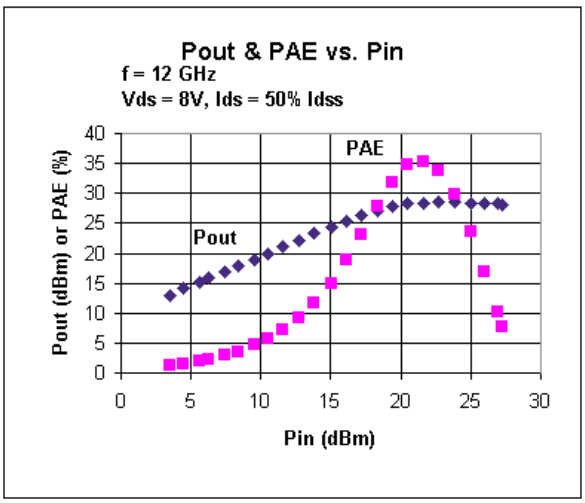
SYMBOLS	PARAMETERS	ABSOLUTE[1]	CONTINUOUS[2]
Vds	Drain-Source Voltage	12V	8V
Vgs	Gate-Source Voltage	-8V	-4V
Ids	Drain Current	Idss	385mA
Igsf	Forward Gate Current	30mA	5mA
Pin	Input Power	26dBm	@ 3dB Compression
Tch	Channel Temperature	175^{o}C	150^{o}C
Tstg	Storage Temperature	-65/175^{o}C	-65/150^{o}C
Pt	Total Power Dissipation	3.7 W	3.1 W

EFA120A

DATA SHEET

Low Distortion GaAs Power FET





S-PARAMETERS

8V, 1/2 Idss

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
(GHz)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.943	-63.6	9.082	141.1	0.034	54.8	0.243	-57.3
2.0	0.912	-102.6	6.636	117.0	0.049	36.0	0.247	-92.6
3.0	0.896	-125.1	4.987	101.3	0.055	24.4	0.259	-111.5
4.0	0.892	-139.2	3.926	89.9	0.057	17.1	0.280	-121.4
5.0	0.889	-149.7	3.190	80.2	0.056	12.6	0.309	-128.0
6.0	0.890	-155.8	2.675	72.6	0.056	9.4	0.337	-131.7
7.0	0.892	-160.3	2.294	65.8	0.055	7.0	0.369	-134.6
8.0	0.895	-163.5	2.003	59.7	0.053	5.4	0.399	-136.9
9.0	0.898	-166.1	1.773	54.1	0.051	3.7	0.430	-139.1
10.0	0.899	-168.3	1.588	48.9	0.048	3.2	0.457	-140.9
11.0	0.903	-170.5	1.442	43.6	0.047	2.4	0.484	-143.3
12.0	0.906	-172.2	1.318	38.6	0.047	2.8	0.508	-145.6
13.0	0.911	-174.5	1.215	33.6	0.045	2.3	0.530	-148.4
14.0	0.912	-177.1	1.128	28.4	0.044	1.8	0.550	-151.3
15.0	0.914	-179.8	1.055	23.0	0.044	1.7	0.570	-154.9
16.0	0.919	176.8	0.986	17.3	0.044	1.3	0.587	-158.8
17.0	0.921	173.2	0.926	11.6	0.044	0.1	0.605	-163.1
18.0	0.924	169.5	0.868	5.7	0.045	-0.2	0.625	-167.3
19.0	0.927	166.1	0.811	-0.2	0.045	-1.6	0.643	-172.3
20.0	0.931	162.8	0.757	-5.8	0.045	-1.7	0.666	-176.9
21.0	0.947	162.4	0.655	-10.0	0.041	-1.6	0.705	178.4
22.0	0.952	160.7	0.608	-14.5	0.042	-0.3	0.726	174.7
23.0	0.957	158.9	0.564	-18.9	0.043	1.2	0.749	172.0
24.0	0.959	158.2	0.527	-22.6	0.043	4.5	0.769	169.7
25.0	0.965	157.5	0.499	-25.5	0.043	7.3	0.785	167.5
26.0	0.968	157.2	0.474	-29.0	0.046	10.0	0.803	166.2

Note: The data included 0.7 mils diameter Au bonding wires:
3 gate wires, 15 mils each; 3 drain wires, 20 mils each; 8 source wires, 7 mils each.