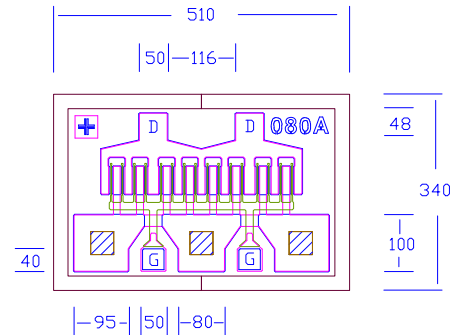


DATA SHEET
High Efficiency Heterojunction Power FET

- +27.5dBm TYPICAL OUTPUT POWER
- 9.5dB TYPICAL POWER GAIN FOR EPA080A AND 10.5dB FOR EPA080AV AT 18GHz
- 0.3 X 800 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY
- EPA080AV WITH VIA HOLE SOURCE GROUNDING
- Idss SORTED IN 20mA PER BIN RANGE



Chip Thickness: 75 ± 20 microns
All Dimensions In Microns

☐ : Via Hole

No Via Hole For EPA080A

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EPA080A			EPA080AV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P_{1dB}	Output Power at 1dB Compression f=12GHz	26	27.5		26	27.5		dBm
	V _{ds} =8V, I _{ds} =50% Idss f=18GHz		27.5			27.5		
G_{1dB}	Gain at 1dB Compression f=12GHz	10.5	12.5		11.0	13.0		dB
	V _{ds} =8V, I _{ds} =50% Idss f=18GHz		9.5			10.5		
PAE	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% Idss f=12GHz		45			46		%
I_{ds}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	130	240	320	130	240	320	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	160	260		160	260		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =2.0mA		-1.0	-2.5		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.0mA	-11	-15		-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.0mA	-7	-14		-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		55			40		°C/W

MAXIMUM RATINGS AT 25°C

SYMBOLS	PARAMETERS	EPA080A		EPA080AV	
		ABSOLUTE ¹	CONTINUOUS ²	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V	-8V	-3V
I_{ds}	Drain Current	I _{ds}	260mA	I _{ds}	I _{ds}
I_{gsf}	Forward Gate Current	40mA	7mA	40mA	7mA
P_{in}	Input Power	25dBm	@ 3dB Compression	25dBm	@ 3dB Compression
T_{ch}	Channel Temperature	175°C	150°C	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C	-65/175°C	-65/150°C
P_t	Total Power Dissipation	2.5W	2.1W	3.4W	2.8W

Note: 1. Exceeding any of the above ratings may result in permanent damage.

2. Exceeding any of the above ratings may reduce MTTF below design goals.

Excelics Semiconductor, Inc., 2908 Scott Blvd., Santa Clara, CA 95054

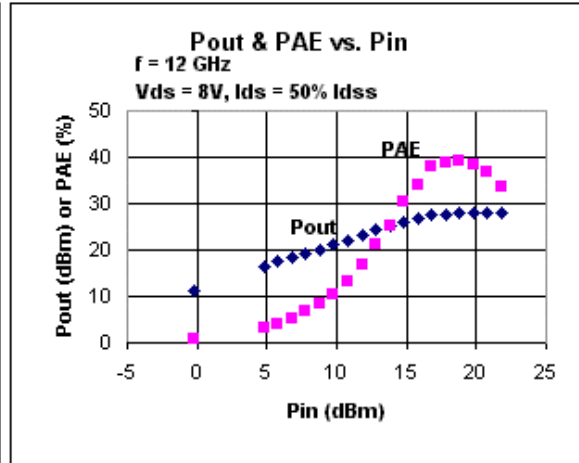
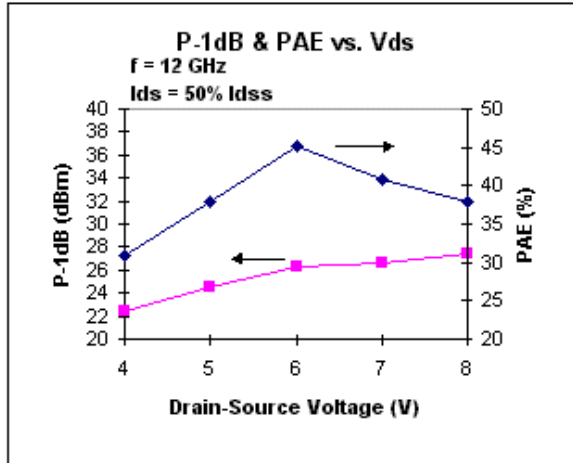
Phone: (408) 970-8664 Fax: (408) 970-8998 Web Site: www.excelics.com

EPA080A/EPA080AV

DATA SHEET

High Efficiency Heterojunction Power FET

EPA080A



S-PARAMETERS

EPA080A 8V, 1/2 Idss

FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.929	-63.0	13.172	141.6	0.035	56.2	0.478	-36.9
2.0	0.885	-102.9	9.639	117.9	0.051	36.9	0.380	-60.7
4.0	0.856	-140.4	5.741	91.7	0.058	20.1	0.290	-86.4
6.0	0.843	-160.5	3.991	74.6	0.059	12.5	0.288	-102.3
8.0	0.853	-171.0	3.045	61.6	0.059	8.2	0.304	-114.3
10.0	0.866	-177.6	2.437	50.3	0.056	5.6	0.331	-125.3
12.0	0.874	-176.9	2.011	39.2	0.055	5.0	0.375	-136.0
14.0	0.883	-171.6	1.698	29.1	0.053	3.6	0.423	-145.0
16.0	0.886	-166.1	1.457	18.7	0.053	3.4	0.466	-152.1
18.0	0.885	-160.2	1.287	8.8	0.055	2.3	0.501	-158.3
20.0	0.885	-152.0	1.166	-2.2	0.059	0.6	0.524	-165.7

FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
21.0	0.892	-151.7	1.076	-6.7	0.060	1.8	0.546	-173.4
22.0	0.893	-148.0	1.015	-11.2	0.060	1.7	0.566	-176.3
24.0	0.895	-140.9	0.909	-21.0	0.062	1.6	0.606	-176.9
26.0	0.905	-136.3	0.814	-30.3	0.068	2.1	0.644	-167.6
28.0	0.924	-133.4	0.745	-39.2	0.074	2.6	0.687	-158.0
30.0	0.928	-133.6	0.675	-46.9	0.079	0.1	0.721	-149.1
32.0	0.931	-133.2	0.616	-54.2	0.080	-0.5	0.749	-141.4
34.0	0.922	-129.9	0.547	-61.2	0.081	-1.4	0.771	-135.0
36.0	0.935	-125.9	0.494	-67.2	0.088	-6.5	0.784	-129.7
38.0	0.929	-119.1	0.465	-75.0	0.094	-14.2	0.797	-122.8
40.0	0.913	-109.5	0.439	-83.8	0.096	-29.3	0.799	-115.9

EPA080AV 8V, 1/2 Idss

FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.942	-63.5	13.243	142.1	0.027	56.6	0.437	-32.4
2.0	0.902	-104.4	9.769	118.0	0.039	36.7	0.357	-53.6
4.0	0.873	-144.6	5.824	91.0	0.046	18.6	0.283	-76.5
6.0	0.869	-167.2	4.016	73.2	0.046	9.9	0.283	-90.9
8.0	0.875	-175.8	3.068	60.2	0.044	5.5	0.288	-104.7
10.0	0.878	-178.4	2.445	48.1	0.042	1.0	0.318	-120.2
12.0	0.885	-168.6	1.970	35.5	0.038	-1.9	0.388	-129.0
14.0	0.894	-162.9	1.624	24.8	0.037	-3.9	0.447	-137.8
16.0	0.907	-157.7	1.361	14.6	0.036	-4.5	0.509	-144.0
18.0	0.908	-156.8	1.187	5.7	0.036	-5.9	0.547	-154.3
20.0	0.905	-150.5	1.056	-4.2	0.037	-7.1	0.586	-160.4

FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
21.0	0.903	-146.0	1.031	-10.4	0.041	-6.5	0.587	-163.3
22.0	0.899	-143.1	0.959	-15.5	0.040	-8.1	0.614	-168.3
24.0	0.897	-135.6	0.815	-26.1	0.040	-7.9	0.672	-176.7
26.0	0.900	-131.5	0.680	-36.3	0.040	-5.5	0.727	-172.9
28.0	0.891	-123.6	0.571	-45.3	0.039	-8.3	0.782	-167.9
30.0	0.882	-116.2	0.475	-54.8	0.038	-8.6	0.818	-164.5
32.0	0.845	-115.4	0.408	-63.3	0.033	-11.4	0.873	-156.4
34.0	0.906	-116.7	0.361	-70.2	0.033	-15.1	0.831	-149.0
36.0	0.940	-118.7	0.336	-75.7	0.035	-20.7	0.855	-142.1
38.0	0.954	-120.1	0.332	-83.5	0.043	-37.4	0.895	-134.0
40.0	0.940	-117.6	0.314	-90.8	0.050	-59.0	0.905	-129.4

Note: The data included 0.7 mils diameter Au bonding wires; 2 gate wires, 15 mils each; 2 drain wires, 20 mils each; 8 source wires, 7 mils each; no source wires for EPA080AV.