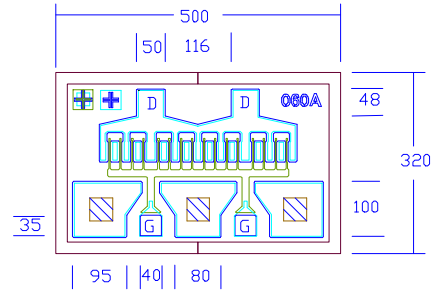



DATA SHEET
High Efficiency Heterojunction Power FET

- +26.5dBm TYPICAL OUTPUT POWER
- 10.5dB TYPICAL POWER GAIN FOR EPA060A AND 11.5dB FOR EPA060AV AT 18GHz
- 0.3 X 600 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL DOPING PROFILE PROVIDES HIGH POWER EFFICIENCY, LINEARITY AND RELIABILITY
- EPA060AV WITH VIA HOLE SOURCE GROUNDING
- Idss SORTED IN 15mA PER BIN RANGE



Chip Thickness: 75 ± 20 microns
 All Dimensions In Microns
 : Via Hole
No Via Hole For EPA060A

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOLS	PARAMETERS/TEST CONDITIONS	EPA060A			EPA060AV			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
P _{1dB}	Output Power at 1dB Compression f=12GHz	25.0	26.5		25.0	26.5		dBm
	V _{ds} =8V, I _{ds} =50% I _{dss} f=18GHz		26.5			26.5		
G _{1dB}	Gain at 1dB Compression f=12GHz	11.5	13.0		12.0	13.5		dB
	V _{ds} =8V, I _{ds} =50% I _{dss} f=18GHz		10.5			11.5		
PAE	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz		45			46		%
I _{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	105	180	255	105	180	255	mA
G _m	Transconductance V _{ds} =3V, V _{gs} =0V	120	190		120	190		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)		65			50		°C/W

MAXIMUM RATINGS AT 25 °C

SYMBOLS	PARAMETERS	EPA060A		EPA060AV	
		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 _{dss}	220mA	I _{dss}	I _{dss}
I _{gsf}	Forward Gate Current	30mA	5mA	30mA	5mA
P _{in}	Input Power	24dBm	@ 3dB Compression	24dBm	@ 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	2.1W	1.7W	2.7W	2.3W

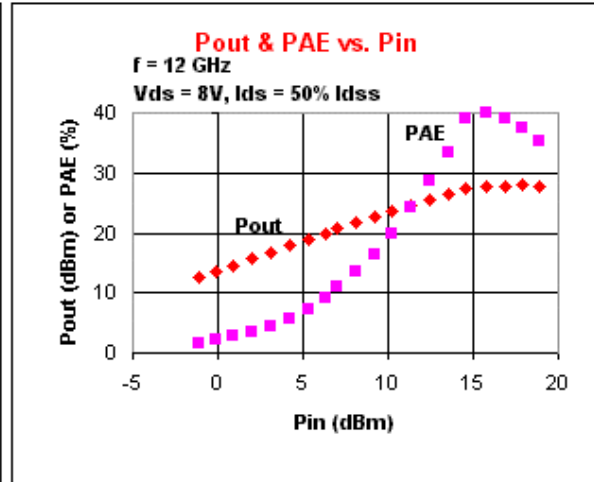
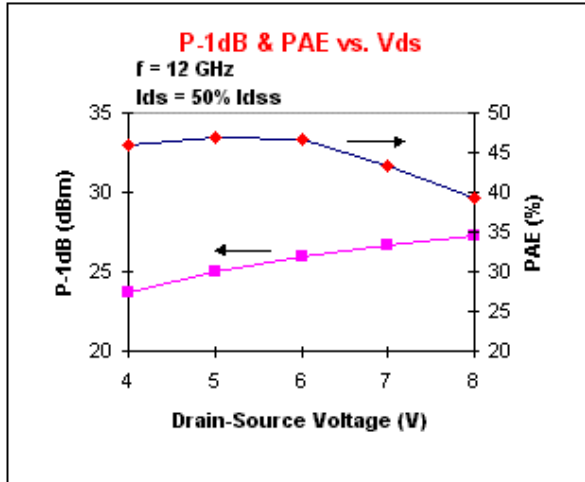
- Note: 1. Exceeding any of the above ratings may result in permanent damage.
 2. Exceeding any of the above ratings may reduce MTTF below design goals.

EPA060A/EPA060AV

DATA SHEET

High Efficiency Heterojunction Power FET

EPA060A



S-PARAMETERS

EPA060A 8V, 1/2 Idss

FREQ (GHz)	S11		S21		S12		S22		FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.944	-49.2	12.673	148.9	0.027	63.8	0.506	-26.9	21.0	0.863	154.4	1.284	3.3	0.049	-0.4	0.523	-161.7
2.0	0.898	-85.9	10.129	127.1	0.043	44.6	0.428	-47.2	22.0	0.866	152.6	1.207	-1.1	0.050	0.1	0.547	-166.3
4.0	0.850	-126.7	6.507	100.2	0.054	26.2	0.329	-71.5	24.0	0.877	149.9	1.078	-9.9	0.053	2.5	0.594	-174.5
6.0	0.845	-146.8	4.644	83.5	0.057	17.1	0.301	-87.7	26.0	0.893	148.0	0.987	-18.2	0.055	3.6	0.642	178.5
8.0	0.843	-159.5	3.585	70.2	0.057	12.3	0.315	-101.2	28.0	0.902	144.8	0.895	-26.1	0.061	5.8	0.675	172.9
10.0	0.846	-168.3	2.897	59.2	0.053	6.7	0.342	-111.8	30.0	0.898	141.4	0.817	-33.6	0.064	5.1	0.699	168.4
12.0	0.851	-175.6	2.416	48.4	0.052	4.9	0.379	-121.3	32.0	0.898	136.0	0.752	-41.1	0.064	3.0	0.720	163.8
14.0	0.855	-177.3	2.068	38.0	0.050	1.9	0.413	-129.8	34.0	0.891	129.2	0.671	-49.3	0.064	2.6	0.740	157.9
16.0	0.857	-170.3	1.801	27.5	0.049	1.0	0.447	-138.3	36.0	0.891	122.5	0.604	-58.2	0.066	-4.6	0.774	149.6
18.0	0.856	-162.7	1.576	16.9	0.050	-2.9	0.472	-146.6	38.0	0.914	116.3	0.551	-67.0	0.069	-21.6	0.789	138.7
20.0	0.854	-156.5	1.404	7.1	0.048	-2.1	0.492	-155.7	40.0	0.909	108.9	0.497	-79.1	0.073	-41.6	0.786	129.4

EPA060AV 8V, 1/2 Idss

FREQ (GHz)	S11		S21		S12		S22		FREQ (GHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.941	-45.8	10.923	150.6	0.026	63.8	0.540	-23.4	21.0	0.856	150.2	1.167	-1.7	0.049	-16.0	0.541	-149.4
2.0	0.901	-81.3	8.948	128.8	0.042	46.0	0.475	-41.6	22.0	0.855	145.9	1.073	-7.8	0.049	-17.9	0.572	-155.6
4.0	0.849	-123.6	5.868	100.3	0.054	24.2	0.380	-62.5	24.0	0.849	144.8	0.935	-16.2	0.048	-15.9	0.595	-167.5
6.0	0.824	-149.5	4.191	81.9	0.057	12.9	0.349	-74.1	26.0	0.863	137.5	0.797	-26.0	0.047	-15.0	0.632	-173.1
8.0	0.829	-161.5	3.259	68.9	0.057	8.1	0.325	-83.0	28.0	0.873	129.4	0.693	-35.1	0.044	-18.8	0.655	-179.7
10.0	0.826	-170.9	2.641	57.2	0.054	1.9	0.319	-95.2	30.0	0.871	126.6	0.619	-45.1	0.044	-21.3	0.689	166.1
12.0	0.830	-175.8	2.170	44.3	0.051	-3.1	0.360	-106.1	32.0	0.870	123.9	0.537	-53.5	0.040	-24.9	0.720	156.9
14.0	0.842	-167.4	1.807	33.4	0.050	-8.2	0.397	-116.9	34.0	0.865	121.5	0.473	-61.7	0.038	-26.5	0.754	151.5
16.0	0.862	-159.7	1.551	22.1	0.048	-10.6	0.459	-127.9	36.0	0.867	119.2	0.423	-68.1	0.039	-27.1	0.808	150.1
18.0	0.875	-158.2	1.370	12.9	0.048	-13.5	0.498	-141.6	38.0	0.907	116.3	0.394	-73.1	0.045	-44.2	0.837	149.8
20.0	0.861	-153.6	1.203	3.6	0.048	-15.8	0.523	-148.5	40.0	0.900	115.8	0.372	-80.4	0.050	-59.8	0.859	146.3

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 EPA060AV.

