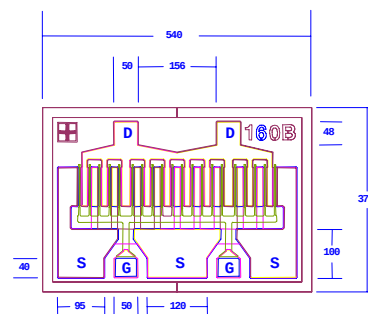


DATA SHEET
High Efficiency Heterojunction Power FET

- +31.0dBm TYPICAL OUTPUT POWER
- 5.5dB TYPICAL POWER GAIN AT 18GHz
- 0.3 X 1600 MICRON RECESSED “MUSHROOM” GATE
- Si₃N₄ PASSIVATION
- ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES EXTRA HIGH POWER EFFICIENCY, AND HIGH RELIABILITY
- Idss SORTED IN 40mA 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 V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	29.0	31.0 31.0		dBm
G_{1dB}	Gain at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz f=18GHz	9.0	10.5 5.5		dB
PAE	Power Added Efficiency at 1dB Compression V _{ds} =8V, I _{ds} =50% I _{dss} f=12GHz		45		%
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	290	480	660	mA
G_m	Transconductance V _{ds} =3V, V _{gs} =0V	320	500		mS
V_p	Pinch-off Voltage V _{ds} =3V, I _{ds} =4.5mA		-1.0	-2.5	V
BV_{gd}	Drain Breakdown Voltage I _{gd} =1.6mA	-11	-15		V
BV_{gs}	Source Breakdown Voltage I _{gs} =1.6mA	-7	-14		V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		33		°C/W

MAXIMUM RATINGS AT 25°C

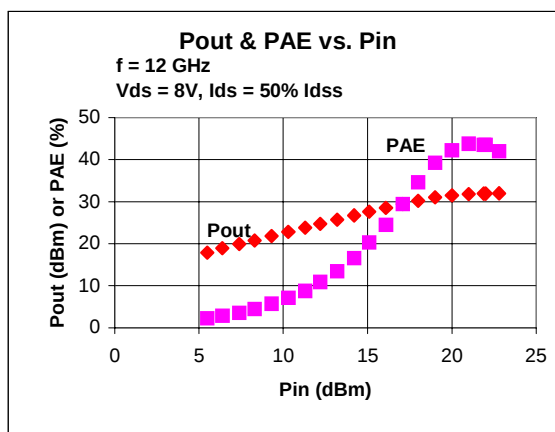
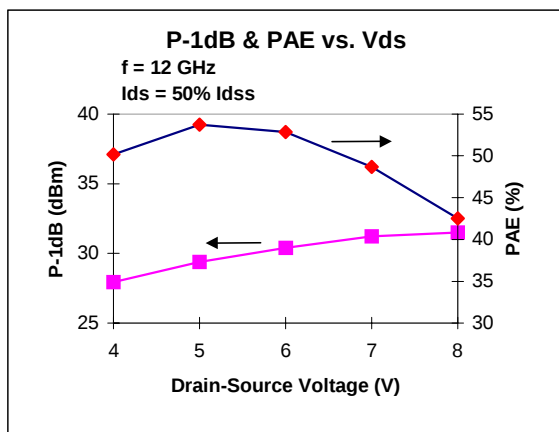
SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
V_{ds}	Drain-Source Voltage	12V	8V
V_{gs}	Gate-Source Voltage	-8V	-3V
I_{ds}	Drain Current	I _{dss}	435mA
I_{gsf}	Forward Gate Current	80mA	14mA
P_{in}	Input Power	28dBm	@3dB Compression
T_{ch}	Channel Temperature	175°C	150°C
T_{stg}	Storage Temperature	-65/175°C	-65/150°C
P_t	Total Power Dissipation	4.1W	3.4W

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.

DATA SHEET

High Efficiency Heterojunction Power FET



S-PARAMETERS

8V, 1/2 Idss

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