

Features

- Plastic Packaged GaAs Power FET
- Suitable for Commercial Wireless Applications
- High Efficiency
- 3V Operation

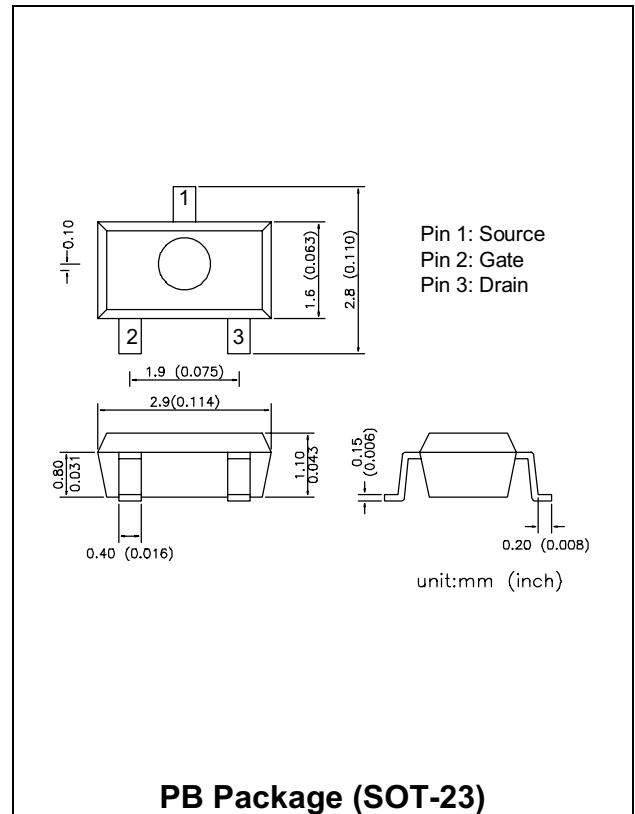
Description

The HWL27NPB is a medium Power GaAs FET using surface mount type plastic package for various L-Band applications. It is suitable for various 900 MHz, 1900 MHz cellular/wireless applications.

Absolute Maximum Ratings

V_{DS}	Drain to Source Voltage	+7V
V_{GS}	Gate to Source Voltage	-5V
I_D	Drain Current	I_{DSS}
I_G	Gate Current	2mA
T_{CH}	Channel Temperature	150°C
T_{STG}	Storage Temperature	-65 to +150°C
P_T	Power Dissipation	0.7W

Outline Dimensions



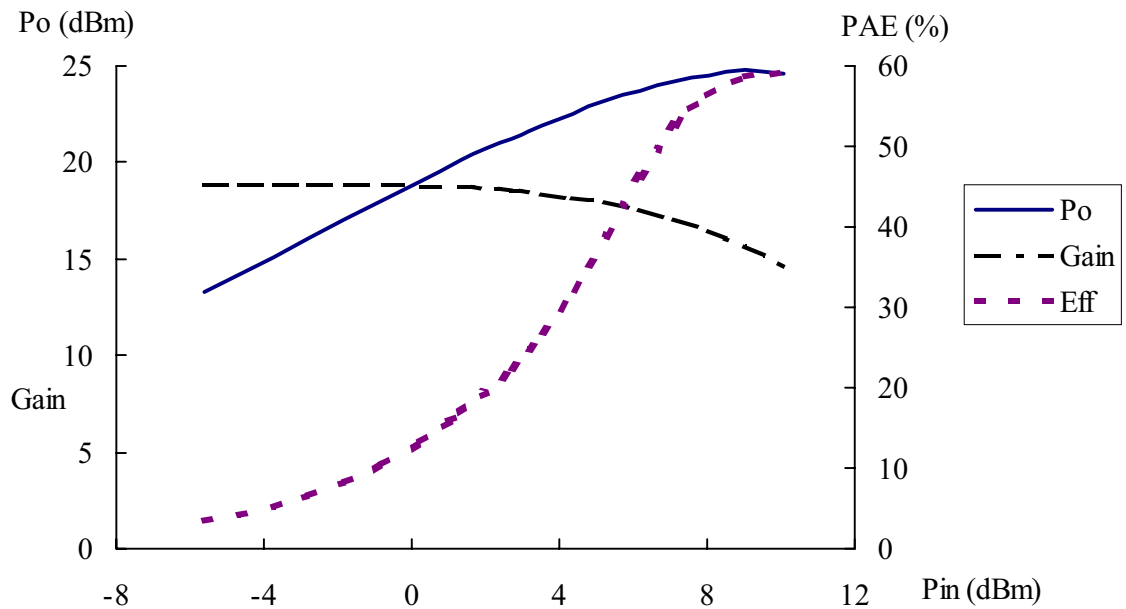
Electrical Specifications ($T_A=25^\circ\text{C}$) $f=1900$ MHz for all RF Tests

Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at $V_{DS}=3V$, $V_{GS}=0V$	mA	300	400	-
V_P	Pinch-off Voltage at $V_{DS}=3V$, $I_D=20mA$	V	-3.5	-2.0	-1.5
g_m	Transconductance at $V_{DS}=3V$, $I_D=200mA$	mS	-	220	-
R_{th}	Thermal Resistance	$^\circ\text{C/W}$	-	45	-
P_{1dB}	Power Output at Test Points $V_{DS}=3V$, $I_D=0.5I_{DSS}$	dBm	22.5	24.5	-
G_{1dB}	Gain at 1dB Compression Point $V_{DS}=3V$, $I_D=0.5I_{DSS}$	dB		8.0	-
PAE	Power-Added Efficiency ($P_{OUT} = P_{1dB}$) $V_{DS}=3V$, $I_D=0.5I_{DSS}$	%		40.0	-

Typical Performance at 25°C

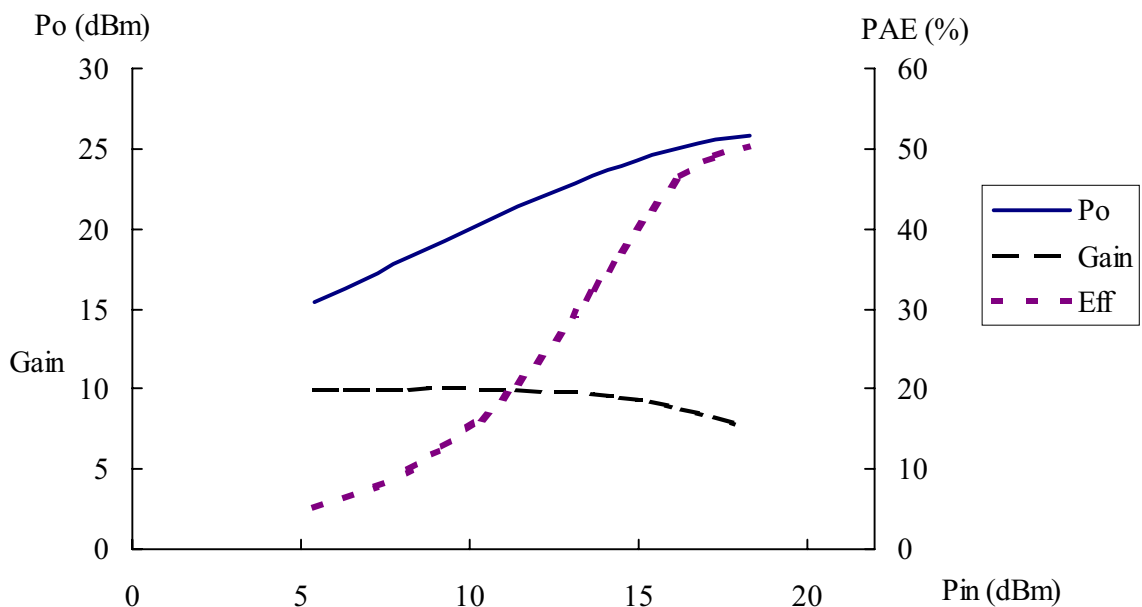
Output Power & Efficiency & Gain vs Input Power

@ $f=0.9\text{GHz}$, $V_{ds}=3\text{V}$



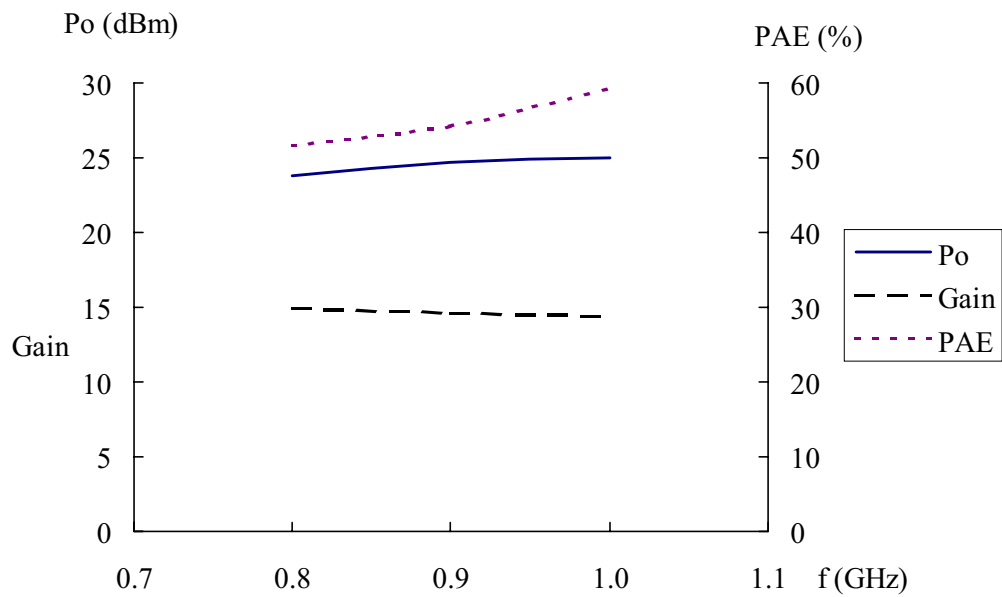
Output Power & Efficiency & Gain vs Input Power

@ $f=1.9\text{GHz}$, $V_{ds}=3\text{V}$

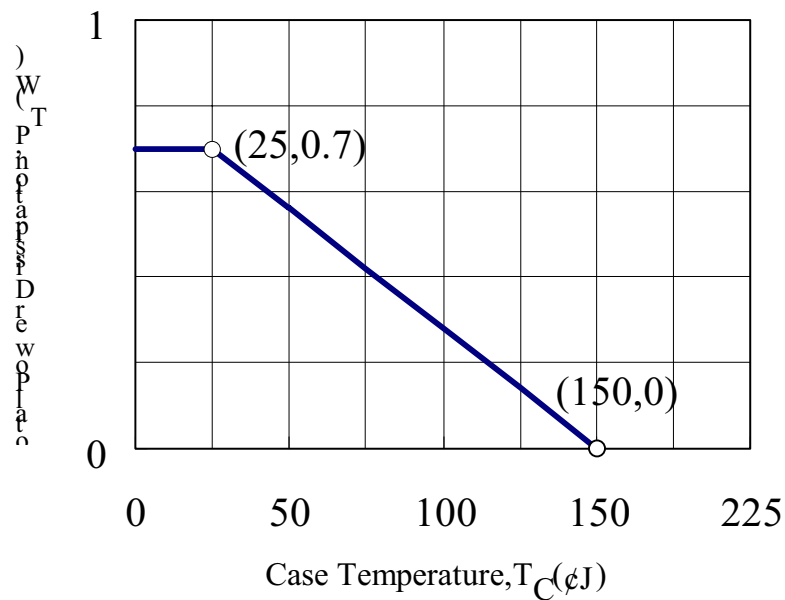


Output Power & Efficiency & Gain vs Frequency

@ $V_{ds}=3V$, $I_{ds}=200mA$



Power Derating Curve



Small Signal Common Source Scattering Parameters

S-MAGN AND ANGLES

 $V_{DS}=3V, I_{DS}=0.5I_{DSS}$

(GHz)	IS11I	∠ANG	IS21I	∠ANG	IS12I	∠ANG	IS22I	∠ANG
0.5	0.782	-80.72	8.369	121.65	0.033	63.29	0.077	-158.85
0.6	0.743	-92.29	7.733	113.66	0.039	59.29	0.080	-157.76
0.7	0.741	-104.32	7.190	105.78	0.044	56.19	0.090	-166.06
0.8	0.704	-114.72	6.681	98.92	0.048	53.99	0.093	-167.17
0.9	0.692	-123.90	6.228	91.84	0.053	50.64	0.101	-168.56
1.0	0.690	-132.50	5.824	85.20	0.058	47.76	0.105	-173.75
1.1	0.668	-141.17	5.452	79.37	0.062	45.25	0.113	179.21
1.2	0.663	-148.35	5.108	73.58	0.066	43.04	0.115	177.13
1.3	0.655	-155.54	4.808	68.05	0.071	39.79	0.121	176.36
1.4	0.650	-161.95	4.560	62.71	0.075	37.29	0.112	167.41
1.5	0.642	-168.50	4.305	57.61	0.081	35.25	0.129	165.74
1.6	0.638	-174.31	4.093	52.44	0.084	32.74	0.120	160.75
1.7	0.632	179.77	3.894	47.53	0.089	29.69	0.130	160.23
1.8	0.630	174.55	3.723	42.88	0.093	26.86	0.120	153.45
1.9	0.632	169.05	3.555	38.20	0.098	24.77	0.137	145.65
2.0	0.626	163.68	3.404	33.61	0.103	21.74	0.142	148.58
2.1	0.624	159.10	3.260	28.94	0.107	19.28	0.138	139.67
2.2	0.615	153.93	3.127	24.65	0.111	16.85	0.150	139.18
2.3	0.621	149.48	3.015	20.37	0.116	14.41	0.150	135.43
2.4	0.617	144.89	2.909	16.20	0.121	11.64	0.153	138.27
2.5	0.619	140.97	2.810	12.19	0.126	8.30	0.154	130.48
2.6	0.611	136.20	2.716	8.04	0.131	6.34	0.159	131.47
2.7	0.608	132.33	2.633	3.90	0.136	3.09	0.155	126.60
2.8	0.604	128.49	2.558	-0.14	0.141	0.40	0.157	123.67
2.9	0.605	124.44	2.489	-4.19	0.146	-1.90	0.163	123.15
3.0	0.594	120.30	2.420	-8.26	0.152	-5.07	0.157	124.45
3.1	0.595	116.61	2.359	-12.37	0.156	-8.08	0.158	115.85
3.2	0.596	112.03	2.295	-16.34	0.160	-11.11	0.184	117.43
3.3	0.586	108.46	2.250	-20.12	0.165	-13.83	0.166	118.10
3.4	0.591	103.89	2.207	-24.16	0.170	-17.07	0.173	111.63
3.5	0.585	99.90	2.163	-28.20	0.175	-19.48	0.172	112.13
3.6	0.579	95.08	2.114	-32.27	0.180	-22.19	0.186	108.13
3.7	0.573	91.24	2.072	-36.20	0.187	-25.09	0.177	111.32
3.8	0.563	86.73	2.028	-40.20	0.191	-28.00	0.181	108.09
3.9	0.559	83.08	1.998	-44.27	0.197	-31.12	0.171	107.08
4.0	0.553	78.88	1.957	-48.11	0.203	-34.36	0.166	108.36