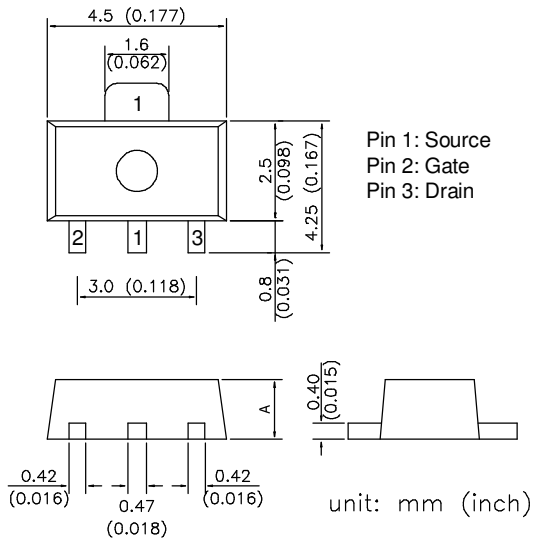
Features

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

Outline Dimensions



PA Package (SOT-89)

Description

The HWL32NPA 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	6 mA
T_{CH}	Channel Temperature	150°C
T_{STG}	Storage Temperature	-65 to +150°C
P_T^*	Power Dissipation	2.8 Watt

* mounted on an infinite heat sink.

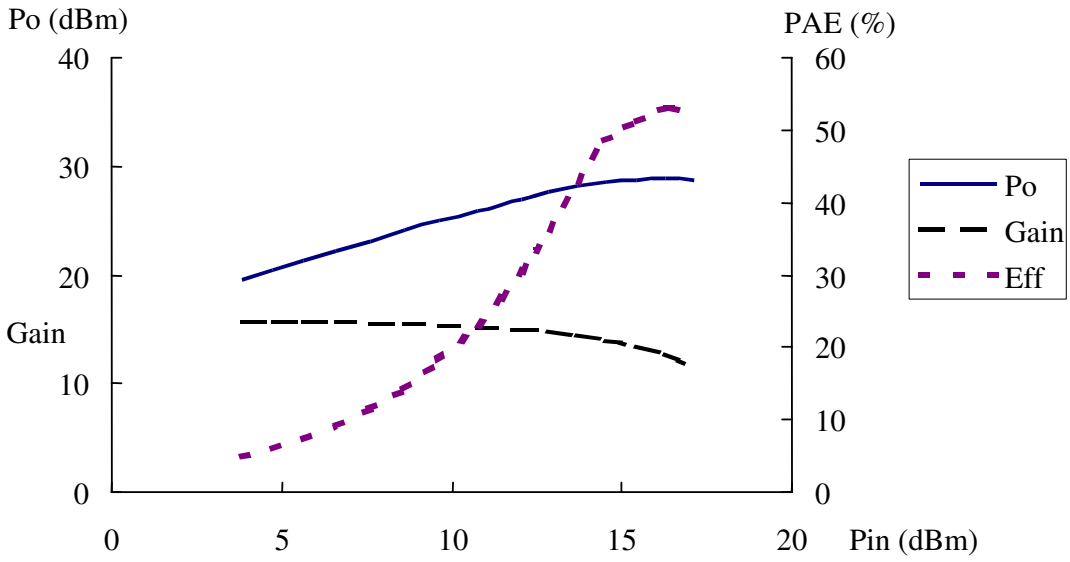
Electrical Specifications (T_A=25°C) f=1900 MHz for all RF Tests

Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at V_{DS}=3V, V_{GS}=0V	mA	900	1100	1500
V_P	Pinch-off Voltage at V_{DS}=3V, I_D=55mA	V	-3.5	-2.0	-1.5
gm	Transconductance at V_{DS}=3V, I_D=550mA	mS	400	550	-
R_{th}	Thermal Resistance	°C/W	-	30	35
P_{1dB}	Power Output at Test Points V_{DS}=3V, I_D=0.5I_{DSS}	dBm	27.5	28.5	-
G_{1dB}	Gain at 1dB Compression Point V_{DS}=3V, I_D=0.5I_{DSS}	dB	-	8.5	-
PAE	Power-Added Efficiency (P_{OUT} = P_{1dB}) V_{DS}=3V, I_D=0.5I_{DSS}	%	-	40.0	-

Typical Performance at 25°C

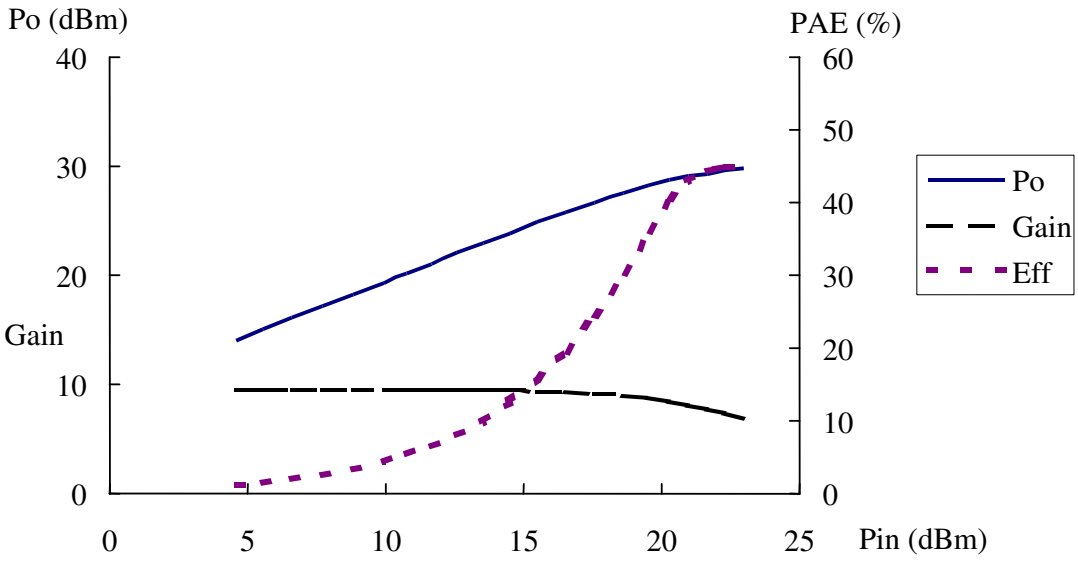
Output Power & Efficiency & Gain vs Input Power

@ f=0.9GHz, Vds=3V, I_{DS}=0.5I_{DSS}

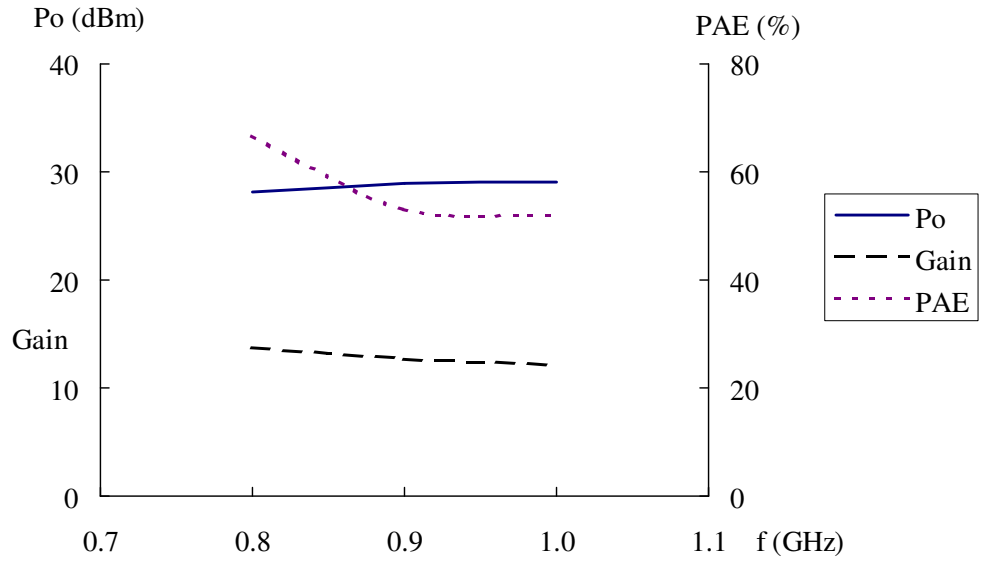


Output Power & Efficiency & Gain vs Input Power

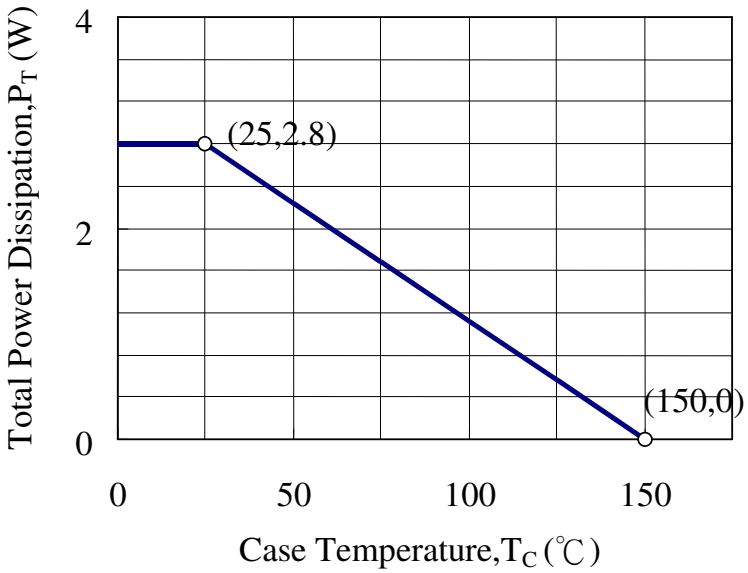
@ f=1.9GHz, Vds=3V, I_{DS}=0.5I_{DSS}



Output Power & Efficiency & Gain vs Frequency
@ Vds= 3V, Ids= 550 mA



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	0.847	-128.306	4.442	111.231	0.028	48.401	0.766	176.247
0.6	0.844	-136.718	4.000	106.224	0.031	48.174	0.766	174.387
0.7	0.856	-143.154	3.522	100.835	0.032	47.325	0.770	172.215
0.8	0.856	-148.276	3.172	98.118	0.035	47.638	0.777	171.483
0.9	0.862	-152.368	2.872	94.301	0.037	47.811	0.772	169.310
1.0	0.862	-155.481	2.616	90.899	0.039	48.019	0.767	167.360
1.1	0.868	-158.908	2.412	88.220	0.042	48.290	0.777	165.642
1.2	0.868	-161.365	2.245	85.420	0.043	47.880	0.773	163.921
1.3	0.866	-163.564	2.088	83.210	0.046	48.040	0.768	163.205
1.4	0.872	-165.570	1.978	80.247	0.049	47.287	0.765	159.987
1.5	0.872	-167.487	1.863	78.438	0.052	47.738	0.775	159.792
1.6	0.871	-169.164	1.760	75.740	0.053	47.700	0.765	156.918
1.7	0.869	-171.012	1.678	73.872	0.056	47.632	0.766	156.303
1.8	0.874	-172.509	1.611	71.361	0.059	47.201	0.761	153.655
1.9	0.879	-173.858	1.536	69.077	0.062	46.497	0.773	151.523
2.0	0.879	-175.460	1.479	67.352	0.065	45.982	0.765	150.998
2.1	0.872	-176.624	1.414	64.792	0.067	45.512	0.763	147.956
2.2	0.865	-178.177	1.362	63.247	0.068	45.127	0.765	147.832
2.3	0.876	-179.226	1.321	61.095	0.072	44.685	0.764	145.725
2.4	0.873	179.431	1.290	59.408	0.075	44.208	0.756	145.341
2.5	0.874	178.752	1.246	57.332	0.078	43.382	0.756	142.567
2.6	0.869	177.380	1.213	55.693	0.081	43.133	0.748	142.490
2.7	0.862	176.088	1.186	53.633	0.084	42.183	0.747	140.086
2.8	0.861	175.077	1.160	51.576	0.088	40.816	0.745	138.293
2.9	0.862	173.963	1.134	49.861	0.092	40.051	0.738	137.355
3.0	0.852	172.530	1.121	47.820	0.095	39.070	0.731	136.238
3.1	0.850	171.050	1.092	45.231	0.099	37.071	0.734	133.062
3.2	0.844	169.222	1.069	43.334	0.103	36.394	0.736	133.546
3.3	0.834	168.241	1.064	41.513	0.108	34.173	0.720	131.820
3.4	0.832	166.589	1.037	39.114	0.110	31.864	0.723	129.938
3.5	0.828	165.210	1.021	37.141	0.110	30.261	0.719	129.069
3.6	0.821	163.173	1.002	35.435	0.111	29.245	0.727	127.882
3.7	0.820	161.436	1.002	33.449	0.116	28.819	0.713	126.743
3.8	0.808	159.505	0.988	31.697	0.119	28.357	0.714	125.311
3.9	0.803	157.624	0.987	29.197	0.124	26.807	0.704	122.809
4.0	0.797	155.678	0.982	27.141	0.128	25.641	0.693	121.255