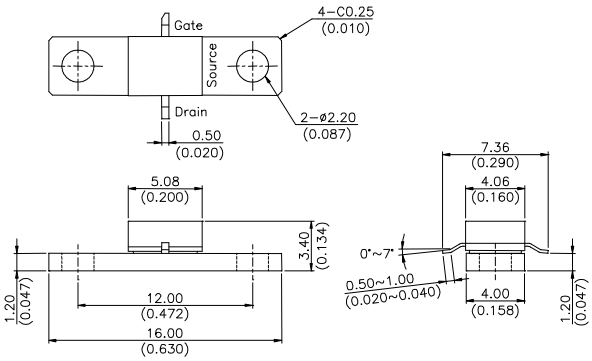
Features

- **Low Cost GaAs Power FET**
- **Class A or Class AB Operation**
- **Typical 13 dB Gain**
- **5V to 10V Operation**

Outline Dimensions



RF Package (Ceramic)

Description

The HWL36YRF is a Power GaAs FET designed for various L-band & S-band applications. It is presently offered in low cost ceramic package.

Absolute Maximum Ratings

V_{DS}	Drain to Source Voltage	+15V
V_{GS}	Gate to Source Voltage	-5V
I_D	Drain Current	I_{DSS}
I_G	Gate Current	10mA
T_{CH}	Channel Temperature	175°C
T_{STG}	Storage Temperature	-65 to +175°C
P_T^*	Power Dissipation	15W

* mounted on an infinite heat sink.

Electrical Specifications (T_A=25°C) f = 2400 MHz for all RF Tests

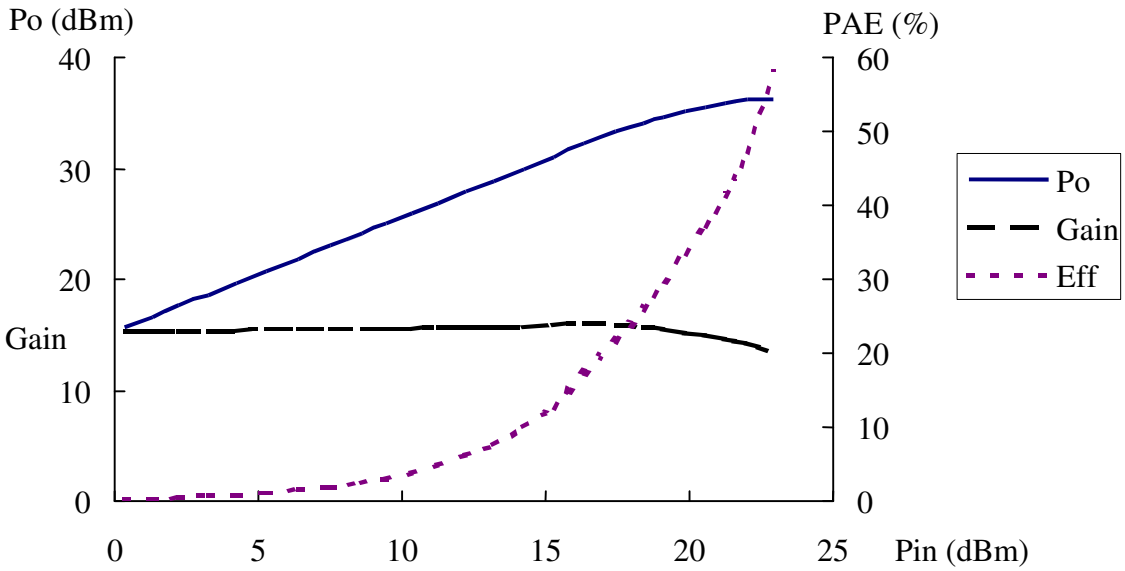
Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at V_{DS}=5V, V_{GS}=0V	mA	1700	2000	2600
V_P	Pinch-off Voltage at V_{DS}=5V, I_D=100mA	V	-3.5	-2.0	-1.5
gm	Transconductance at V_{DS}=5V, I_D=1000mA	mS	-	1000	-
R_{th}	Thermal Resistance, Channel to case*	°C/W	-	7	10
P_{1dB}	Power Output at Test Points V_{DS}=10V, I_D=0.5I_{DSS}	dBm	35	36	-
G_{1dB}	Gain at 1dB Compression Point V_{DS}=10V, I_D=0.5I_{DSS}	dB	12	13	-
PAE	Power-Added Efficiency (P_{out} = P_{1dB}) V_{DS}=10V, I_D=0.5I_{DSS}	%	35	42	-

* Device mounted on an infinite heat sink.

Typical Performance at 25°C

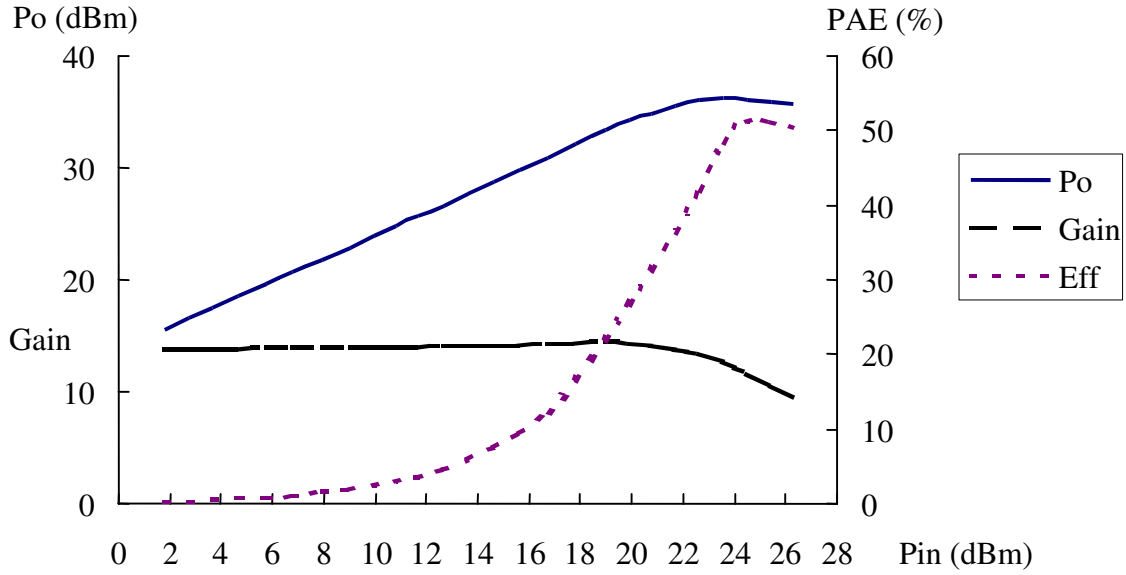
Output Power & Efficiency & Gain vs Input Power

@ f=1.9GHz, Vds=10.0V, Ids= 0.5 Idss



Output Power & Efficiency & Gain vs Input Power

@ f=2.4GHz, Vds=10.0V, Ids= 0.5 Idss



Small Signal Common Source Scattering Parameters

S-MAGN AND ANGLES

V_{DS}=10V, I_{DS}=0.5I_{DSS}

(GHz)	IS11I	∠ANG	IS21I	∠ANG	IS12I	∠ANG	IS22I	∠ANG
0.5	0.973	-143.146	9.497	95.707	0.014	17.597	0.512	-174.520
0.6	0.969	-153.426	7.992	88.677	0.014	9.117	0.524	-176.193
0.7	0.962	-161.504	6.887	83.152	0.014	6.912	0.526	-178.989
0.8	0.958	-168.227	5.964	77.929	0.014	1.489	0.533	179.097
0.9	0.956	-173.554	5.301	73.270	0.015	3.030	0.530	178.612
1.0	0.959	-178.592	4.769	68.292	0.014	0.832	0.534	176.192
1.1	0.956	176.875	4.322	64.671	0.014	-3.459	0.538	174.649
1.2	0.954	172.884	3.901	60.520	0.013	-7.050	0.541	173.694
1.3	0.953	169.241	3.568	56.704	0.013	-7.716	0.545	172.614
1.4	0.954	165.452	3.298	52.680	0.014	-10.230	0.546	171.105
1.5	0.949	162.381	3.030	49.241	0.013	-9.909	0.550	170.714
1.6	0.951	159.244	2.810	45.995	0.014	-11.405	0.559	169.706
1.7	0.952	156.395	2.620	42.812	0.013	-13.388	0.565	168.753
1.8	0.951	153.692	2.453	39.857	0.014	-12.553	0.578	167.846
1.9	0.949	151.022	2.298	36.568	0.013	-14.102	0.582	166.919
2.0	0.951	148.408	2.166	33.358	0.012	-18.172	0.593	165.732
2.1	0.947	146.219	2.032	30.228	0.012	-19.352	0.595	164.690
2.2	0.946	144.021	1.923	27.476	0.012	-19.314	0.606	163.840
2.3	0.947	141.988	1.818	24.535	0.012	-17.675	0.608	162.762
2.4	0.947	139.849	1.723	21.789	0.012	-20.781	0.617	162.294
2.5	0.946	137.624	1.632	18.738	0.012	-22.772	0.624	160.420
2.6	0.950	136.194	1.558	16.360	0.012	-19.020	0.633	159.952
2.7	0.952	134.364	1.486	13.796	0.012	-24.484	0.638	159.485
2.8	0.953	132.441	1.416	11.277	0.013	-23.643	0.641	159.083
2.9	0.953	130.400	1.359	8.642	0.012	-24.168	0.646	158.175
3.0	0.947	128.579	1.295	6.031	0.012	-23.039	0.653	157.337
3.1	0.953	127.064	1.246	3.677	0.012	-24.243	0.660	157.066
3.2	0.951	125.351	1.202	1.286	0.012	-23.444	0.671	156.212
3.3	0.947	123.876	1.155	-0.969	0.012	-24.499	0.675	155.475
3.4	0.949	122.347	1.114	-3.604	0.012	-27.134	0.682	154.126
3.5	0.946	121.140	1.081	-5.711	0.011	-22.681	0.687	153.258
3.6	0.953	119.590	1.043	-8.334	0.011	-22.894	0.692	152.397
3.7	0.957	118.198	1.010	-10.611	0.011	-30.031	0.697	151.238
3.8	0.957	116.744	0.978	-12.836	0.011	-26.886	0.702	150.539
3.9	0.957	115.213	0.946	-14.884	0.012	-25.404	0.699	149.918
4.0	0.957	113.657	0.920	-17.216	0.012	-29.596	0.705	149.071