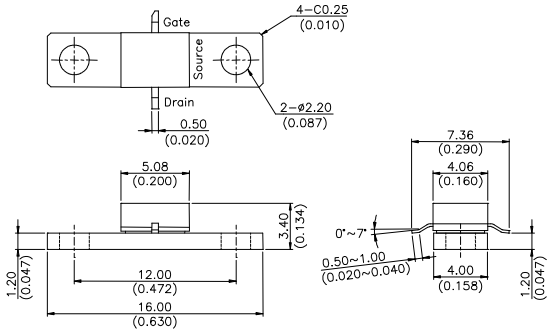
Features

- **Low Cost GaAs Power FET**
- **Class A or Class AB Operation**
- **Typical 16.5 dB Gain**
- **5V to 10V Operation**

Outline Dimensions



RF Package (Ceramic)

Description

The HWL30YRF is a Medium 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	3 mA
T_{CH}	Channel Temperature	175°C
T_{STG}	Storage Temperature	-65 to +175°C
P_T^*	Power Dissipation	6W

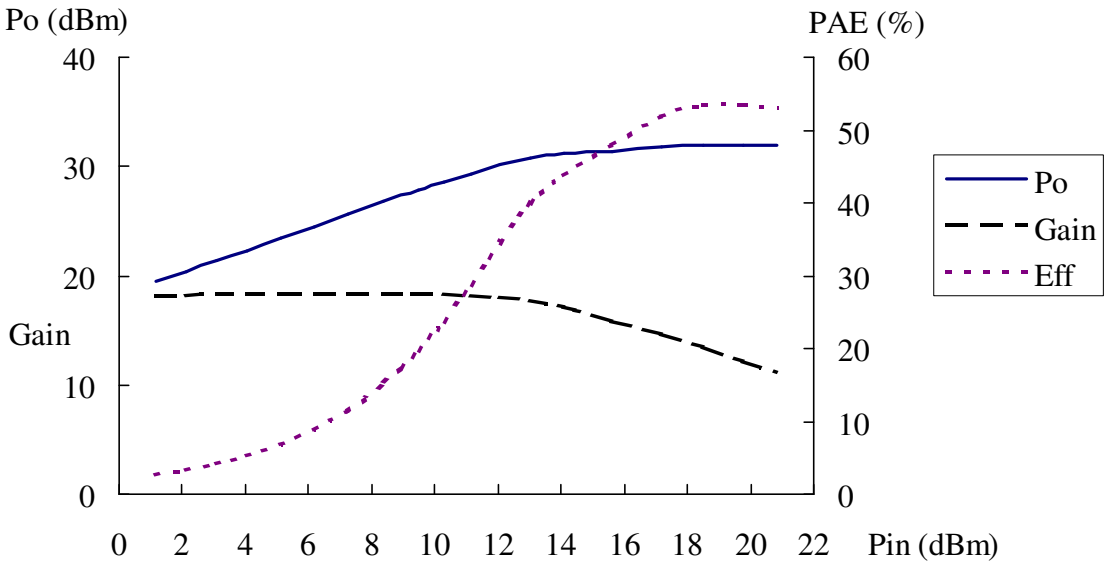
* mounted on an infinite heat sink.

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

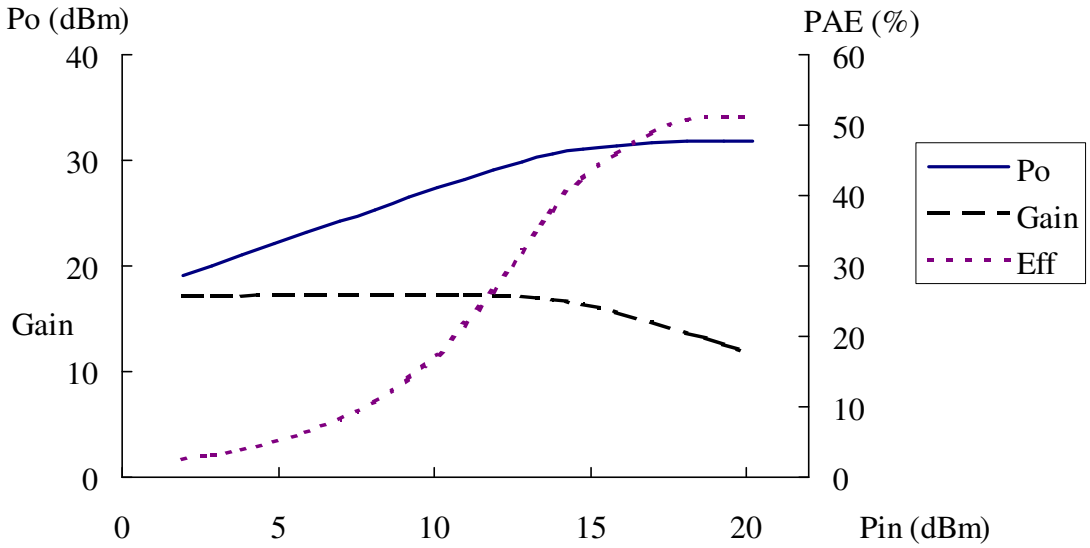
Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at V_{DS}=5V, V_{GS}=0V	mA	500	600	900
V_P	Pinch-off Voltage at V_{DS}=5V, I_D=30mA	V	-3.5	-2.0	-1.5
gm	Transconductance at V_{DS}=5V, I_D=300mA	mS	-	300	-
R_{th}	Thermal Resistance	°C/W	-	15	25
P_{1dB}	Power Output at Test Points V_{DS}=10V, I_D=0.5I_{DSS}	dBm	30	31	-
G_{1dB}	Gain at 1dB Compression Point V_{DS}=10V, I_D=0.5I_{DSS}	dB	15	16.5	-
PAE	Power-Added Efficiency (P_{OUT} = P_{1dB}) V_{DS}=10V, I_D= I_D=0.5I_{DSS}	%	35	45	-

Typical Performance at 25°C

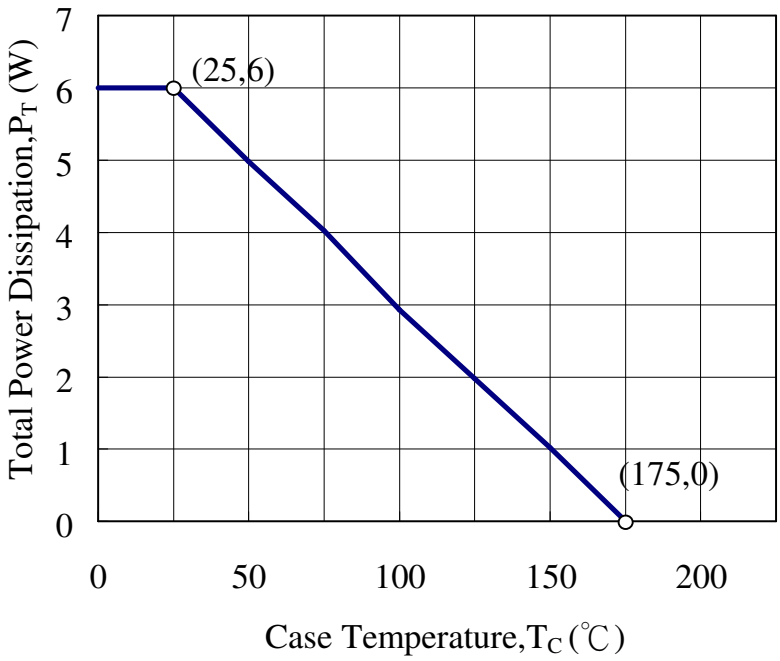
Output Power & Efficiency & Gain vs Input Power
@ f=1.9GHz, Vds=10.0V, Ids= 0.5 Idss



Output Power & Efficiency & Gain vs Input Power
@ f=2.4GHz, Vds=10.0V, Ids= 0.5 Idss



Power Derating Curve



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	0.889	-90.882	10.672	121.778	0.015	37.028	0.185	-85.008
0.6	0.880	-101.517	9.739	114.753	0.016	33.933	0.202	-90.976
0.7	0.898	-111.715	8.957	107.828	0.018	25.758	0.221	-96.978
0.8	0.887	-119.853	8.230	101.908	0.019	22.178	0.236	-101.966
0.9	0.892	-127.305	7.598	95.905	0.020	17.975	0.257	-107.921
1.0	0.899	-133.797	7.057	90.171	0.021	13.021	0.277	-111.564
1.1	0.895	-139.819	6.556	85.468	0.021	11.448	0.289	-114.434
1.2	0.898	-145.143	6.121	80.722	0.020	6.972	0.305	-117.853
1.3	0.900	-149.874	5.719	76.230	0.022	1.280	0.320	-119.915
1.4	0.901	-154.299	5.402	71.953	0.021	-0.177	0.333	-122.220
1.5	0.902	-158.403	5.083	67.875	0.022	-4.225	0.351	-124.725
1.6	0.901	-162.158	4.805	63.682	0.022	-5.998	0.363	-126.712
1.7	0.901	-165.838	4.561	59.797	0.021	-8.293	0.373	-128.530
1.8	0.902	-169.285	4.335	56.201	0.023	-12.529	0.385	-130.724
1.9	0.904	-172.511	4.138	52.683	0.022	-13.387	0.398	-133.037
2.0	0.903	-175.577	3.952	49.148	0.022	-16.242	0.407	-134.993
2.1	0.900	-178.634	3.787	45.369	0.022	-17.751	0.419	-136.790
2.2	0.895	178.286	3.628	41.830	0.022	-20.360	0.429	-138.518
2.3	0.901	175.281	3.489	38.489	0.022	-20.631	0.441	-141.024
2.4	0.900	172.423	3.366	35.215	0.022	-24.775	0.449	-143.021
2.5	0.898	169.702	3.240	31.933	0.021	-26.487	0.460	-144.842
2.6	0.897	166.614	3.122	28.419	0.021	-27.431	0.465	-146.932
2.7	0.891	163.692	3.012	24.887	0.021	-29.193	0.472	-148.847
2.8	0.891	160.887	2.917	21.710	0.022	-30.270	0.480	-151.545
2.9	0.892	158.151	2.826	18.353	0.021	-33.867	0.490	-153.496
3.0	0.889	154.976	2.728	14.989	0.021	-34.591	0.495	-155.778
3.1	0.886	152.192	2.639	11.818	0.021	-36.992	0.499	-158.293
3.2	0.891	149.216	2.570	8.229	0.021	-39.301	0.509	-160.827
3.3	0.886	146.548	2.482	5.061	0.021	-41.369	0.513	-163.193
3.4	0.888	143.721	2.408	1.817	0.021	-43.313	0.520	-165.544
3.5	0.888	141.215	2.334	-1.350	0.021	-44.600	0.529	-168.143
3.6	0.885	138.428	2.261	-4.672	0.020	-46.532	0.534	-170.993
3.7	0.887	136.197	2.198	-7.464	0.021	-45.714	0.543	-172.808
3.8	0.880	133.751	2.128	-10.759	0.020	-48.349	0.547	-176.029
3.9	0.885	131.629	2.072	-13.887	0.020	-48.967	0.555	-178.609
4.0	0.882	129.363	2.012	-16.900	0.019	-50.990	0.562	-178.634