

Features

- Low Cost GaAs Power FET
- Class A or Class AB Operation
- 17 dB Typical Gain at 2.4 GHz
- 5V to 10V Operation

Description

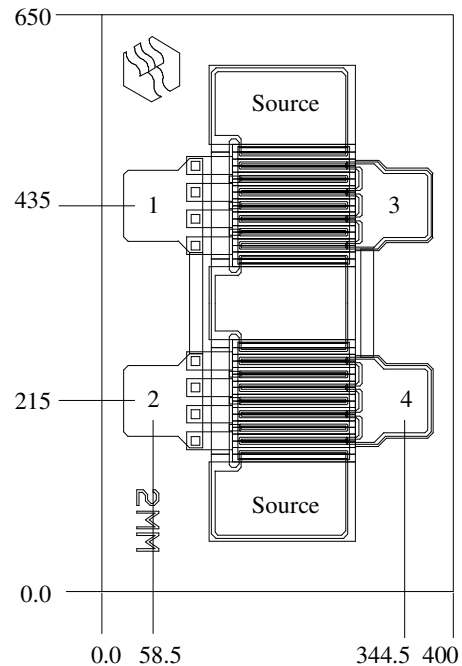
The HWL27NC is a medium power GaAs FET designed for various L-band & S-band applications.

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	2mA
T_{CH}	Channel Temperature	175°C
T_{STG}	Storage Temperature	-65 to +175°C
P_T^*	Power Dissipation	3.5W

* mounted on an infinite heat sink

Outline Dimensions



Unit: μm

Thickness: 100 ± 5

Chip size ± 50

Bond Pads 1-2 (Gate): 60 x 60

Bond Pads 3-4 (Drain): 60 x 60

Electrical Specifications ($T_A=25^\circ\text{C}$) $f = 2.4$ GHz for all RF Tests

Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at $V_{DS}=3\text{V}$, $V_{GS}=0\text{V}$	mA	300	400	600
V_P	Pinch-off Voltage at $V_{DS}=3\text{V}$, $I_D=20\text{mA}$	V	-3.5	-2.0	-1.5
g_m	Transconductance at $V_{DS}=3\text{V}$, $I_D=200\text{mA}$	mS	-	250	-
P_{1dB}	Power Output at Test Points $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	dBm	28	29	-
G_{1dB}	Gain at 1dB Compression Point $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	dB	15	16	-
PAE	Power-Added Efficiency ($P_{OUT} = P_{1dB}$) $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	%	30	40	-

Small Signal Common Source Scattering Parameters

S-MAGN AND ANGLES
VDS=10V, IDS=0.5I_{DSS}

(GHz)	IS11I	∠ANG	IS21I	∠ANG	IS12I	∠ANG	IS22I	∠ANG
0.50	0.878	-58.64	10.609	141.51	0.013	66.31	0.360	-13.43
0.60	0.854	-66.85	9.935	136.76	0.014	61.38	0.360	-15.92
0.70	0.863	-76.27	9.380	132.44	0.015	57.49	0.354	-17.23
0.80	0.833	-83.44	8.831	128.17	0.017	58.18	0.358	-18.92
0.90	0.834	-89.75	8.346	124.09	0.019	56.96	0.348	-22.80
1.00	0.843	-96.57	7.938	120.34	0.020	53.74	0.339	-25.03
1.10	0.816	-101.79	7.469	117.08	0.020	53.02	0.344	-26.54
1.20	0.821	-107.08	7.064	113.92	0.021	54.06	0.338	-27.82
1.30	0.821	-111.84	6.702	111.18	0.022	54.16	0.338	-29.26
1.40	0.814	-116.08	6.378	108.58	0.023	54.38	0.340	-30.22
1.50	0.813	-120.12	6.053	105.92	0.023	53.88	0.336	-31.01
1.60	0.812	-123.70	5.800	103.49	0.024	51.86	0.339	-33.27
1.70	0.809	-126.88	5.532	101.36	0.024	53.26	0.343	-34.25
1.80	0.807	-130.02	5.273	99.33	0.025	52.44	0.339	-34.75
1.90	0.801	-132.92	5.040	97.27	0.026	52.71	0.341	-35.47
2.00	0.802	-135.39	4.840	95.17	0.027	53.21	0.341	-37.06
2.10	0.802	-138.11	4.658	93.41	0.027	53.86	0.343	-38.09
2.20	0.806	-140.16	4.498	91.71	0.028	54.62	0.348	-38.96
2.30	0.800	-142.65	4.308	89.86	0.028	55.88	0.341	-39.77
2.40	0.799	-144.82	4.152	88.26	0.029	55.17	0.341	-40.65
2.50	0.798	-146.68	3.998	86.70	0.029	55.09	0.339	-41.99
2.60	0.800	-148.48	3.874	85.12	0.029	56.16	0.343	-42.85
2.70	0.802	-150.36	3.754	83.68	0.030	57.31	0.346	-44.07
2.80	0.799	-152.05	3.639	82.18	0.030	58.37	0.347	-45.16
2.90	0.799	-153.68	3.510	80.69	0.031	57.69	0.342	-46.67
3.00	0.798	-155.39	3.408	79.10	0.032	58.40	0.343	-47.46
3.10	0.797	-156.67	3.315	77.80	0.033	59.41	0.345	-48.26
3.20	0.798	-158.11	3.225	76.51	0.033	61.42	0.346	-49.24
3.30	0.800	-159.32	3.138	75.16	0.033	61.29	0.347	-50.65
3.40	0.799	-160.84	3.048	73.97	0.035	60.83	0.345	-51.90
3.50	0.797	-161.94	2.968	72.63	0.035	61.70	0.346	-52.90
3.60	0.799	-163.21	2.895	71.46	0.035	62.28	0.350	-54.01
3.70	0.796	-164.65	2.815	70.15	0.036	63.63	0.345	-55.64
3.80	0.798	-165.64	2.758	68.79	0.037	64.76	0.352	-57.10
3.90	0.800	-166.91	2.690	67.56	0.037	63.96	0.352	-58.45
4.00	0.798	-167.70	2.624	66.50	0.038	64.59	0.351	-59.71

Bonding Manner

Gate, drain pad: 1 wire on each pad

Source pad: 2 wires on each side