

Features

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

Description

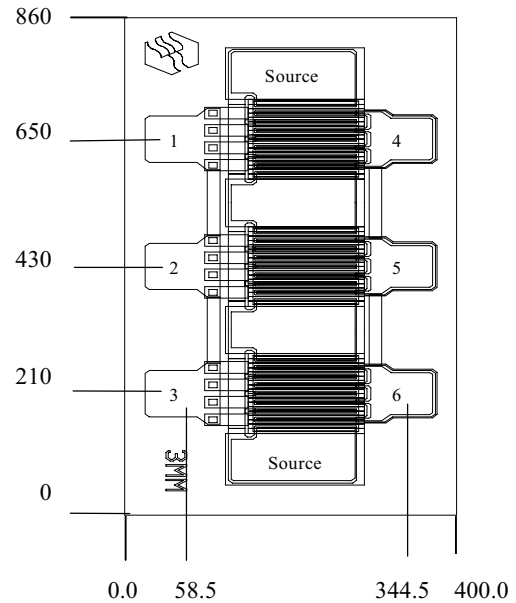
The HWL30NC is a medium power GaAs FET designed for various L-band & S-band applications.

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	3mA
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

Outline Dimensions



Units: μm

Thickness: 100 ± 5

Chip size ± 50

Bond Pads 1-3 (Gate): 60×60

Bond Pads 4-6 (Drain): 60×60

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	500	600	900
V_P	Pinch-off Voltage at $V_{DS}=3\text{V}$, $I_D=30\text{mA}$	V	-3.5	-2.0	-1.5
gm	Transconductance at $V_{DS}=3\text{V}$, $I_D=300\text{mA}$	mS	-	300	-
P_{1dB}	Power Output at Test Points $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	dBm	30	31	-
G_{1dB}	Gain at 1dB Compression Point $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	dB	13	14	-
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	0.828	-86.85	11.250	128.50	0.016	55.74	0.176	-36.18
0.60	0.812	-96.54	10.165	123.44	0.018	52.29	0.177	-39.82
0.70	0.830	-105.89	9.290	118.75	0.019	49.15	0.174	-43.49
0.80	0.811	-113.18	8.497	114.64	0.020	48.79	0.175	-45.31
0.90	0.817	-119.32	7.841	110.70	0.022	49.43	0.171	-51.83
1.00	0.828	-125.06	7.249	107.12	0.022	48.53	0.170	-57.06
1.10	0.813	-129.80	6.716	104.30	0.022	47.08	0.176	-57.77
1.20	0.819	-134.07	6.254	101.39	0.023	47.20	0.175	-59.91
1.30	0.826	-137.82	5.852	98.89	0.024	48.68	0.180	-62.53
1.40	0.823	-141.15	5.512	96.61	0.025	48.10	0.184	-63.07
1.50	0.825	-144.18	5.178	94.31	0.025	48.54	0.184	-65.11
1.60	0.827	-146.87	4.911	92.03	0.026	48.16	0.192	-67.30
1.70	0.826	-149.28	4.654	90.18	0.027	50.97	0.199	-68.13
1.80	0.827	-151.54	4.405	88.40	0.027	51.47	0.199	-69.23
1.90	0.825	-153.65	4.191	86.65	0.028	52.13	0.202	-69.96
2.00	0.827	-155.43	4.006	84.67	0.029	52.99	0.207	-72.44
2.10	0.828	-157.32	3.834	83.00	0.029	52.40	0.213	-73.28
2.20	0.833	-158.78	3.684	81.40	0.029	54.16	0.220	-74.11
2.30	0.828	-160.58	3.520	79.85	0.031	54.55	0.217	-75.73
2.40	0.830	-162.09	3.376	78.29	0.031	57.09	0.220	-77.08
2.50	0.828	-163.58	3.240	76.79	0.032	57.32	0.223	-79.08
2.60	0.831	-164.72	3.129	75.41	0.032	58.39	0.230	-79.62
2.70	0.834	-165.96	3.028	73.96	0.033	60.60	0.237	-80.79
2.80	0.835	-167.28	2.924	72.59	0.034	58.77	0.239	-81.99
2.90	0.833	-168.27	2.816	71.13	0.035	59.69	0.243	-84.61
3.00	0.836	-169.57	2.724	69.69	0.035	60.61	0.245	-85.61
3.10	0.833	-170.52	2.645	68.48	0.036	60.44	0.251	-86.53
3.20	0.836	-171.64	2.567	67.26	0.038	62.05	0.253	-87.36
3.30	0.838	-172.52	2.490	65.95	0.038	63.14	0.260	-88.89
3.40	0.837	-173.45	2.417	64.77	0.039	64.60	0.262	-90.54
3.50	0.836	-174.25	2.351	63.57	0.040	66.22	0.267	-91.89
3.60	0.839	-175.18	2.288	62.34	0.040	66.35	0.273	-92.75
3.70	0.837	-176.22	2.219	61.01	0.042	66.45	0.275	-95.00
3.80	0.839	-176.89	2.171	59.76	0.043	67.29	0.285	-95.58
3.90	0.842	-177.66	2.109	58.57	0.044	67.01	0.288	-97.50
4.00	0.841	-178.41	2.058	57.50	0.045	68.10	0.294	-98.70

Bonding Manner

Gate, drain pad: 1 wire on each pad

Source pad: 2 wires on each side