Features

- **Low Cost GaAs Power FET**
- **Class A or Class AB Operation**
- **8.5 dB Typical Gain at 4 GHz**
- **5V to 10V Operation**

Description

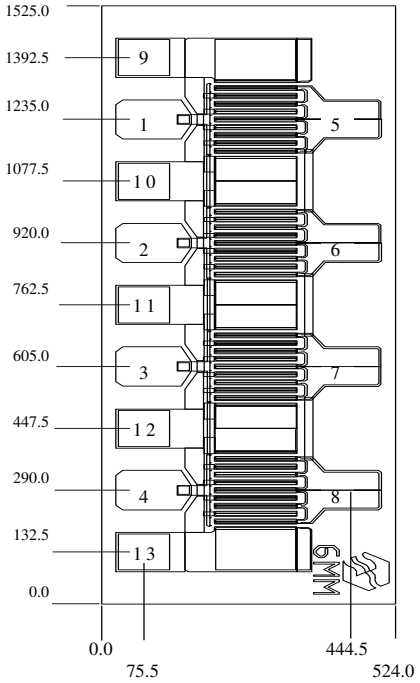
The HWC34NC is a power GaAs FET designed for various L-band & S-band applications.

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	6mA
T_{CH}	Channel Temperature	175°C
T_{STG}	Storage Temperature	-65 to +175°C
P_T^*	Power Dissipation	12W

* mounted on an infinite heat sink

Outline Dimensions



Units: µm
Thickness: 100 ±5
Chip size ±50
Bond Pads 1-4 (Gate): 100 x 100
Bond Pads 5-8 (Drain): 100 x 100
Bond Pads 9-13(Source): 100 x 100

Electrical Specifications (T_A=25°C) f = 4 GHz for all RF Tests

Symbol	Parameters & Conditions	Units	Min.	Typ.	Max.
I_{DSS}	Saturated Current at V_{DS}=3V, V_{GS}=0V	mA	900	1200	1600
V_P	Pinch-off Voltage at V_{DS}=3V, I_D=60mA	V	-3.5	-2.0	-1.5
gm	Transconductance at V_{DS}=3V, I_D=600mA	mS	-	700	-
P_{1dB}	Power Output at Test Points V_{DS}=10V, I_D=0.5 I_{DSS}	dBm	32	33	-
G_{1dB}	Gain at 1dB Compression Point V_{DS}=10V, I_D=0.5 I_{DSS}	dB	6.5	7.5	-
PAE	Power-Added Efficiency (P_{OUT} = P_{1dB}) V_{DS}=10V, I_D=0.5 I_{DSS}	%	25	30	-

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
2.00	0.741	-162.95	3.027	78.58	0.051	75.38	0.343	-149.69
2.50	0.740	-167.73	2.432	72.17	0.063	77.31	0.368	-147.33
3.00	0.743	-171.28	2.025	66.45	0.074	78.97	0.392	-145.34
3.50	0.739	-173.74	1.731	61.37	0.088	80.17	0.420	-144.05
4.00	0.739	-176.23	1.511	56.74	0.101	80.68	0.449	-142.95
4.50	0.736	-178.33	1.343	52.59	0.116	80.95	0.478	-142.34
5.00	0.733	179.79	1.206	48.98	0.131	81.81	0.506	-142.38
5.50	0.732	178.19	1.101	45.57	0.148	81.84	0.524	-142.79
6.00	0.73	176.65	1.014	42.26	0.167	81.32	0.540	-144.48
6.50	0.730	175.59	0.943	39.40	0.186	81.33	0.556	-145.20
7.00	0.729	174.46	0.884	36.76	0.208	80.28	0.564	-146.77
7.50	0.720	172.75	0.832	34.64	0.231	79.21	0.578	-147.87
8.00	0.716	170.43	0.788	33.00	0.257	78.26	0.591	-148.61
8.50	0.704	168.33	0.757	31.55	0.285	76.82	0.602	-149.79
9.00	0.692	165.78	0.728	29.73	0.318	75.03	0.600	-151.32
9.50	0.673	163.35	0.712	28.60	0.355	72.46	0.593	-154.11
10.00	0.649	160.96	0.700	27.33	0.397	70.08	0.589	-156.34

Bonding Manner

Gate, drain pad: 1 wire on each pad
Source pad: 1 wires on each pad