

Features

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

Description

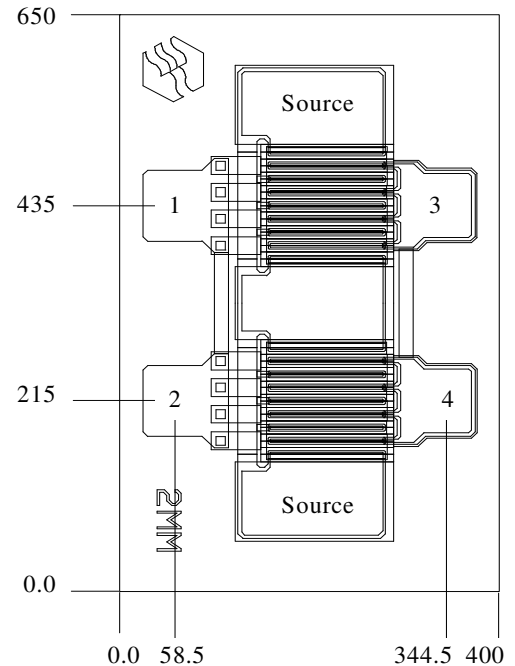
The HWC27YC is a medium power GaAs FET designed for various RF and microwave applications.

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: 50 ± 5

Chip size ± 50

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

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

Electrical Specifications ($T_A=25^\circ\text{C}$) $f = 2.4 \text{ GHz}$ 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	27	28	-
G_{1dB}	Gain at 1dB Compression Point $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	dB	16	17	-
PAE	Power-Added Efficiency ($P_{OUT} = P_{1dB}$) $V_{DS}=10\text{V}$, $I_D=0.5 I_{DSS}$	%	-	40	-

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
2.0	0.912	-118.90	5.295	104.40	0.024	35.50	0.413	-35.82
2.5	0.906	-128.90	4.540	95.77	0.025	31.08	0.409	-42.72
3.0	0.900	-138.90	3.784	87.16	0.026	26.65	0.404	-49.62
3.5	0.900	-144.50	3.335	80.57	0.026	25.72	0.410	-56.64
4.0	0.899	-150.20	2.886	73.98	0.025	24.78	0.416	-63.65
4.5	0.901	-153.70	2.585	68.26	0.025	25.24	0.429	-70.99
5.0	0.903	-157.20	2.284	62.54	0.024	25.70	0.441	-78.33
5.5	0.907	-159.90	2.072	57.40	0.024	26.84	0.468	-84.84
6.0	0.910	-162.50	1.860	52.26	0.023	27.98	0.495	-91.35
6.5	0.911	-164.20	1.696	47.77	0.023	29.32	0.521	-95.72
7.0	0.911	-165.80	1.533	43.27	0.022	30.66	0.547	-100.10
7.5	0.915	-167.20	1.413	39.22	0.022	32.61	0.573	-103.80
8.0	0.919	-168.50	1.293	35.17	0.021	34.55	0.598	-107.60
8.5	0.918	-169.90	1.200	31.33	0.022	37.37	0.626	-110.00
9.0	0.917	-171.40	1.107	27.50	0.022	40.20	0.654	-112.50
9.5	0.916	-172.00	1.037	24.27	0.022	41.37	0.671	-114.00
10.0	0.914	-172.60	0.966	21.04	0.022	42.54	0.688	-115.60

Bonding Manner

Gate, drain pad: 1 wire on each pad