

### Performance

- Frequency: DC~6GHz
- Psat: 25W
- Typical PAE: 60%
- Small Signal Gain: 15dB@2GHz  
13dB@4GHz
- Operating Voltage: 28V
- Process: 0.25um GaN HEMT Technology
- Package: Metal Ceramic Package

### Electrical Specifications (Ta=+25°C)

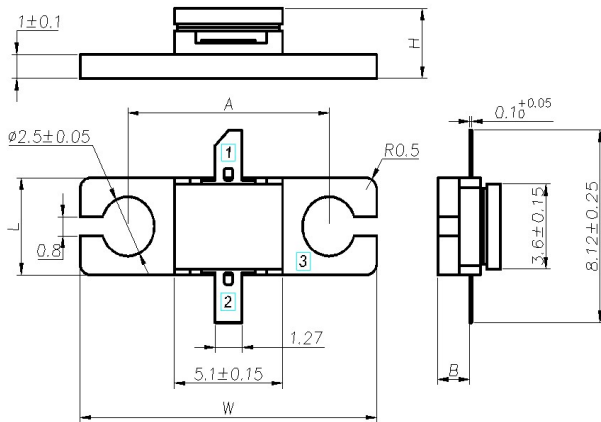
Parameter	Value			Unit	Test Condition
	Min.	Typical	Max.		
DC Specifications (Note 1)					
V <sub>GS (th)</sub>	-4.0	-3.0	-2.3	V	V <sub>DS</sub> =10V, I <sub>D</sub> =3.6mA
V <sub>GS (Q)</sub>	-	-2.7	-	V	V <sub>DS</sub> =28V, I <sub>D</sub> =200mA
I <sub>(DS)</sub>	-	3.5	-	A	V <sub>DS</sub> =6V, V <sub>GS</sub> =2V
V <sub>(BR)</sub>	120	-	-	V	V <sub>GS</sub> =-8V, I <sub>D</sub> =3.6mA
RF Specifications (Note 2)					
G <sub>SS</sub>	12	13	-	dB	V <sub>DS</sub> =28V, I <sub>DQ</sub> =200mA
P <sub>SAT</sub>	25	30	-	W	
η	50	60	-	%	V <sub>DS</sub> =28V, I <sub>DQ</sub> =200mA, Saturated output
VSWR	-	-	10:1		V <sub>DS</sub> =28V, I <sub>DQ</sub> =200mA, P <sub>OUT</sub> =10W
Note:					
1、 Test through PCM, Saturated current is pushed by PCM.					
2、 RF specification is obtained from JIG, Frequency=2.7-3.1GHz					

### Absolute Max Ratings (TA=25°C)

Symbol	Parameter	Value	Unit
V <sub>ds</sub>	Drain Voltage	36	V
V <sub>gs</sub>	Gate Voltage	-5~0	V
T <sub>stg</sub>	Storage Temperature	-55~150	°C
T <sub>ch</sub>	Channel Temperature	225	°C
T <sub>s</sub>	Sintering Temperature	245	°C
T <sub>c</sub>	Operating Temperature	-55~85	°C

Exceeding any one or combination of these limits may cause permanent damage.

### Outline Drawing

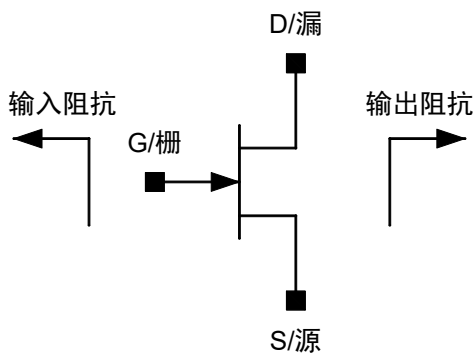


### Application Circuit

Mark	Min.	Typ.	Max.
A	9.35	9.50	9.65
B	1.45	1.55	1.70
H	2.80	3.05	3.30
L	3.95	4.10	4.25
W	13.85	14.00	14.15

PIN#1 RF Input  
PIN#2 RF Output  
PIN#3 GND

### Input and Output Impedance



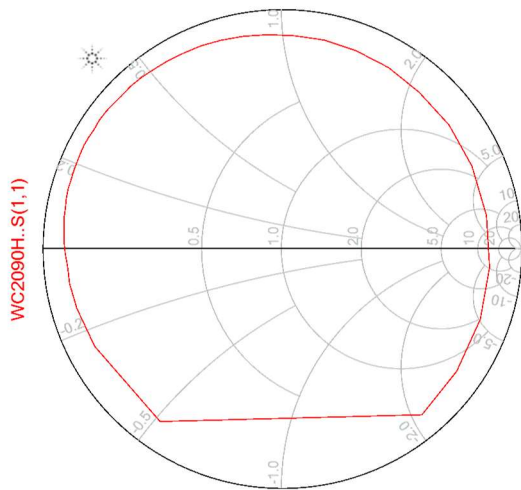
Freq.	Input Impedance	Output Impedance
0.5GHz	$7.75 + j15.5$	$20.0 + j5.2$
1.0GHz	$3.11 + j5.72$	$17.0 + j6.66$
1.5GHz	$2.86 + j1.63$	$16.8 + j3.2$
2.5GHz	$2.4 - j3.52$	$8.02 + j4.32$
3.5GHz	$1.31 - j7.3$	$5.85 - j0.51$

### Note

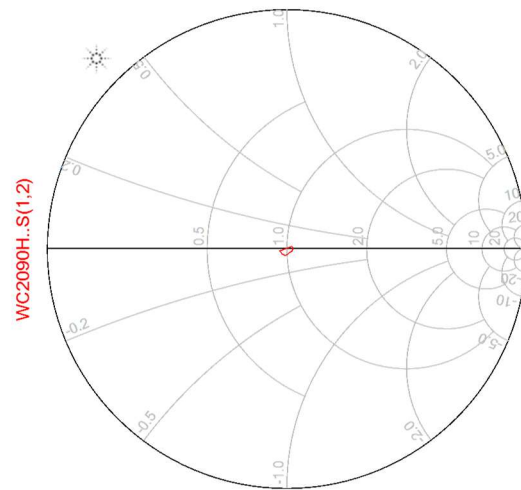
- 1、 Source (S) is grounded, apply  $V_{gs}$  and  $R_{Fin}$  at Gate (G), apply  $V_{ds}$  at Drain (D) and connect to  $R_{Fout}$ ;
- 2、 Test condition is  $V_{DS}=28V$ ,  $I_{DQ}=200mA$ , CW, Package type is JY02F202;
- 3、 Impedance points are recommended, this takes power, gain, PAE into consideration;
- 4、 When used for low frequency, apply series resistors at input circuit to ensure stability.

Freq (GHz)	Amplitude S11	Phase S11	Amplitude S21	Phase S21	Amplitude S12	Phase S12	Amplitude S22	Phase S22
0.20	0.8857	-125.2	19.5	112.2	0.02108	24.05	0.589	-158.2
0.40	0.8844	-152.5	10.7	94.33	0.02356	7.958	0.6463	-168.3
0.60	0.8947	-163.8	7.231	85.68	0.02387	-0.252	0.664	-173.7
0.80	0.901	-170.6	5.478	78.76	0.02367	-6.677	0.6796	-176.3
1.00	0.9007	-175.2	4.373	72.5	0.02353	-11.23	0.6844	-178.9
1.20	0.9081	-178.8	3.639	67.25	0.02338	-15.86	0.691	179.6
1.40	0.9139	177.7	3.125	63.11	0.02306	-19.81	0.6978	177.6
1.60	0.9159	174.7	2.747	58.17	0.02284	-23.31	0.7024	176.1
1.80	0.9213	172	2.419	54.58	0.02237	-27.05	0.711	174.5
2.00	0.9227	169.2	2.198	50.26	0.02193	-29.9	0.7158	172.7
2.20	0.9275	166.8	1.988	46.43	0.02139	-33.16	0.7224	170.9
2.40	0.9295	164.2	1.85	42.45	0.02118	-35.89	0.7248	169.2
2.60	0.9284	161.9	1.717	36.96	0.02104	-38.96	0.7272	167.6
2.80	0.9307	159.6	1.59	33.21	0.02084	-42.09	0.7308	165.9
3.00	0.9316	157.3	1.501	29.19	0.02053	-44.9	0.7333	164.1
3.20	0.933	154.9	1.419	25.71	0.0201	-48.19	0.7382	162.3
3.40	0.9348	152.5	1.362	22.49	0.01971	-50.65	0.7408	160.4
3.60	0.9337	150.1	1.322	17.5	0.0195	-52.93	0.7438	158.6
3.80	0.9316	147.7	1.278	11.95	0.01957	-55.24	0.7436	156.8
4.00	0.9345	145.1	1.214	8.677	0.01928	-57.5	0.7472	154.7
4.20	0.9339	142.2	1.211	5.27	0.01947	-59.83	0.7477	152.9
4.40	0.9304	139.3	1.207	-0.1051	0.01954	-62.08	0.7466	150.7
4.60	0.9272	136.4	1.175	-6.55	0.01976	-64.58	0.7471	148.9
4.80	0.9292	133	1.151	-8.934	0.0199	-66.71	0.7452	146.1
5.00	0.9267	129.3	1.168	-13.09	0.02014	-69.39	0.7437	144
5.20	0.9222	125.4	1.182	-17.79	0.02046	-71.04	0.7383	141.2
5.40	0.92	121.3	1.198	-22.99	0.02096	-73.93	0.7343	138.6
5.60	0.916	116.7	1.212	-28.44	0.02157	-76.1	0.7286	135.3
5.80	0.9138	111.8	1.221	-33.71	0.02203	-79.06	0.7225	132
6.00	0.9086	106.3	1.255	-38.75	0.02277	-81.6	0.712	128.2
6.20	0.9032	100.3	1.294	-45.03	0.02363	-85.07	0.7046	124.3
6.40	0.8971	93.77	1.331	-51.91	0.02453	-88.77	0.6946	119.5
6.60	0.892	86.65	1.372	-59.79	0.02546	-92.63	0.6808	114.7
6.80	0.8903	78.57	1.402	-66.92	0.02672	-97	0.6693	108.9
7.00	0.8842	69.63	1.457	-74.92	0.02823	-102.8	0.6499	102.6
7.20	0.8788	59.51	1.511	-83.79	0.02938	-109.8	0.6387	95.63
7.40	0.8699	48.67	1.552	-93.54	0.02991	-116.3	0.6099	88.24
7.60	0.8691	36.52	1.582	-102.9	0.03077	-124.6	0.5867	79.84
7.80	0.8663	23.56	1.627	-113.3	0.03073	-129.8	0.5629	70.64
8.00	0.8666	9.13	1.668	-126.2	0.03178	-138.8	0.5334	59.12
8.20	0.8716	-5.189	1.688	-138.6	0.02952	-145.8	0.5041	48.05
8.40	0.8805	-19.66	1.667	-151.2	0.02989	-145	0.4896	35.33
8.60	0.8929	-35.04	1.635	-164.3	0.03132	-152.2	0.4738	21.01

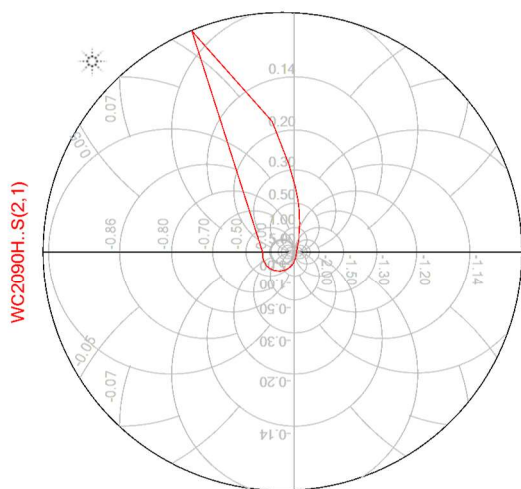
8.80	0.9089	-49.92	1.576	-178	0.03395	-162.3	0.4916	3.121
9.00	0.8857	-125.2	19.5	112.2	0.02108	24.05	0.589	-158.2
9.20	0.8844	-152.5	10.7	94.33	0.02356	7.958	0.6463	-168.3
9.40	0.8947	-163.8	7.231	85.68	0.02387	-0.252	0.664	-173.7
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9.80	0.9007	-175.2	4.373	72.5	0.02353	-11.23	0.6844	-178.9
10.00	0.9081	-178.8	3.639	67.25	0.02338	-15.86	0.691	179.6
10.20	0.9139	177.7	3.125	63.11	0.02306	-19.81	0.6978	177.6
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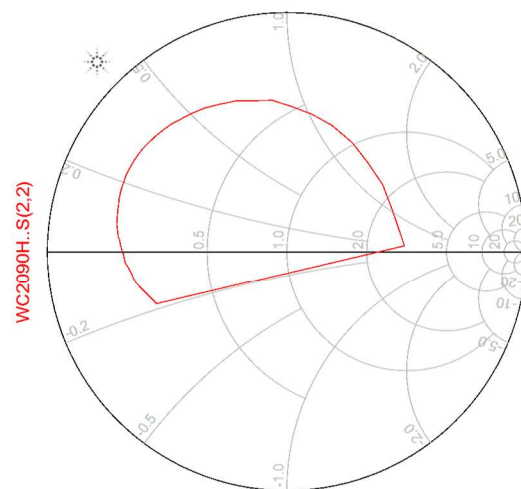
WC2090H..S(1,1)  
freq (200.0MHz to 12.00GHz)



WC2090H..S(1,2)  
freq (200.0MHz to 12.00GHz)



WC2090H..S(2,1)  
freq (200.0MHz to 12.00GHz)



WC2090H..S(2,2)  
freq (200.0MHz to 12.00GHz)