XTAH30080G2_X2 Class AB 300~3000MHz

February 25, 2026

Introduction

This amplifier is designed with Innogration 28V GaN transistor.

Demo and Transistor

Frequency band :	300~3000MHz
Application :	Multi Market
Configuration :	Class AB
Test Signal :	CW
Transistor :	XTAH30080G2_X2
Date code :	253329,260319
PCB :	Rogers3010,r=10.2,25mils, F4BM220,Er=2.2 ,20mil

The amplifier has been characterized under the following conditions:

- Network Analyzer plots for gain and IRL.
- The output power measurement using CW

Note: The PA is tested with a supply voltage of V_{ds} = 28V， V_{gs} = -2.63V，

I_{dq} = 200mA all measurements unless otherwise noted.

Test Results

1. Summary @ Bench (Chengdu)

(1) Test Condition

V_{gs}= -2.63V， V_{ds}= 28V， I_{dq} = 200mA

Signal mode： CW， Frequency： 300-3000MHz

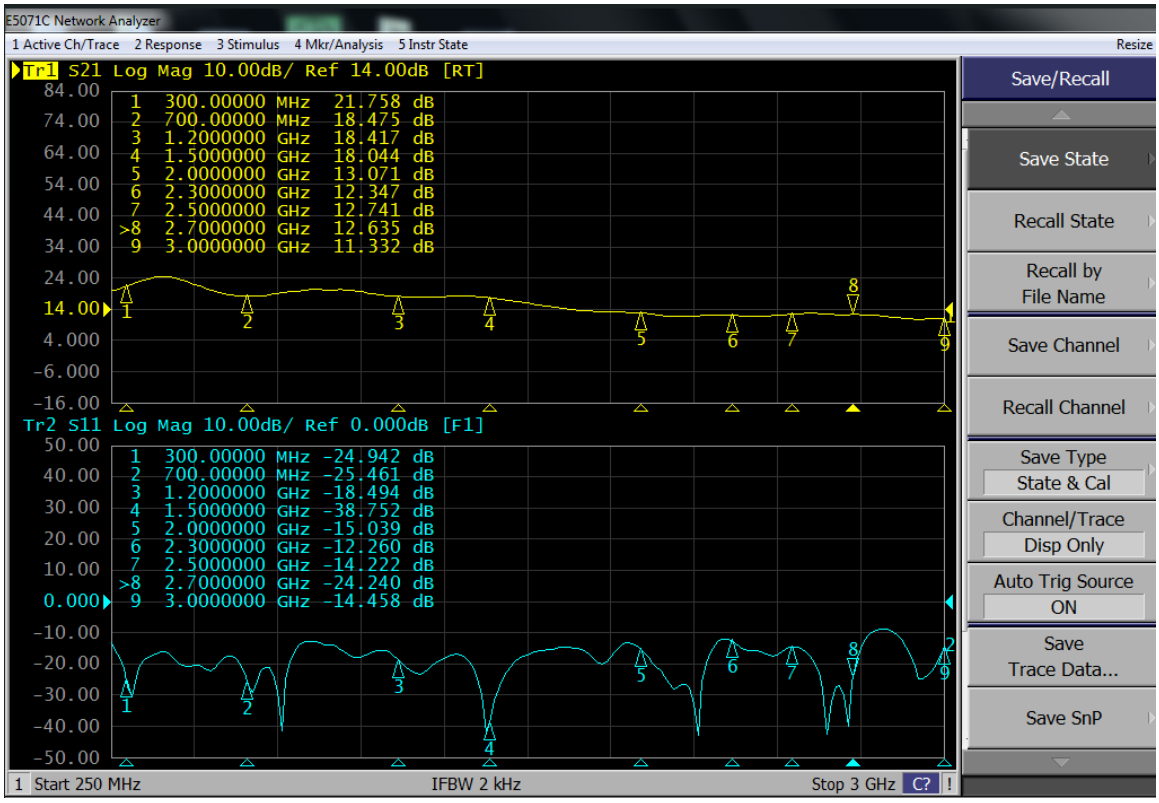
Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2nd	3rd
250	35.52	50.79	119.95	6.77	15.27	63.28	-11.9	-20.7
300	33.92	52.62	182.81	10.76	18.7	60.68	-16.8	-28.0
400	32.23	51.25	133.35	6.81	19.02	69.94	-31.0	-33.0
500	32.95	50.17	103.99	6.16	17.22	60.29	-25.3	-22.6
600	36.28	52.03	159.59	9.99	15.75	57.05	-16.2	-41.0
700	37.29	52.57	180.72	11.48	15.28	56.22	-19.3	-23.9
800	36.02	52.39	173.38	9.79	16.37	63.25	-24.0	-36.0
900	36.04	51.48	140.60	8.04	15.44	62.46	-32.0	-26.0
1000	35.39	51.43	139.00	8.85	16.04	56.09	-17.3	-24.5
1100	37.13	52.29	169.43	11.11	15.16	54.47	-24.4	-22.0
1200	37.38	52.32	170.61	11.36	14.94	53.64	-32.0	-27.0
1300	38.25	51.36	136.77	8.1	13.11	60.31	-24.3	-22.0
1400	37.89	50.79	119.95	8.1	12.9	52.89	-31.0	-25.0
1500	37.44	50.95	124.45	9.57	13.51	46.44	-26.3	-31.6
1600	37.48	51.73	148.94	11.83	14.25	44.96	-24.9	-29.8
1700	39.83	52.49	177.42	13.02	12.66	48.67	-31.4	-25.1
1800	41.07	52.03	159.59	9.96	10.96	57.22	-30.9	-39.0
1900	41.9	51.08	128.23	8.34	9.18	54.91	-28.0	-35.0
2000	41.44	50.5	112.20	8.49	9.06	47.20	-27.7	-26.2
2100	42.37	50.82	120.78	11.1	8.45	38.86		
2200	42.9	52.17	164.82	13.6	9.27	43.28		
2300	42.72	51.62	145.21	10.9	8.9	47.58		
2400	43.68	51.45	139.64	9.44	7.77	52.83		
2500	42.49	50.49	111.94	7.99	8	50.04		
2600	42.81	50.56	113.76	9.62	7.75	42.23		
2700	43.63	51.26	133.66	11.15	7.63	42.81		
2800	43.23	51.01	126.18	11.14	7.78	40.45		
2900	42.14	51.16	130.62	12.1	9.02	38.55		
3000	42.14	51.04	127.06	9.97	8.9	45.51		

2. Network Results

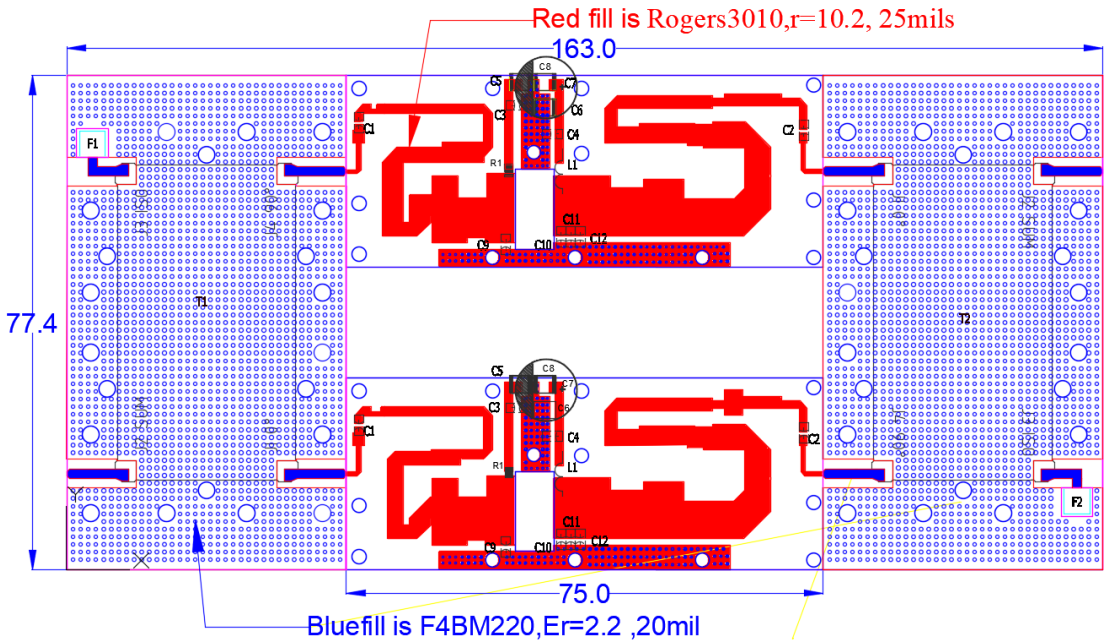
Test Condition

Vgs=-2.57V, Vds=28V, Idq=500mA

input power= 0 dBm



BOM of Test Circuit



Component	Description	Suggestion
C8	470uF/63V	-
C5,C6,C7	10uF（1210）	-
C1,C2, C3, C4	20pF(MQ300805)	
C9	1.2pF(MQ300805)	
C10, C11	1pF(MQ300805)	
C12	0.5pF(MQ300805)	
L1	1mm， 3 turns, diameter :5mm	
T1,T2	HLD-T010T88-3	HLOO MW
F1,F2	RFT50-20TM0404	RFTYTTechnology Co., LTD
R1	Chip Resistor,10Ω（0805）	-
PCB	Rogers3010, r = 10.2, 25mils F4BM220,Er=2.2 ,20mil	-