

XTAH30080G2 Class AB 300~3000MHz

January 04, 2026

Introduction

This amplifier is designed with Innogrations 28V GaN transistor.

Demo and Transistor

Frequency band :	300~3000MHz
Application :	Multi Market
Configuration :	Class AB
Test Signal :	CW
Transistor :	XTAH30080G2
Date code :	253329
PCB :	Rogers3010,r=10.2, 25mils

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 $V_{ds} = 28V$, $V_{gs} = -2.58V$,

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

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XTAH30080G2

Test Results

1. Summary @ Bench (Chengdu)

(1) Test Condition

 $V_{gs} = -2.58V$, $V_{ds} = 28V$, $I_{dq} = 200mA$

Signal mode : CW, Frequency : 300-3000MHz

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2th	3rd
300	28.52	50.05	101.16	5.19	21.53	69.61	-14.10	-11.80
400	29.13	49.03	79.98	3.8	19.9	75.17	-19.30	-12.50
500	31.15	48.25	66.83	3.55	17.1	67.24	-17.6	-13.6
600	32.58	49.38	86.70	4.69	16.8	66.02	-13.30	-12.90
700	33.99	50.03	100.69	5.64	16.04	63.76	-17.50	-12.00
800	33.72	50.29	106.91	5.35	16.57	71.37	-20.20	-12.10
900	32.84	49.17	82.60	4.03	16.33	73.20	-14.50	-13.50
1000	32.19	48.64	73.11	4	16.45	65.28	-13.00	-12.80
1100	35.93	49.04	80.17	5.28	13.11	54.23	-16.10	-22.00
1200	36.08	49.6	91.20	5.89	13.52	55.30	-14.70	-23.90
1300	36.05	49.27	84.53	4.38	13.22	68.92	-14.00	-27.00
1400	35.39	48.06	63.97	3.38	12.67	67.60	-14.70	-23.90
1500	33.74	48.72	74.47	4.9	14.98	54.28	-16.80	-22.30
1600	33.78	50.14	103.28	6.75	16.36	54.64	-35.30	-24.70
1700	36.93	50.11	102.57	5.74	13.18	63.82	-28.50	-21.10
1800	39.87	49.27	84.53	4.39	9.4	68.77	-26.30	-25.60
1900	39.2	48.25	66.83	4.06	9.05	58.79	-33.60	-29.30
2000	38.54	48.24	66.68	4.62	9.7	51.55		
2100	38.97	48.37	68.71	4.91	9.4	49.98		
2200	39.2	49	79.43	5.37	9.8	52.83		
2300	40.22	49.86	96.83	5.86	9.64	59.01		
2400	39.68	49.03	79.98	4.68	9.35	61.04		
2500	38.69	48.31	67.76	4.28	9.62	56.55		
2600	38.81	48.04	63.68	4.56	9.23	49.87		
2700	38.23	48.39	69.02	5.13	10.16	48.05		
2800	37.13	48.56	71.78	5.09	11.43	50.36		
2900	39.54	48.58	72.11	4.74	9.04	54.33		
3000	39.54	48.55	71.61	4.74	9.01	53.96		

(2) Test Condition
 $V_{gs} = -2.58V$, $V_{ds} = 32V$, $I_{dq} = 200mA$

Signal mode : CW, Frequency : 300-3000MHz

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
300	29.02	50.79	119.95	5.58	21.77	67.18
400	28.93	49.97	99.31	4.15	21.04	74.78
500	31.05	49.31	85.31	3.95	18.26	67.49
600	31.58	50.02	100.46	4.95	18.44	63.42
700	32.39	50.84	121.34	5.94	18.45	63.84
800	34.02	51.38	137.40	5.88	17.36	73.03
900	33.04	50.38	109.14	4.47	17.34	76.30
1000	33.39	49.9	97.72	4.51	16.51	67.71
1100	36.23	50.03	100.69	5.73	13.8	54.92
1200	36.28	50.36	108.64	6.28	14.08	54.06
1300	37.35	50.43	110.41	4.88	13.08	70.70
1400	36.69	49.31	85.31	4.33	12.62	61.57
1500	35.14	49.94	98.63	5.5	14.8	56.04
1600	33.98	50.83	121.06	7.17	16.85	52.76
1700	38.33	51.29	134.59	6.44	12.96	65.31
1800	40.07	50.29	106.91	4.73	10.22	70.63
1900	40.1	49.35	86.10	4.52	9.25	59.53
2000	40.14	49.44	87.90	5.28	9.3	52.03
2100	39.67	49.47	88.51	5.48	9.8	50.47
2200	40.2	50.06	101.39	5.93	9.86	53.43
2300	39.02	50.66	116.41	5.99	11.64	60.73
2400	38.48	50.13	103.04	4.98	11.65	64.66
2500	38.09	49.15	82.22	4.45	11.06	57.74
2600	38.51	49.23	83.75	4.9	10.72	53.41
2700	37.93	49.59	90.99	5.52	11.66	51.51
2800	38.33	49.79	95.28	5.46	11.46	54.53
2900	39.74	50.28	106.66	5.14	10.54	64.85
3000	39.04	49.43	87.70	4.95	10.39	55.37

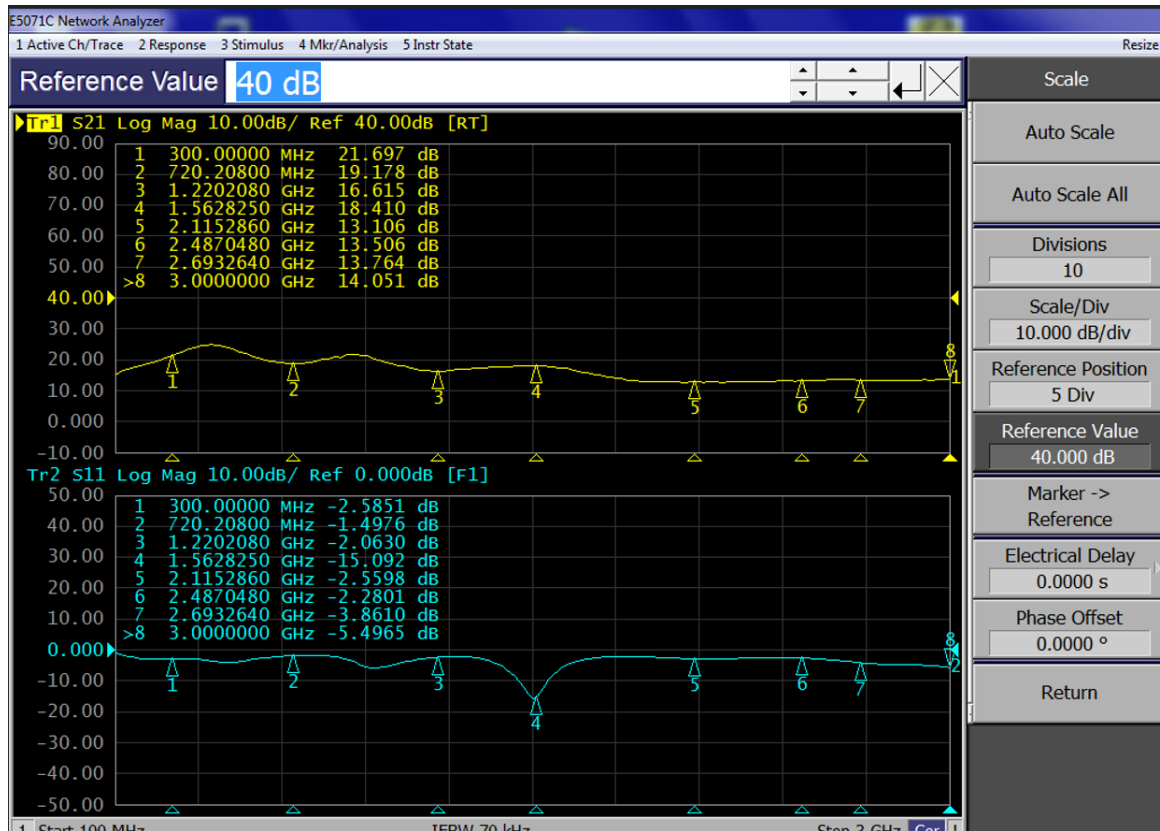
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2. Network Results

Test Condition

$V_{gs} = -2.58V$, $V_{ds} = 28V$, $I_{dq} = 200mA$

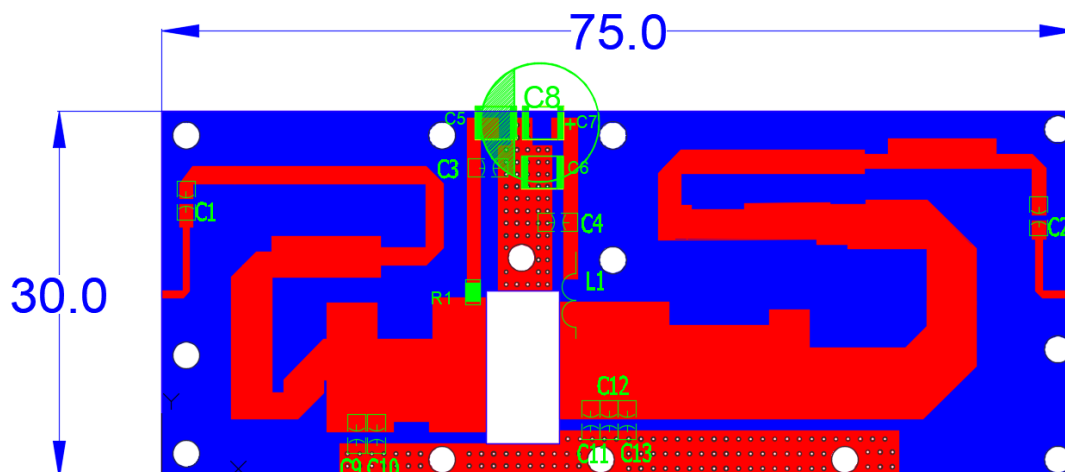
input power= 0 dBm



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BOM of Test Circuit



Component	Description	Suggested Manufacturer
C8	470uF/63V	-
C5,C6,C7	10uF (1210)	-
C1,C2, C3, C4	20pF(MQ300805)	
C9, C10	0.3pF(MQ300805)	
C11, C12, C13	1pF(MQ300805)	
L1	1mm, 3 turns, diameter :5mm	
R1	Chip Resistor,10Ω (0805)	-
PCB	Rogers3010, r = 10.2, 25mils	-