GTAH50141BY4 Class AB 2000~6000MHz

Jun. 11, 2026

Introduction

This amplifier is designed with Innogration 28V GaN transistor.

Demo and Transistor

Frequencyband	:	2000~6000MHz
Application	:	Multi Market
Configuration	:	Class AB
Test Signal	:	CW
Transistor	:	GTAH50141BY4
Date code	:	251544
PCB	:	Rogers 4350B,30mil

The amplifier has been characterized under the following conditions:

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

Test Results

1. Summary @ Bench1(Chengdu)

(1) V_{ds} = 28 V， V_{gs} = -2.49 V， I_{dq} = 200 mA

Signal mode: CW

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	Ids(A)	Gain(dB)	Eff(%)	2nd (dBc)	3rd(dBc)
2000	42.50	49.15	82.2	6.33	6.7	46.4	-11.3	-13.8
2100	42.50	49.26	84.3	6.09	6.8	49.5	-12.5	-14.8
2200	42.50	49.59	91.0	6.43	7.1	50.5	-14.3	-18.4
2300	42.50	50.03	100.7	6.92	7.5	52.0	-14.4	-19.6
2400	42.50	50.71	117.8	7.98	8.2	52.7	-16.8	-20.8
2500	42.50	50.74	118.6	7.89	8.2	53.7	-14.4	-21.2
2600	42.50	50.80	120.2	7.51	8.3	57.2	-13.7	-22.1
2700	42.50	50.51	112.5	7.18	8.0	55.9	-15.8	-24.6
2800	42.50	50.71	117.8	6.95	8.2	60.5	-15.6	-20.3
2900	42.50	50.95	124.5	7.44	8.5	59.7	-15.3	-18.2
3000	42.50	50.80	120.2	7.30	8.3	58.8	-14.5	-17.4
3100	42.50	50.86	121.9	7.17	8.4	60.7	-16.8	-19.9
3200	42.50	50.50	112.2	6.58	8.0	60.9	-20.4	-26.3
3300	42.50	50.50	112.2	6.88	8.0	58.2	-23.4	-35.1
3400	42.50	50.40	109.6	6.78	7.9	57.8	-27.7	-40.0
3500	42.50	50.37	108.9	6.93	7.9	56.1	-28.6	-40.6
3600	42.50	50.60	114.8	7.56	8.1	54.2	/	/
3700	42.50	50.43	110.4	7.59	7.9	52.0	/	/
3800	42.50	50.55	113.5	7.98	8.1	50.8	/	/
3900	42.50	50.89	122.7	8.07	8.4	54.3	/	/
4000	42.50	51.05	127.4	8.26	8.6	55.1	/	/

4100	42.50	50.90	123.0	7.90	8.4	55.6	/	/
4200	42.50	50.80	120.2	7.50	8.3	57.3	/	/
4300	42.50	50.67	116.7	7.28	8.2	57.2	/	/
4400	42.50	50.50	112.2	7.25	8.0	55.3	/	/
4500	42.50	50.35	108.4	7.07	7.9	54.8	/	/
4600	42.50	50.05	101.2	6.64	7.6	54.4	/	/
4700	42.50	49.93	98.4	6.50	7.4	54.1	/	/
4800	42.50	49.84	96.4	6.58	7.3	52.3	/	/
4900	42.50	49.76	94.6	6.57	7.3	51.4	/	/
5000	42.50	49.80	95.5	6.80	7.3	50.2	/	/
5100	42.50	49.70	93.3	6.93	7.2	48.1	/	/
5200	42.50	49.65	92.3	7.31	7.2	45.1	/	/
5300	42.50	49.40	87.1	7.15	6.9	43.5	/	/
5400	42.50	49.15	82.2	7.48	6.7	39.3	/	/
5500	42.50	49.23	83.8	8.17	6.7	36.6	/	/
5600	42.50	49.50	89.1	8.70	7.0	36.6	/	/
5700	42.50	49.90	97.7	9.07	7.4	38.5	/	/
5800	42.50	50.00	100.0	8.65	7.5	41.3	/	/
5900	42.50	49.60	91.2	7.98	7.1	40.8	/	/
6000	42.50	49.20	83.2	7.59	6.7	39.1	/	/

(2) V_{ds} = 32 V， V_{gs} = -2.49 V， I_{dq} = 200 mA

Signal mode: CW

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	Ids(A)	Gain(dB)	Eff(%)
2000	42.50	49.85	96.6	6.75	7.4	44.7
2100	42.50	49.87	97.1	6.43	7.4	47.2
2200	42.50	50.28	106.7	6.79	7.8	49.1
2300	42.50	50.68	116.9	7.29	8.2	50.1
2400	42.50	51.30	134.9	8.44	8.8	49.9
2500	42.50	51.38	137.4	8.33	8.9	51.5
2600	42.50	51.43	139.0	7.95	8.9	54.6
2700	42.50	51.07	127.9	7.57	8.6	52.8
2800	42.50	51.40	138.0	7.40	8.9	58.3
2900	42.50	51.62	145.2	7.88	9.1	57.6
3000	42.50	51.50	141.3	7.79	9.0	56.7
3100	42.50	51.50	141.3	7.69	9.0	57.4
3200	42.50	51.23	132.7	7.08	8.7	58.6
3300	42.50	51.22	132.4	7.33	8.7	56.5
3400	42.50	51.13	129.7	7.21	8.6	56.2
3500	42.50	51.15	130.3	7.38	8.7	55.2
3600	42.50	51.26	133.7	7.98	8.8	52.3
3700	42.50	51.15	130.3	8.00	8.7	50.9
3800	42.50	51.19	131.5	8.35	8.7	49.2
3900	42.50	51.49	140.9	8.44	9.0	52.2
4000	42.50	51.80	151.4	8.71	9.3	54.3
4100	42.50	51.64	145.9	8.38	9.1	54.4
4200	42.50	51.50	141.3	7.92	9.0	55.7

4300	42.50	51.50	141.3	7.77	9.0	56.8
4400	42.50	51.40	138.0	7.73	8.9	55.8
4500	42.50	51.22	132.4	7.53	8.7	55.0
4600	42.50	50.95	124.5	7.08	8.5	54.9
4700	42.50	50.77	119.4	6.86	8.3	54.4
4800	42.50	50.64	115.9	6.80	8.1	53.3
4900	42.50	50.55	113.5	6.87	8.1	51.6
5000	42.50	50.55	113.5	7.00	8.1	50.7
5100	42.50	50.50	112.2	7.09	8.0	49.5
5200	42.50	50.35	108.4	7.32	7.9	46.3
5300	42.50	50.15	103.5	7.29	7.7	44.4
5400	42.50	49.90	97.7	7.65	7.4	39.9
5500	42.50	49.91	97.9	8.32	7.4	36.8
5600	42.50	50.15	103.5	8.83	7.7	36.6
5700	42.50	50.53	113.0	9.15	8.0	38.6
5800	42.50	50.55	113.5	8.66	8.1	41.0
5900	42.50	50.30	107.2	8.08	7.8	41.4
6000	42.50	50.02	100.5	7.73	7.5	40.6

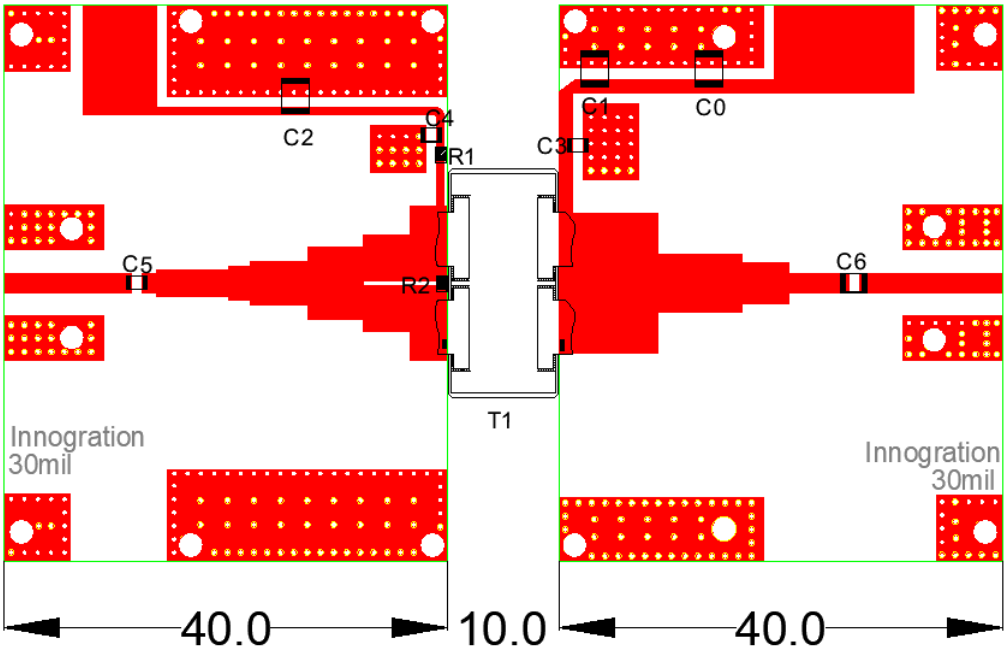
2. Network Results

Test Condition

V_{gs} = -2.40 V， V_{ds} = 28 V， I_{dq}= 500 mA

input power = 0 dBm

BOM of Test Circuit



Reference Designator	Description	Quantity	Suggestion
C0, C1, C2	10uF/100V, 1210	3	
C3, C4, C5	5.6 pF, 0805/1111	1	
C6	5.1 pF, 0805/1111	1	
R1, R2	10 Ω, 0603/0805	2	Murata
T1	GTAH501141BY4	1	Innogration
PCB	Rogers 4350B, 30mil		-