SU3014V Class AB 100-1650MHz
July 01, 2026

Introduction

This amplifier is designed with Innogration 50V Gan transistor.

Demo and Transistor

Frequencyband	：	100-1650MHz
Application	：	Multi Market
Configuration	：	Class AB
Test Signal	：	Pulse/CW
Transistor	：	SU3014V
Date code	：	--
PCB	：	F4BTMS1000 ,r=10.2 ,30 mil

The amplifier has been characterized under the following conditions:

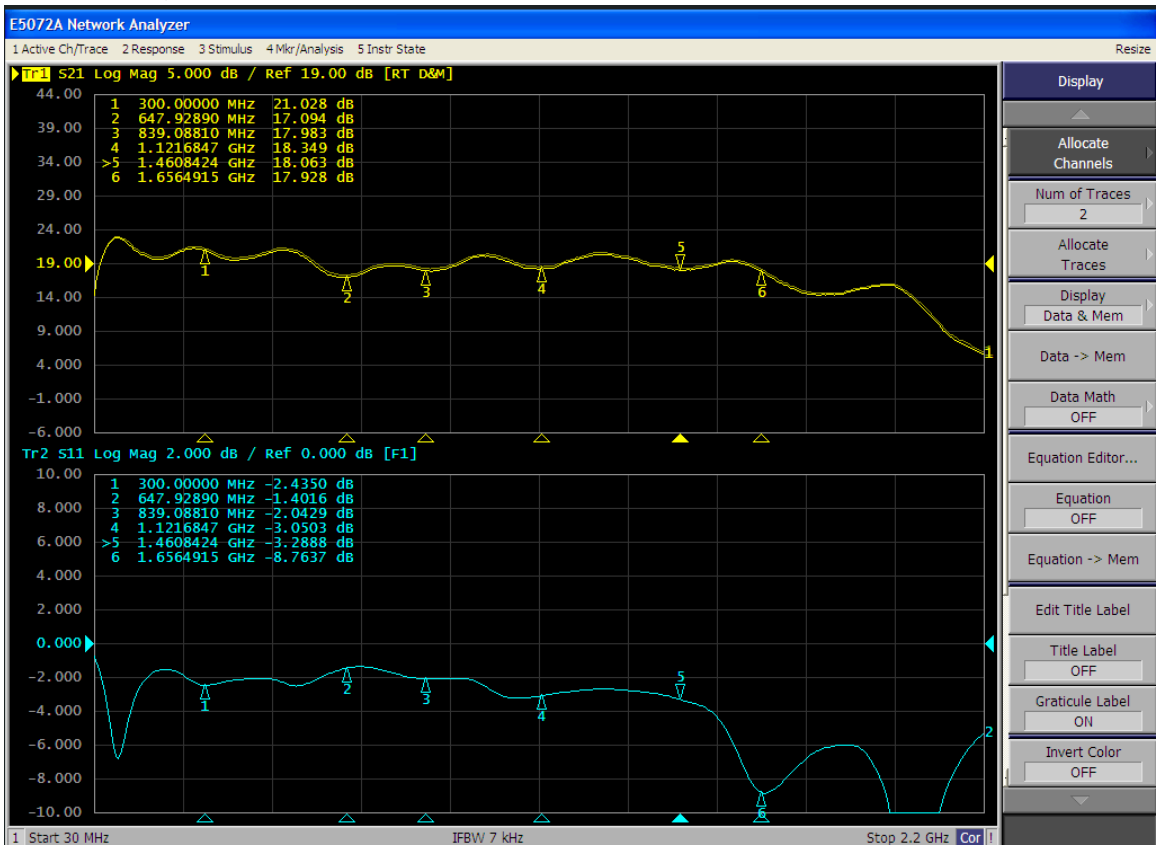
- Network Analyzer plots for gain and IRL.
- The output power measurement using CW .

Note： The PA is tested with a supply voltage of V_{DS} = 50V , I_{dq} = 200mA， all measurements unless otherwise noted.

1. Network Results

Test Condition

V_{ds}=50V，V_{gs}=-3.3V，I_{dq}=200mA，Input Power = 0dBm



Test Results

2. Summary @ Bench 2(Chengdu)

(1) Test Condition

Signal mode： Pulse 10% 100us

Frequency： 100-1650MHz

V_{gs}= -3.35V， V_{ds}= 50V， I_{dq} = 100mA

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
100	34.08	50.72	118.03	0.45	16.64	52.46
120	34.08	51.33	135.83	0.57	17.25	47.66
150	34.9	51.83	152.41	0.61	16.93	49.97
200	**35.14**	**53.02**	**200.45**	**0.65**	**17.88**	**61.68**
300	**34.14**	**52.14**	**163.68**	**0.51**	**18**	**64.19**
400	**35.47**	**52.64**	**183.65**	**0.65**	**17.17**	**56.51**
500	**35.71**	**51.66**	**146.55**	**0.41**	**15.95**	**71.49**
600	**37.46**	**52.36**	**172.19**	**0.68**	**14.9**	**50.64**
700	**38.89**	**52.83**	**191.87**	**0.64**	**13.94**	**59.96**
800	**37.39**	**51.89**	**154.53**	**0.57**	**14.5**	**54.22**
900	**38.73**	**52.53**	**179.06**	**0.73**	**13.8**	**49.06**
1000	**37.59**	**52.31**	**170.22**	**0.6**	**14.72**	**56.74**
1100	**37.42**	**52.42**	**174.58**	**0.79**	**15**	**44.20**
1200	**37.25**	**52.78**	**189.67**	**0.65**	**15.53**	**58.36**
1300	**37.46**	**51.79**	**151.01**	**0.46**	**14.33**	**65.66**
1400	**38.69**	**51.69**	**147.57**	**0.45**	**13**	**65.59**
1500	**38.05**	**51.85**	**153.11**	**0.55**	**13.8**	**55.68**
1600	**38.08**	**51.62**	**145.21**	**0.51**	**13.54**	**56.95**
1650	38.28	50.99	125.60	0.56	12.71	44.86

(2) Test Condition

Signal mode： CW

Frequency： 100-1650MHz

V_{gs}= -3.35V， V_{ds}= 50V， I_{dq} = 100mA

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)	2th	3rd
100	34.1	50.53	112.98	4.47	16.43	50.55	-6.9	-11.8
120	34.1	51.04	127.06	5.47	16.94	46.46	-6.8	-14.0
150	34.9	51.22	132.43	5.73	16.32	46.22	-6.8	-12.9
200	**35.18**	**52.38**	**172.98**	**5.99**	**17.2**	**57.76**	**-12.0**	**-17.0**
300	**35.14**	**51.83**	**152.41**	**4.92**	**16.69**	**61.95**	**-13.6**	**-13.7**
400	**35.57**	**52.17**	**164.82**	**6.22**	**16.6**	**53.00**	**-9.9**	**-14.9**
500	**35.71**	**51.53**	**142.23**	**4.09**	**15.82**	**69.55**	**-18.0**	**-13.0**
600	**37.56**	**51.63**	**145.55**	**6.17**	**14.07**	**47.18**	**-13.4**	**-16.2**
700	**38.99**	**52.29**	**169.43**	**6.08**	**13.3**	**55.73**	**-14.5**	**-14.7**
800	**37.49**	**51.48**	**140.60**	**5.49**	**13.99**	**51.22**	**-11.5**	**-20.0**
900	**38.93**	**51.9**	**154.88**	**6.7**	**12.97**	**46.23**	**-16.0**	**-19.2**
1000	**37.69**	**51.93**	**155.96**	**5.71**	**14.24**	**54.63**	**-16.3**	**-25.8**
1100	**37.42**	**51.87**	**153.82**	**7.16**	**14.45**	**42.97**	**-18.0**	**-18.5**
1200	**37.35**	**52.53**	**179.06**	**6.4**	**15.18**	**55.96**	**-17.0**	**-19.0**
1300	**37.46**	**51.66**	**146.55**	**4.58**	**14.2**	**64.00**	**-19.0**	**-29.0**
1400	**38.69**	**51.53**	**142.23**	**4.49**	**12.84**	**63.36**	**-23.0**	**-33.0**
1500	**37.85**	**51.6**	**144.54**	**5.4**	**13.75**	**53.53**	**-28.0**	**-30.0**
1600	**37.88**	**51.38**	**137.40**	**5.13**	**13.5**	**53.57**	**-17.0**	**-34.0**
1650	38.08	50.54	113.24	5.46	12.46	41.48	-22.0	-27.0

(3) Test Condition

Signal mode： Pulse 10% 100us

Frequency： 100-1650MHz

V_{gs}= -3.35V， V_{ds}= 32V， I_{dq} = 100mA

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
100	33.6	48.01	63.24	0.3	14.41	65.88
120	33	49.36	86.30	0.44	16.36	61.29
150	34	49.84	96.38	0.49	15.84	61.47
200	**34.28**	**50.72**	**118.03**	**0.51**	**16.44**	**72.32**
300	**34.54**	**49.27**	**84.53**	**0.37**	**14.73**	**71.39**
400	**34.97**	**50.72**	**118.03**	**0.53**	**15.75**	**69.59**
500	**35.31**	**48.23**	**66.53**	**0.28**	**12.92**	**74.25**
600	**37.06**	**50.18**	**104.23**	**0.54**	**13.12**	**60.32**
700	**38.49**	**50.22**	**105.20**	**0.48**	**11.73**	**68.49**
800	**36.99**	**49.27**	**84.53**	**0.44**	**12.28**	**60.03**
900	**38.03**	**50.2**	**104.71**	**0.56**	**12.17**	**58.43**
1000	**37.29**	**48.67**	**73.62**	**0.44**	**11.38**	**52.29**
1100	**37.12**	**50.79**	**119.95**	**0.6**	**13.67**	**62.47**
1200	**36.95**	**49.91**	**97.95**	**0.44**	**12.96**	**69.57**
1300	**37.16**	**48.33**	**68.08**	**0.32**	**11.17**	**66.48**
1400	**38.49**	**48.29**	**67.45**	**0.32**	**9.8**	**65.87**
1500	**37.55**	**48.55**	**71.61**	**0.4**	**11**	**55.95**
1600	**37.58**	**48.31**	**67.76**	**0.39**	**10.73**	**54.30**
1650	37.58	48.05	63.83	0.45	10.47	44.32

(4) Test Condition

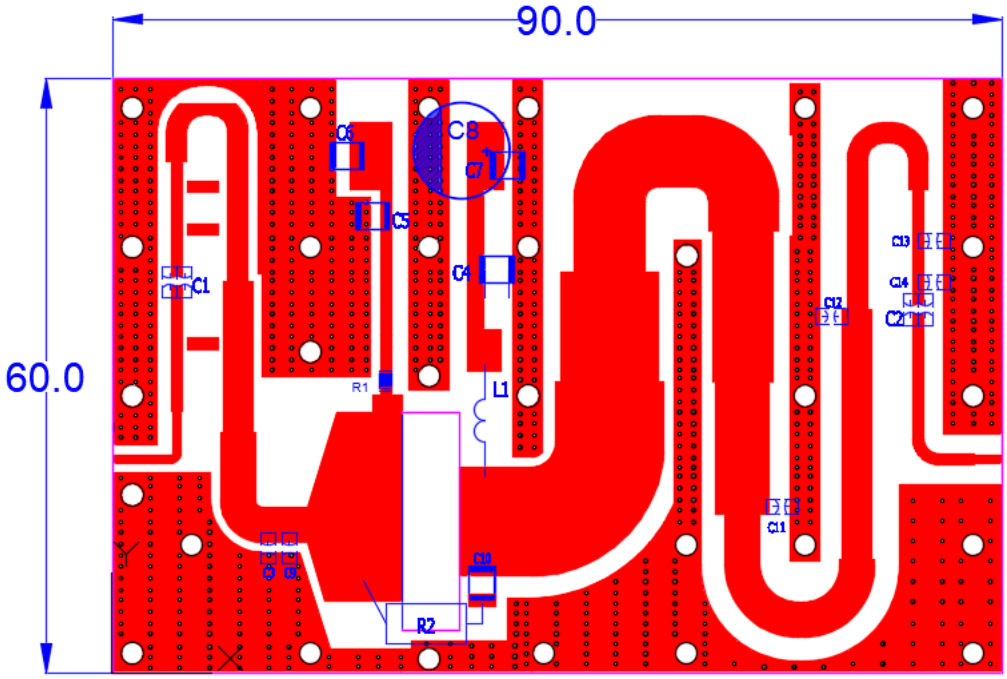
Signal mode： CW

Frequency： 100-1650MHz

V_{gs}= -3.35V， V_{ds}= 32V， I_{dq} = 100mA

Freq(MHz)	Pin(dBm)	Pout(dBm)	Pout(W)	IDS(A)	Gain(dB)	Eff(%)
100	33.5	47.96	62.52	3.09	14.46	63.23
120	33.1	49.18	82.79	4.41	16.08	58.67
150	34.4	49.6	91.20	4.82	15.2	59.13
200	34.38	50.55	113.50	5.02	16.17	70.66
300	34.54	49.74	94.19	3.74	15.2	78.70
400	34.97	50.52	112.72	5.23	15.55	67.35
500	35.31	48.21	66.22	2.82	12.9	73.38
600	37.16	49.93	98.40	5.34	12.77	57.58
700	38.69	49.1	81.28	4.83	10.41	52.59
800	37.09	49.09	81.10	4.4	12	57.60
900	38.13	50.06	101.39	5.57	11.93	56.88
1000	37.39	49.57	90.57	4.45	12.18	63.60
1100	37.12	50.49	111.94	6.64	13.37	52.68
1200	36.95	49.85	96.61	4.49	12.9	67.24
1300	37.16	48.26	66.99	3.23	11.1	64.81
1400	38.29	48.24	66.68	3.22	9.95	64.71
1500	37.55	48.5	70.79	4.07	10.95	54.36
1600	37.58	48.24	66.68	3.89	10.66	53.57
1650	37.58	47.85	60.95	4.46	10.27	42.71

BOM of Test Circuit



Component	Description	Suggested Manufacturer
C1,C2	47*2pF/MQ300805	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C8	470uF	
C6,C7	10uF	
C4, C5	10nF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C10	1000pF/ MQ301111	
C13,	0.5Pf/ MQ300805	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C11, C12, C14,	1Pf/ MQ300805	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C3	2pF/ MQ300805	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD
C9	3pF/ MQ300805	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD
L1	1mm，6 turns, diameter :5mm	DIY air core inductance
R2	330ohm	---
R1	10ohm/1206	Chip Resistor
PCB	F4BTMS1000 ,r=10.2 ,30 mil	