

SL3028VS: 500-2000MHz**SL3028VS Class AB 500-2000MHz****Oct.09, 2025****Introduction**

This amplifier is designed with Innogrations 50V Gan transistor SL3028VS, at lower operation voltage like 40V, it can deliver more than 200W CW across the full band of 0.5-2GHz

Demo and Transistor

Frequencyband	: 500-2000MHz
Application	: Multi Market
Configuration	: Class AB
Test Signal	: CW
Transistor	: SL3028VS
Date code	: 251549
PCB	: FSD1020T,DK=10.2,20mil / Rogers4350 20mil

The amplifier has been characterized under the following conditions:

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

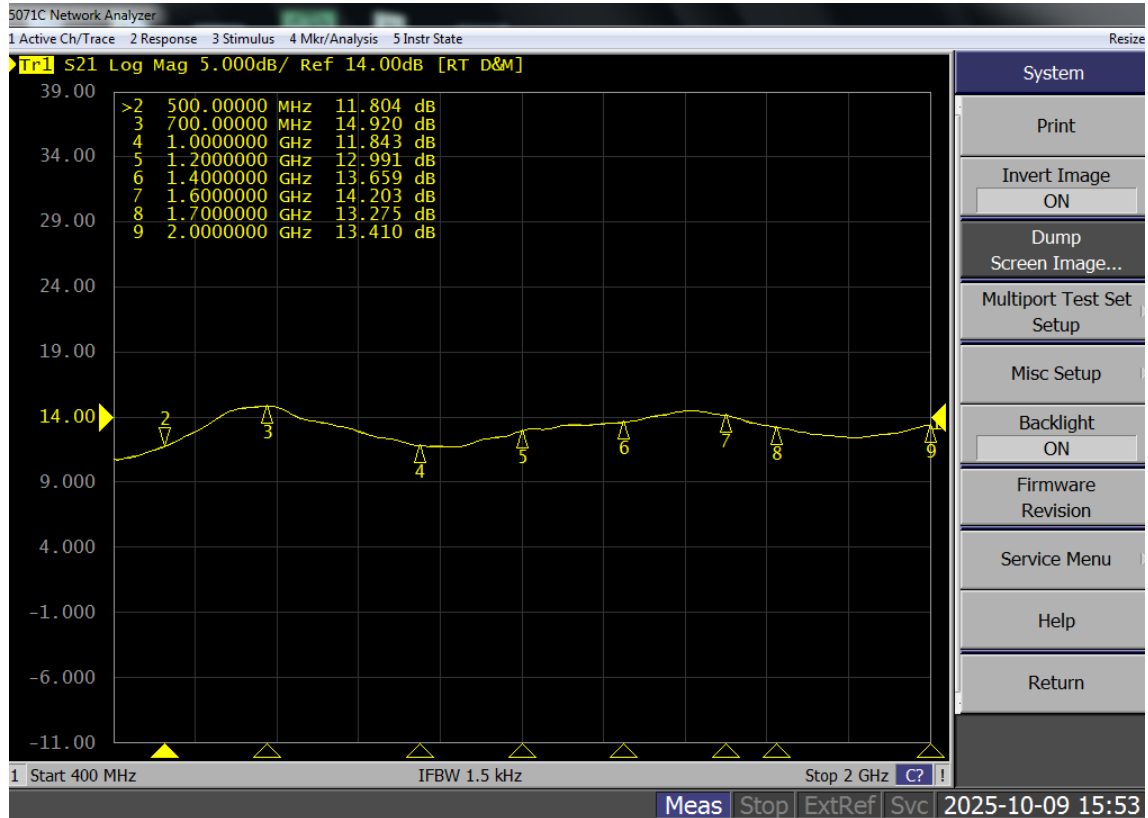
Note: The PA is tested with a supply voltage of $V_{DS} = 40V$ and $28V$, $I_{dq} = 160mA$, all measurements unless otherwise noted.

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1. Network Results

Test Condition

$V_{ds}=40V$, $V_{gs}=-3.35V$, $I_{dq}=160mA$, Input Power = 0dBm



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Test Results

2. Summary @ Bench 2(Chengdu)

(1) Test Condition

Signal mode : CW

Frequency : 500-2000MHz

$V_{gs} = -3.35V$, $V_{ds} = 28V$, $I_{dq} = 150mA$

SL3028VS VGS=-3.35V VDS=28V IDQ=150mA CW						
Freq (MHz)	Psat (dBm)	Psat (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff(%)
500	52.01	158.9	9.46	41.11	10.90	59.97
600	51.99	158.1	7.76	38.12	13.87	72.77
700	50.70	117.5	5.90	39.74	10.96	71.12
800	51.15	130.3	7.40	40.37	10.78	62.89
900	52.23	167.1	9.14	38.38	13.85	65.30
1000	52.13	163.3	9.82	41.48	10.65	59.39
1100	52.46	176.2	9.97	40.83	11.63	63.12
1200	50.88	122.5	6.81	40.81	10.07	64.22
1300	51.18	131.2	7.35	39.72	11.46	63.76
1400	51.57	143.5	8.18	39.82	11.75	62.67
1500	51.89	154.5	9.83	38.96	12.93	56.14
1600	52.44	175.4	10.20	39.64	12.80	61.41
1700	51.86	153.5	8.70	40.72	11.14	63.00
1800	51.00	125.9	7.31	40.90	10.10	61.51
1900	50.70	117.5	7.41	40.00	10.70	56.63
2000	50.92	123.6	8.38	39.72	11.20	52.67

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Signal mode : CW

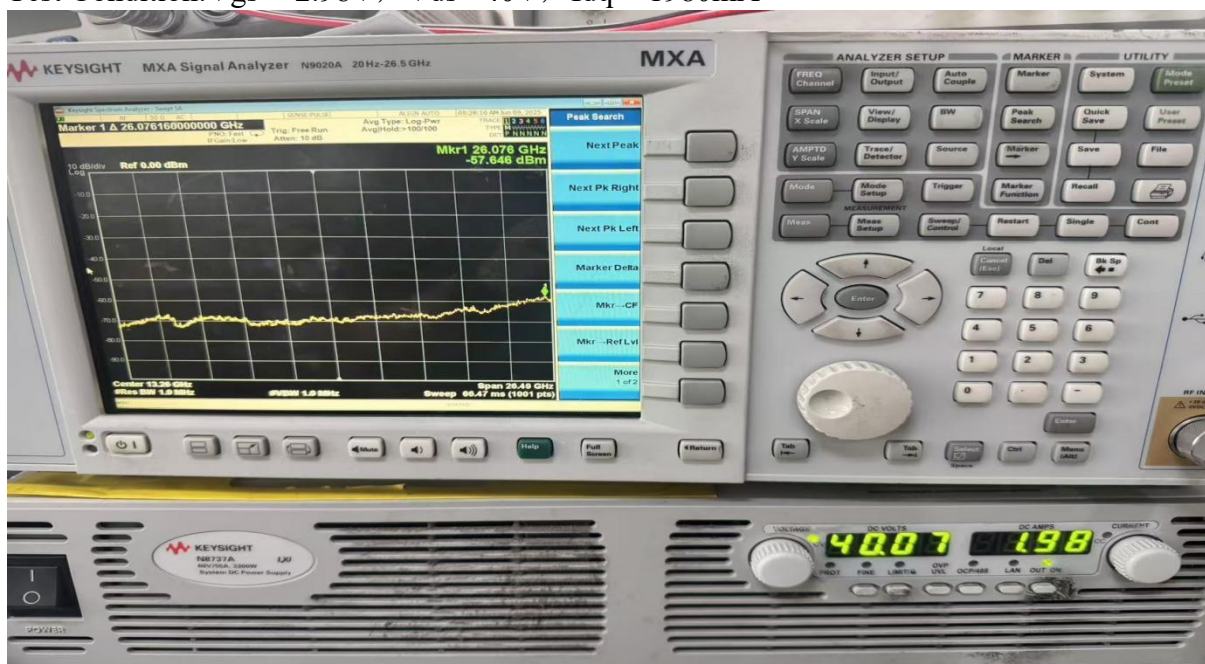
Frequency : 500-2000MHz

$V_{gs} = -3.35V$, $V_{ds} = 40V$, $I_{dq} = 160mA$

SL3028VS VGS=-3.35V VDS=40V IDQ=160mA CW								
Freq (MHz)	Psat (dBm)	Psat (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff(%)	2th (dBc)	3th (dBc)
500	53.61	229.6	10.80	41.51	12.10	53.15	-14.30	-13.60
600	54.12	258.2	9.49	38.12	16.00	68.03	-18.40	-11.90
700	53.19	208.4	7.66	39.84	13.35	68.03	-19.10	-13.70
800	53.50	223.9	9.56	41.54	11.96	58.54	-21.00	-13.30
900	54.09	256.4	10.91	39.37	14.72	58.76	-15.70	-12.70
1000	53.83	241.5	11.20	42.13	11.70	53.92	-16.80	-18.50
1100	54.39	274.8	11.92	41.98	12.41	57.63	-14.80	-19.50
1200	53.51	224.4	8.97	42.51	11.00	62.54	-19.20	-17.00
1300	53.44	220.8	9.22	39.87	13.57	59.87	-22.30	-18.90
1400	53.82	241.0	10.28	40.57	13.25	58.61	-26.20	-20.20
1500	53.68	233.3	10.77	39.16	14.52	54.17	-42.50	-21.00
1600	54.13	258.8	11.05	39.84	14.29	58.56	-30.00	-26.20
1700	54.02	252.3	10.67	41.92	12.10	59.13	-25.60	-21.70
1800	53.35	216.3	9.52	42.10	11.25	56.79	-25.60	-28.60
1900	53.65	231.7	10.22	42.20	11.45	56.69	-26.30	-20.60
2000	53.42	219.8	10.50	40.62	12.80	52.33	-34.60	-21.80

spectrum analyzer to • show no oscillation or instability issue

Test Condition: $V_{gs} = -2.98V$, $V_{ds} = 40V$, $I_{dq} = 1980mA$



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Signal mode : Pulse 10% 100us

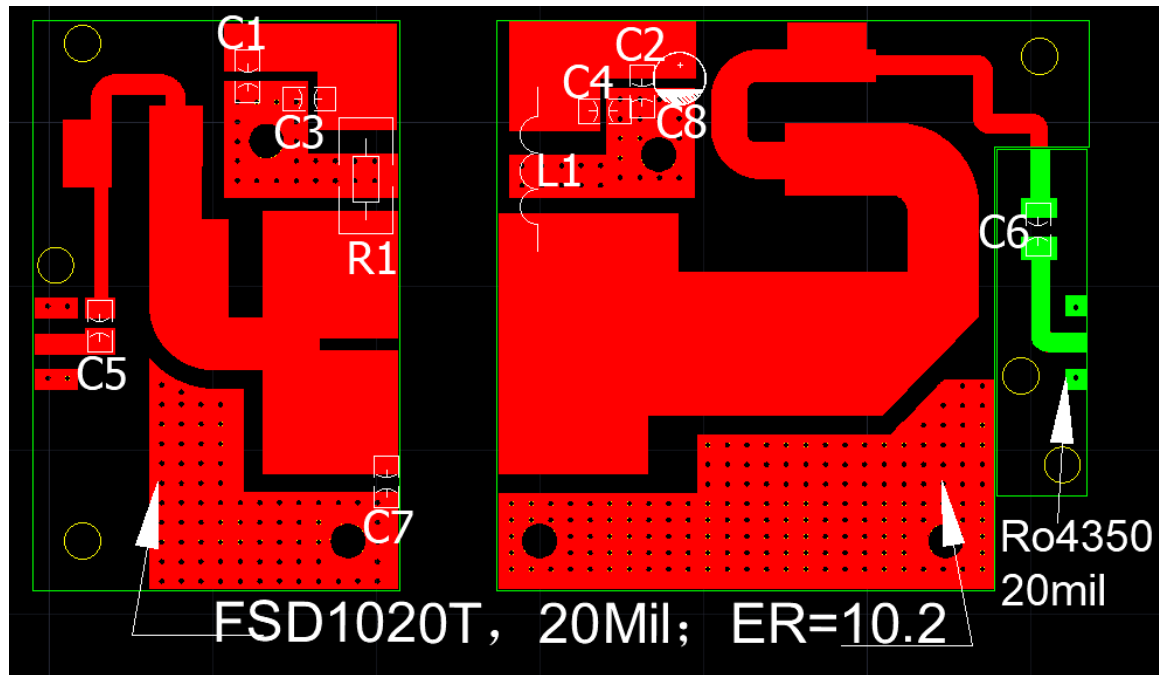
Frequency : 500-2000MHz

$V_{gs} = -3.35V$, $V_{ds} = 50V$, $I_{dq} = 160mA$

SL3028VS VGS=-3.35V VDS=50V IDQ=160mA Pulse 10% 100us						
Freq (MHz)	Psat (dBm)	Psat (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff(%)
500	55.46	351.6	1.39	40.21	15.25	50.58
600	55.47	352.4	1.07	39.92	15.55	65.86
700	55.08	322.1	0.96	39.84	15.24	67.11
800	55.05	319.9	1.11	40.85	14.20	57.64
900	55.53	357.3	1.29	38.67	16.86	55.39
1000	54.94	311.9	1.28	41.78	13.16	48.73
1100	55.83	382.8	1.45	42.09	13.74	52.80
1200	55.31	339.6	1.09	42.65	12.66	62.32
1300	55.10	323.6	1.07	39.42	15.68	60.48
1400	55.31	339.6	1.18	39.97	15.34	57.56
1500	55.12	325.1	1.28	38.86	16.26	50.79
1600	55.68	369.8	1.42	39.74	15.94	52.09
1700	55.74	375.0	1.33	42.08	13.66	56.39
1800	55.40	346.7	1.18	42.85	12.55	58.77
1900	55.32	340.4	1.15	41.80	13.52	59.20
2000	55.05	319.9	1.19	39.97	15.08	53.76

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BOM of Test Circuit



Component	Description	Suggested Manufacturer
C1~C2	10uF/200V-1210	TDK
C3,C5	30pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C4	75pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C6	30pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ300709
C7	2.4pF	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.MQ301111
C8	470uF/63V	Electrolytic Capacitor
L1	1mm wire, 3mm innerdiameter, 4turns	DIY
R1	10 Ω -2512	Chip Resistor
PCB	Red: FSD1020T;20mil er=10.2 Green: Rogers4350,20mil	

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Demo Picture

