ITCN10012PD Class AB 13.56±5%MHz

Oct.29, 2026

Introduction

This amplifier is designed with Innogration 12V LDMOS transistor.

Demo and Transistor

Frequencyband	:	13.56±5%MHz
Application	:	Multi Market
Configuration	:	Class AB
Test Signal	:	CW
Transistor	:	ITCN10012PD
Date code	:	214538
PCB	:	30Mil Rogers 4350

The amplifier has been characterized under the following conditions:

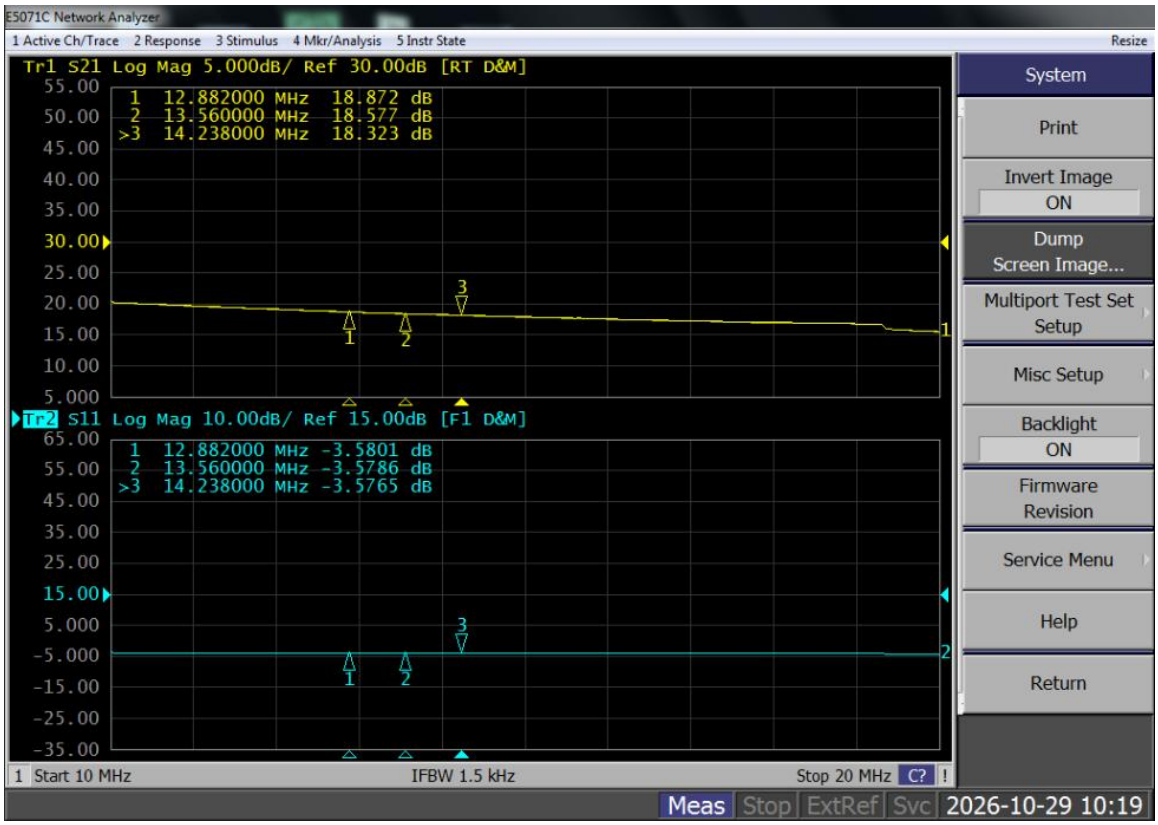
- Network Analyzer plots for gain and IRL.
- The output power measurement using CW .

Note： 1.The PA is tested with a supply voltage of V_{DS} = 5V ， I_{dq} =60mA， all measurements unless otherwise noted.

1. Network Results

Test Condition

V_{ds}=5V， V_{gs}=3V， I_{dq}=60mA， Input Power = 0dBm



Test Results

2. Summary @ Bench 4(Chengdu)

(1) Test Condition

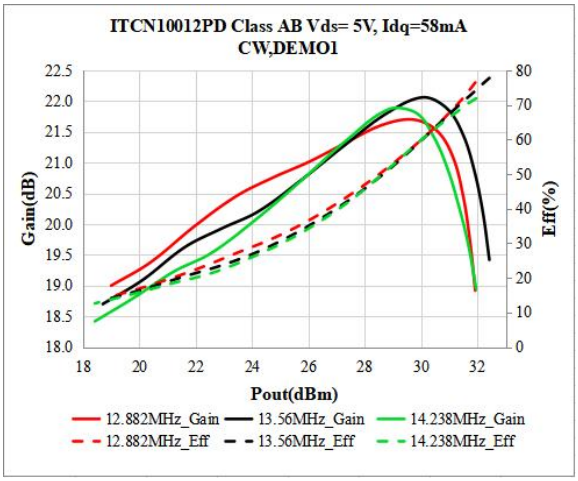
Signal mode： CW

ITCN10012PD VGS=2.9V VDS=5V IDQ=60mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
12.882	31.92	1.56	0.407	13.00	18.92	76.46	-12.2	-29.9
	31.73	1.49	0.400	12.00	19.73	74.47	/	/
	31.48	1.41	0.391	11.00	20.48	71.92	/	/
	31.11	1.29	0.376	10.00	21.11	68.68	/	/
	30.53	1.13	0.354	9.00	21.53	63.83	/	/
	29.70	0.93	0.323	8.00	21.7	57.79	/	/
	28.61	0.73	0.287	7.00	21.61	50.60	/	/
	27.32	0.54	0.250	6.00	21.32	43.16	/	/
	26.01	0.40	0.218	5.00	21.01	36.61	/	/
	24.76	0.30	0.190	4.00	20.76	31.50	/	/
	23.46	0.22	0.163	3.00	20.46	27.22	/	/
	21.97	0.16	0.141	2.00	19.97	22.33	/	/
	20.37	0.11	0.122	1.00	19.37	17.85	/	/
	19.00	0.08	0.109	0.00	19	14.57	/	/

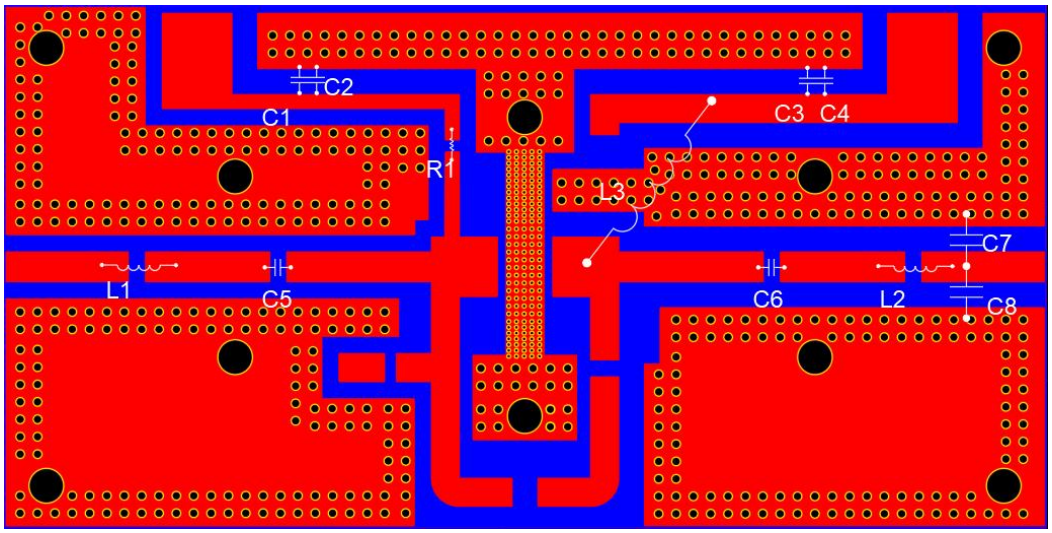
ITCN10012PD VGS=2.9V VDS=5V IDQ=60mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
13.56	32.42	1.75	0.449	13.00	19.42	77.76	-12.5	-33.3
	32.19	1.66	0.435	12.00	20.19	76.13	/	/
	31.88	1.54	0.418	11.00	20.88	73.77	/	/
	31.47	1.40	0.396	10.00	21.47	70.85	/	/

	30.89	1.23	0.369	9.00	21.89	66.53	/	/
	30.06	1.01	0.337	8.00	22.06	60.17	/	/
	28.81	0.76	0.298	7.00	21.81	51.03	/	/
	27.28	0.53	0.257	6.00	21.28	41.60	/	/
	25.70	0.37	0.221	5.00	20.7	33.62	/	/
	24.20	0.26	0.191	4.00	20.2	27.54	/	/
	22.93	0.20	0.166	3.00	19.93	23.65	/	/
	21.63	0.15	0.142	2.00	19.63	20.50	/	/
	20.08	0.10	0.123	1.00	19.08	16.56	/	/
	18.70	0.07	0.110	0.00	18.7	13.48	/	/

ITCN10012PD VGS=2.9V VDS=5V IDQ=60mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
14.238	31.95	1.57	0.436	13.00	18.95	71.87	-12.9	-40.3
	31.67	1.47	0.417	12.00	19.67	70.45	/	/
	31.32	1.36	0.397	11.00	20.32	68.27	/	/
	30.92	1.24	0.375	10.00	20.92	65.92	/	/
	30.43	1.10	0.352	9.00	21.43	62.73	/	/
	29.81	0.96	0.327	8.00	21.81	58.54	/	/
	28.87	0.77	0.298	7.00	21.87	51.74	/	/
	27.37	0.55	0.262	6.00	21.37	41.66	/	/
	25.68	0.37	0.226	5.00	20.68	32.73	/	/
	24.04	0.25	0.194	4.00	20.04	26.14	/	/
	22.52	0.18	0.168	3.00	19.52	21.27	/	/
	21.23	0.13	0.143	2.00	19.23	18.56	/	/
	19.80	0.10	0.124	1.00	18.8	15.40	/	/
	18.42	0.07	0.110	0.00	18.42	12.64	/	/



BOM of Test Circuit



Component	Description	Suggested Manufacturer
C1~C6	1uF/0805	/
C7	390pF MQ301111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C8	220pF MQ301111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
L1	200nH/1206	/
L2	100nH/1206	/
L3	0.8mm enamelled wire BN-43-1502 12turns	DIY
R1	300Ω/0805	/
PCB	30Mil Rogers4350	

Demo Picture

