MC011K5VXS^{V0}×2 Class AB 13.56±5%MHz
Mar 23, 2026

Introduction

This amplifier is designed with Innogration 50V LDMOS transistor.

Demo and Transistor

Frequencyband	:	13.56±5%MHz
Application	:	Multi Market
Configuration	:	Class AB
Test Signal	:	CW
Transistor	:	MC011K5VXS^{V0}
Date code	:	261101S-01/261101S-02
PCB	:	Rogers **4350**& Rogers **4450T** PCB Thickness：**2.55mm**

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}=50V , I_{dq}=100mA， all measurements unless otherwise noted.

2.The attenuator used in the test is Shanghai Huaxiang:DTS5000-50-1

Test Results:

1. Summary @Bench 2(Chengdu)

（1）Test Condition:

MC011K5UXS^{V0}×2 VGS=3V VDS=50V IDQ=100mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
12.882	64.35	2722.70	68.34	41.94	22.41	79.68	-57.9	-37.3
	64.30	2691.53	67.83	40.94	23.36	79.36	/	/
	64.22	2642.41	67.12	39.95	24.27	78.74	/	/
	64.06	2546.83	65.60	39.04	25.02	77.65	/	/
	63.80	2398.83	63.57	38.04	25.76	75.47	/	/
	63.42	2197.86	60.80	37.04	26.38	72.30	/	/
	62.94	1967.89	57.70	36.00	26.94	68.21	/	/
	62.43	1749.85	54.30	34.90	27.53	64.45	/	/
	61.90	1548.82	51.00	33.90	28	60.74	/	/
	61.34	1361.44	47.70	32.90	28.44	57.08	/	/
	60.70	1174.90	44.30	31.90	28.8	53.04	/	/
	60.00	1000.00	40.60	30.90	29.1	49.26	/	/
	59.20	831.76	36.50	29.90	29.3	45.58	/	/
	58.30	676.08	32.20	28.90	29.4	41.99	/	/
	57.15	518.80	27.50	27.90	29.25	37.73	/	/

MC011K5UXS^{V0}×2 VGS=3V VDS=50V IDQ=100mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
13.56	64.39	2747.89	67.30	41.94	22.45	81.66	-47.1	-34.8
	64.33	2710.19	66.80	40.94	23.39	81.14	/	/
	64.21	2636.33	65.90	39.95	24.26	80.01	/	/
	63.94	2477.42	64.10	39.04	24.9	77.30	/	/
	63.60	2290.87	61.30	38.04	25.56	74.74	/	/
	63.20	2089.30	58.60	37.04	26.16	71.31	/	/
	62.72	1870.68	55.60	36.00	26.72	67.29	/	/
	62.25	1678.80	52.50	34.90	27.35	63.95	/	/
	61.70	1479.11	59.20	33.90	27.8	49.97	/	/
	61.10	1288.25	45.50	32.90	28.2	56.63	/	/
	60.38	1091.44	42.06	31.90	28.48	51.90	/	/
	59.60	912.01	38.28	30.90	28.7	47.65	/	/
	58.74	748.17	34.22	29.90	28.84	43.73	/	/
	57.76	597.04	29.90	28.90	28.86	39.94	/	/
	56.56	452.90	25.40	27.90	28.66	35.66	/	/

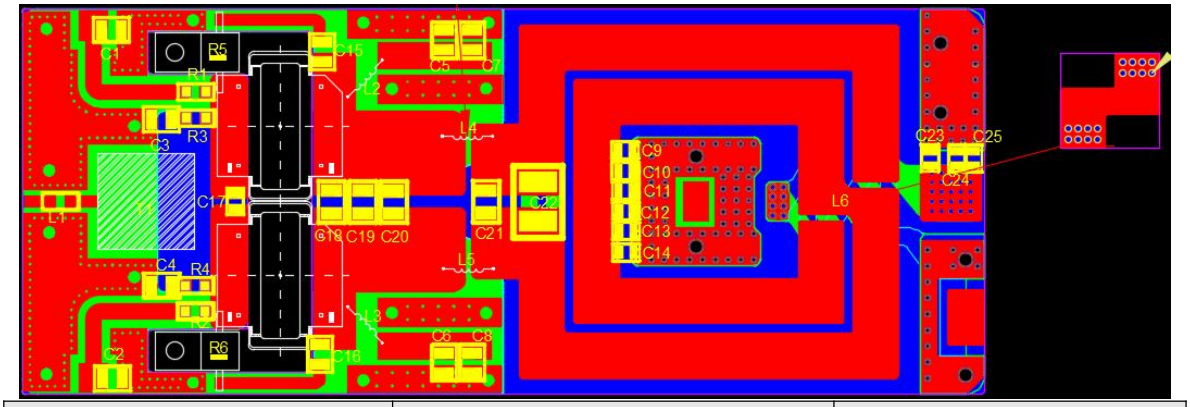
MC011K5UXS^{V0}×2 VGS=3V VDS=50V IDQ=100mA CW								
Freq (MHz)	**Pout (dBm)**	**Pout (W)**	**IDS (A)**	**Pin (dBm)**	**Gain (dB)**	**Eff (%)**	**2th (dBc)**	**3th (dBc)**
14.238	64.18	2618.18	65.14	41.94	22.24	80.39	-45.1	-41.3
	64.14	2594.18	64.95	40.94	23.2	79.88	/	/
	64.04	2535.13	64.07	39.95	24.09	79.14	/	/
	63.80	2398.83	62.25	39.04	24.76	77.07	/	/
	63.44	2208.00	59.63	38.04	25.4	74.06	/	/
	63.03	2009.09	56.82	37.04	25.99	70.72	/	/
	62.60	1819.70	54.00	36.00	26.6	67.40	/	/
	62.05	1603.25	50.65	34.90	27.15	63.31	/	/
	61.40	1380.38	47.05	33.90	27.5	58.68	/	/
	60.76	1191.24	43.53	32.90	27.86	54.73	/	/
	60.03	1006.93	40.01	31.90	28.13	50.33	/	/
	59.18	827.94	36.11	30.90	28.28	45.86	/	/
	58.25	668.34	32.00	29.90	28.35	41.77	/	/
	57.24	529.66	28.00	28.90	28.34	37.83	/	/
	56.00	398.11	23.60	27.90	28.1	33.74	/	/

3. Network Results

VGS=3.42V VDS=50V， IDQ=1600mA

Input Power =0dBm

BOM of Test Circuit



Component	Description	Suggested Manufacturer
C1~C8	10uF 1210	TDK
C9~C14	2.2uF 1812	TDK
C15,C16	330pF MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C17	750pF MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C18,C19,C20,C21	820pF MQ102525	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C22	3300pF MQ103838	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C23	75pF MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C24	56pF MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
C25	22pF MQ101111	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD.
R1,R2	360Ω 1206	/
R4,R3	51Ω 1206	/
R5,R6	300Ω	RFT-300
T1	9:1 BN-43-202	/

Component	Description	Suggested Manufacturer
L1	560nH	/
L2,L3	Wire diameter 1.5mm,inner diameter 8mm 6turns	DIY
L4,L5	Copper Width:4mm	DIY

Demo Picture