

SK1090RVPS^{V0} Class AB 350-800MHz

Mar.19, 2024

Introduction

This amplifier is designed with Innogrations 50VGaN transistor.

Demo and Transistor

Frequencyband	: 350-800MHz
Application	: Multi Market
Configuration	: Class AB
Test Signal	: Pulse
Transistor	: SK1090RVPS ^{V0}
Date code	: 224401S-04
PCB	: 30mil Rogers 4350B

The amplifier has been characterized under the following conditions:

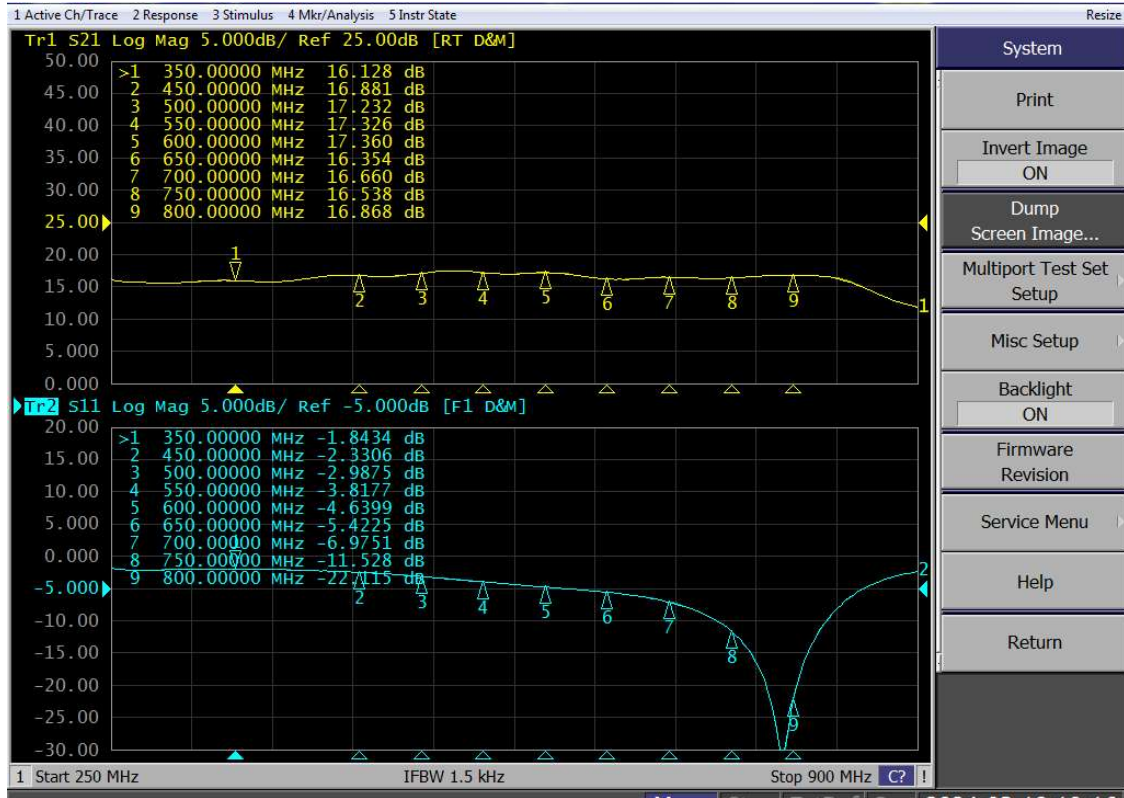
- Network Analyzer plots for gain and IRL.
- The output power measurement using Pulse.

Note: The PA is tested with a supply voltage of $V_{DS} = 50V$, $I_{dq} = 140mA$, all measurements unless otherwise noted.

1. Network Results

Test Condition

$V_{ds}=50V$, $V_{gs}=-3.20V$, $I_{dq}=470mA$, Input Power = 0dBm



Test Results

2. Summary @ Bench 2(Chengdu)

(1) Test Condition

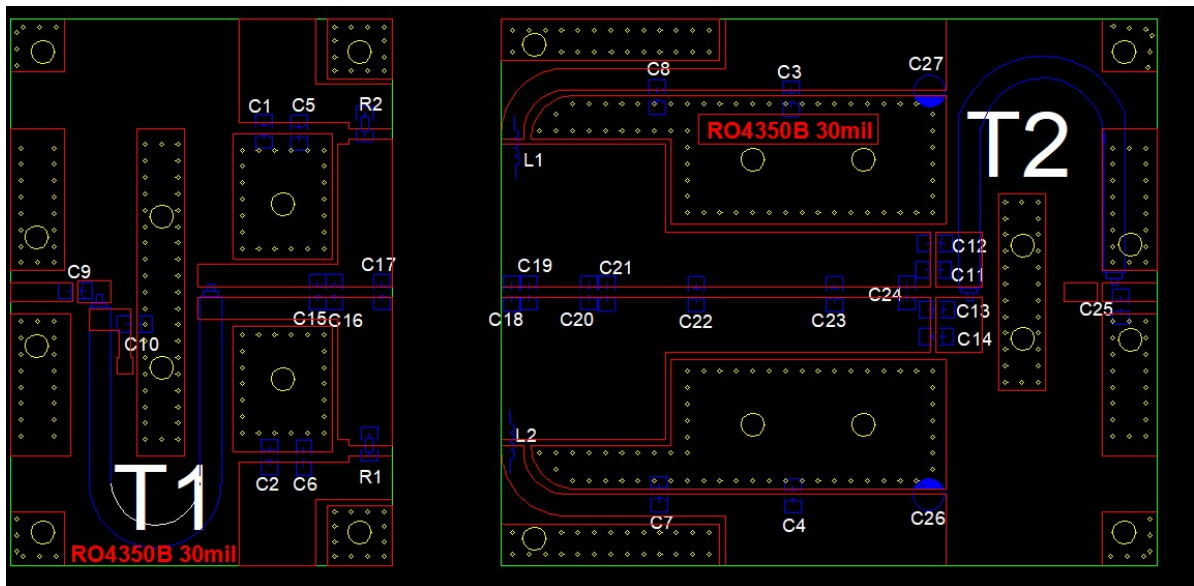
Signal mode : Pulse,100us Width, 10%

Frequency : 350-800MHz

$V_{gs} = -3.27V$, $V_{ds} = 50V$, $I_{dq} = 140mA$

SK1090RVPS ^{V0} VGS=-3.27V VDS=50V IDQ=140mA Pulse 100us 10%						
Freq (MHz)	Pout (dBm)	Pout (W)	IDS (A)	Pin (dBm)	Gain (dB)	Eff(%)
350	59.00	794.3	2.81	45.19	13.81	56.54
400	59.69	931.1	2.79	42.28	17.41	66.75
450	58.91	778.0	2.80	40.27	18.64	55.57
500	59.04	801.7	2.30	39.85	19.19	69.71
550	59.14	820.4	2.10	41.17	17.97	78.13
600	58.82	762.1	2.32	43.15	15.67	65.70
650	59.01	796.2	2.45	43.96	15.05	64.99
700	59.54	899.5	2.47	43.54	16.00	72.83
750	59.23	837.5	2.29	42.58	16.65	73.15
800	58.68	737.9	1.83	42.52	16.16	80.65

BOM of Test Circuit



Component	Description	Suggested Manufacturer
C1~C4	10uF	10uF/100V
C5~C8	240pF	MQ101111
C9	56pF	MQ101111
C10	120pF	MQ101111
C11~C14	36pF	MQ101111
C15,C19	1.5pF	MQ101111
C16	18pF	MQ101111
C17,C18	5.6pF	MQ101111
C20,C25	1pF	MQ101111
C21	4.3pF	MQ101111
C22	10pF	MQ101111
C23,C24	3pF	MQ101111
C25,C26	4700uF/63V	Electrolytic Capacitor
T1	25ohm, 55mm	RFSFBU-086-25
T2	35ohm, 70mm	SFXF-35-3
R1,R2	10 Ω	
L1,L2	1.5mm 漆包线, 内径 5mm, 6 圈	
PCB	30mil Rogers 4350B	