

**SYX-22-32 Test Report SK1090RVPS 30-512MHz**

**SK1090RVPS Class AB 50-500MHz  
JAN 4, 2023**

**Introduction**

This amplifier is designed with Innogrations 50 V GAN transistor.

**Demo and Transistor**

Frequency band :50-500MHz  
 Application : Multi Market  
 Configuration : Class AB  
 Test Signal :Pulse/CW  
 Transistor : SK1090RVPS  
 Date code : 224401S-01  
 PCB : 30mil Rogers4350B

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  $V_{DS} = 50V$ ,  $I_{dq} = 200mA$ ,  $V_{GS} = -3.4V$  all measurements unless otherwise noted.**

**Test Results:**

**1. Summary**

**Test Condition:**

**$V_{DS}=50V$   $V_{GS}=-3.4V$   $I_{DQ}=200mA$   
 Signal mode: Pulse Pulse Period=1ms Pulse width=100us  
 Frequency: 30-512MHz Pout=Psat**

SK1090RVPS $V_{DS}=50V$ $I_{dq}=200mA$ $V_{gs}=-3.4V$ Pulse 10% 100us						
F(MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	I(A)	Gain (dB)	Eff(%)
50	37.5	58.7	732.8	1.7	21.2	84.2
100	37.7	59.4	871.0	2.1	21.7	82.9
150	36.8	59.8	963.8	2.3	23.0	84.9
200	37.0	60.2	1042.3	2.6	23.2	81.4
250	36.7	59.5	891.3	2.4	22.8	73.1
300	37.9	58.7	734.5	2.4	20.8	60.5
350	39.0	58.9	776.2	2.4	19.9	65.2
400	37.9	58.6	724.4	2.3	20.7	62.5
450	37.4	58.8	751.6	2.4	21.4	62.6
500	38.3	58.8	758.6	2.6	20.5	59.3

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### 2. Summary

Test Condition:

VDS=28V VGS=-3.4V IDQ=145mA

Signal mode: CW Frequency: 30-512MHz Pout=Psat

SK1090RVPS VDS=28V Idq=145mA Vgs=-3.4V CW						
F(MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	I(A)	Gain (dB)	Eff(%)
50	35.6	53.6	229.1	10.2	18.0	80.2
100	36.3	54.6	288.4	12.4	18.3	83.1
150	37.0	54.6	285.1	14.0	17.6	72.7
200	36.5	54.9	306.9	15.8	18.4	69.4
250	37.0	54.4	275.4	15.2	17.4	64.7
300	36.9	54.4	275.4	14.9	17.5	66.0
350	38.4	54.1	257.0	14.9	15.7	61.6
400	37.5	54.0	251.2	15.1	16.5	59.4
450	37.6	54.0	251.2	15.4	16.4	58.3
500	38.5	54.0	251.2	16.0	15.5	56.1

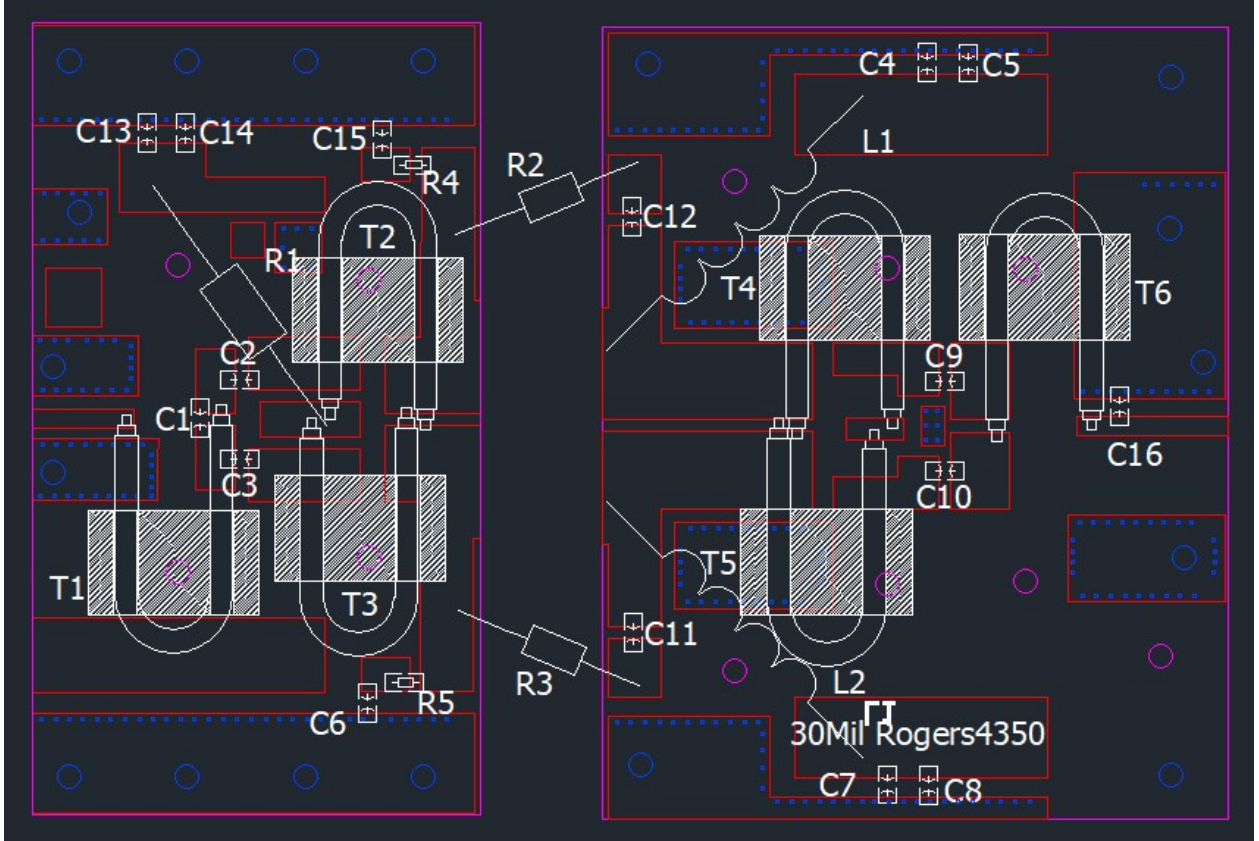
### 3. Network Results

Test Condition: VDS=28V VGS=-3.31V IDQ=300mA Input Power = -10dBm



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**4. BOM of Test Circuit**



Part	description	Model
C13,C5,C8,C15,C6,C11,C12	10uF/100V	Ceramic multilayer capacitor
C2,C3,C4,C7,C9,C10,C14	470PF 100B	Ceramic multilayer capacitor
R1,R2,R3	330 Ω	Plug-in electric resistance
R4,R5	9.1 Ω	Chip Resistor
C1	1.8PF 100B	
C16	2.0PF 100B	
T1,T6	RFSFBIU-086-1.5 70m	BN-61-1502
T2,T3	SFF-12.5-1.5 80mm 4:1	BN-61-1502
T4,T5	SFF-12.5-1.5 75mm 4:1	BN-61-1502
L1, L2	16turns D=5mm d=1.5mm	DIY air core inductance
PCB	0.762mm [0.030"] thick, εr=3.50 , Rogers 4350B, 1 oz. copper	