

# Test Report SME6006V Class AB 30-1500MHz

**May. 15th, 2025**

## Introduction

This amplifier is designed with Innogrations 50V SME6006V GaN

## Demo and Transistor

Frequency band : 30-1500 MHz

Application : Telecom

Configuration : Class AB

Test Signal : CW

Transistor : SME6006V

Date code :

PCB :20 Mil Rogers 4350B

The amplifier has been characterized under the following conditions:

- Network Analyzer plots for gain and IRL.
- Gain, Efficiency.
- P1dB and P3dB Peak power measurement using the CW
- RF Test Bench 3(T)

## Test Results:

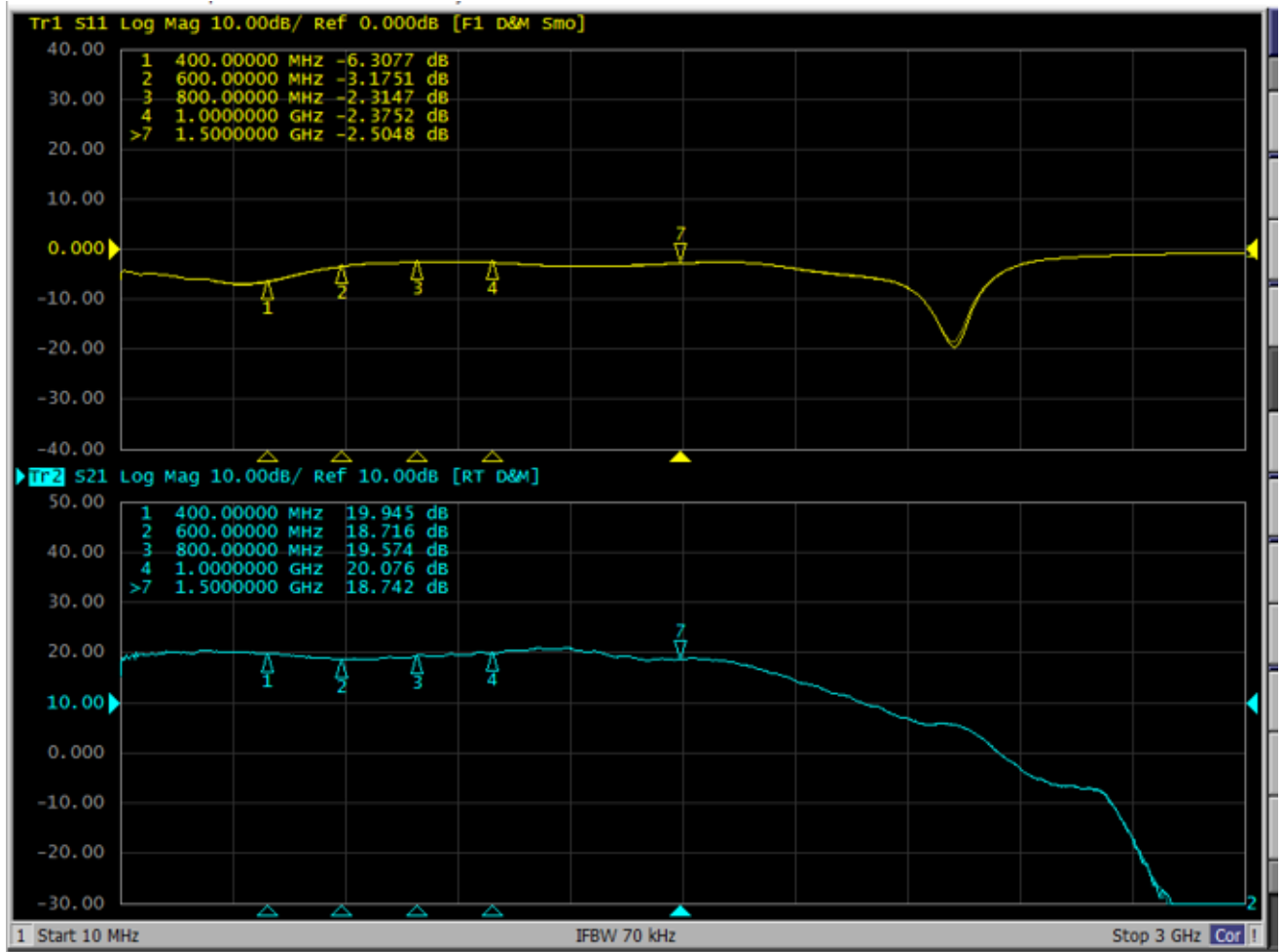
### 1. CW test

**$V_{DS} = 50V$ ,  $I_{DQ} = 100mA$**

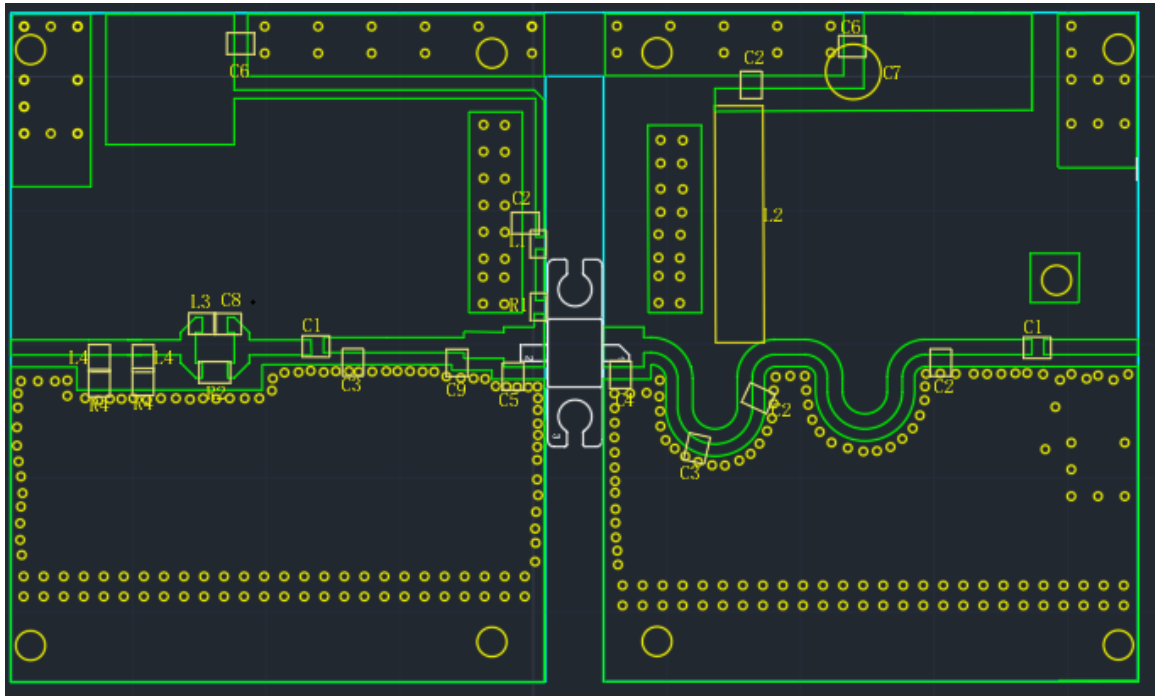
| Freq<br>(MHz) | P1dB<br>(dBm) | P1dB<br>(W) | P1dB<br>Eff (%) | P1dB<br>Gain (dB) | P3dB<br>(dBm) | P3dB<br>(W) | P3dB<br>Eff (%) | 2nd<br>(dBC) | 3rd<br>(dBC) |
|---------------|---------------|-------------|-----------------|-------------------|---------------|-------------|-----------------|--------------|--------------|
| 30            | 44.1          | 25.7        | 77              | 16.48             | 45.01         | 31.7        | 82.7            | -12          | -10.6        |
| 100           | 43.63         | 23.1        | 66.3            | 18.33             | 44.75         | 30.8        | 72.5            | -14.6        | -11.2        |
| 200           | 44.05         | 25.4        | 56.3            | 18.68             | 45.41         | 34.8        | 64              | -12.6        | -11.3        |
| 300           | 45.37         | 34.5        | 54.8            | 19.07             | 46.69         | 46.7        | 62.8            | -13.2        | -12.6        |
| 400           | 45.63         | 36.6        | 50.4            | 19.13             | 47.2          | 52.5        | 58.3            | -14.2        | -15.1        |
| 500           | 45.66         | 36.8        | 45.9            | 18.55             | 47.49         | 56.2        | 54.4            | -10.8        | -14.8        |
| 600           | 45.69         | 37          | 45.7            | 18.02             | 47.68         | 58.6        | 55.5            | -9.1         | -13.8        |
| 700           | 46.49         | 44.6        | 48.5            | 17.81             | 48.12         | 64.8        | 55.5            | /            | /            |
| 800           | 45.74         | 37.5        | 45.8            | 17.82             | 47.8          | 60.2        | 53.9            | /            | /            |
| 900           | 45.98         | 39.6        | 50.4            | 17.83             | 47.79         | 60.1        | 60              | /            | /            |
| 1000          | 46.75         | 47.3        | 58.1            | 18.48             | 48.29         | 67.4        | 67              | /            | /            |
| 1100          | 45.22         | 33.2        | 50.8            | 19.4              | 47.42         | 55.2        | 62.8            | /            | /            |
| 1200          | 45.79         | 38          | 45.8            | 19.49             | 48.07         | 64.1        | 54.9            | /            | /            |
| 1300          | 45.74         | 37.5        | 45.3            | 18.76             | 48.08         | 64.2        | 55.2            | /            | /            |
| 1400          | 45.78         | 37.8        | 45.4            | 17.8              | 47.98         | 62.8        | 54.6            | /            | /            |
| 1500          | 46.77         | 47.5        | 56.8            | 17.73             | 47.99         | 63          | 62.5            | /            | /            |

## 2. Network Analyzer Results (S11, S21)

$V_{DS} = 50V_{dc}$ ,  $I_{DQ} = 100mA$



### 3. Demo Picture



### 4. BOM of Test Circuit

| BOM       |         |          |
|-----------|---------|----------|
| Component | Value   | Quantity |
| C1        | 820pF   | 2        |
| C2        | 1uF/63V | 2        |
| R1        | 50ohm   | 2        |
| C7        | 470uF   | 1        |
| C3        | 3.3pF   | 2        |
| C4        | 0.5pF   | 1        |
| C5        | 3pF     | 1        |
| C6        | 10uF    | 2        |
| L1        | 2.2nH   | 1        |
| L2        | 1.3uH   | 1        |
| R2        | 2.4 ohm | 1        |
| L3        | 33nH    | 1        |
| L4        | 330nH   | 2        |
| R4        | 56 ohm  | 2        |
| C9        | 3.9pF   | 1        |