

# GTAH80025G4<sup>V0</sup>\_X2 Class AB 4000~8000MHz

February14, 2025

## Introduction

This amplifier is designed with Innogration 28V GaN transistor.

## Demo and Transistor

|                  |                               |
|------------------|-------------------------------|
| Frequency band : | 4000~8000MHz                  |
| Application :    | Multi Market                  |
| Configuration :  | Class AB                      |
| Test Signal :    | CW                            |
| Transistor :     | GTAH80025G4 <sup>V0</sup> _X2 |
| Date code :      | 250410S-01, 250410S-03        |
| PCB :            | 30 Mil Rogers 4350B           |

The amplifier has been characterized under the following conditions:

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

**Note: The PA is tested with a supply voltage of  $V_{ds} = 28V$ ,  $V_{gs} = -2.44V$ ,  $I_{dq} = 100mA$  all measurements unless otherwise noted.**

## Test Results

### 1. Summary @ Bench (Chengdu)

#### (1) Test Condition

$V_{gs} = -2.44V$ ,  $V_{ds} = 28V$ ,  $I_{dq} = 440mA$

Signal mode : CW, Frequency : 4000-8000MHz

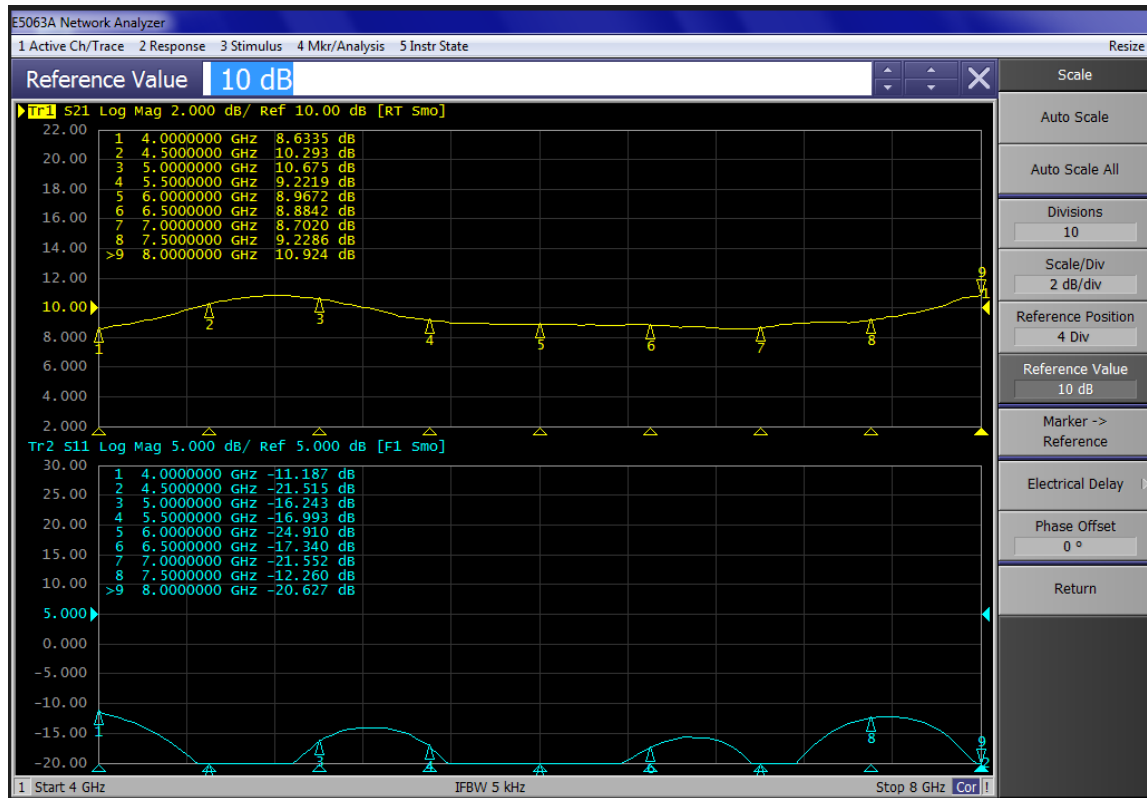
| Freq(MHz) | Pin(dBm) | PoutdBm) | Pout(W) | IDS(A) | Gain(dB) | Eff(%) |
|-----------|----------|----------|---------|--------|----------|--------|
| 4000      | 41.49    | 47.26    | 53.21   | 3.75   | 5.77     | 50.68  |
| 4100      | 41.47    | 47.45    | 55.59   | 3.90   | 5.98     | 50.91  |
| 4200      | 41.47    | 47.77    | 59.84   | 4.33   | 6.3      | 49.36  |
| 4300      | 41.43    | 48.12    | 64.86   | 4.51   | 6.69     | 51.36  |
| 4400      | 41.41    | 48.41    | 69.34   | 4.45   | 7        | 55.65  |
| 4500      | 41.4     | 48.47    | 70.31   | 4.32   | 7.07     | 58.12  |
| 4600      | 41.38    | 48.35    | 68.39   | 4.14   | 6.97     | 59.00  |
| 4700      | 41.36    | 48.24    | 66.68   | 4.09   | 6.88     | 58.23  |
| 4800      | 41.36    | 47.98    | 62.81   | 3.80   | 6.62     | 59.03  |
| 4900      | 41.37    | 47.61    | 57.68   | 3.73   | 6.24     | 55.22  |
| 5000      | 41.35    | 47.22    | 52.72   | 3.60   | 5.87     | 52.30  |
| 5100      | 41.34    | 47.17    | 52.12   | 3.76   | 5.83     | 49.51  |
| 5200      | 41.36    | 47.12    | 51.52   | 3.81   | 5.76     | 48.30  |
| 5300      | 41.32    | 46.95    | 49.55   | 3.81   | 5.63     | 46.44  |
| 5400      | 41.28    | 46.85    | 48.42   | 3.92   | 5.57     | 44.11  |
| 5500      | 41.27    | 46.81    | 47.97   | 4.19   | 5.54     | 40.89  |
| 5600      | 41.25    | 46.77    | 47.53   | 4.35   | 5.52     | 39.03  |
| 5700      | 41.25    | 46.77    | 47.53   | 4.47   | 5.52     | 37.98  |
| 5800      | 41.21    | 46.63    | 46.03   | 4.50   | 5.42     | 36.53  |
| 5900      | 41.2     | 46.68    | 46.56   | 4.54   | 5.48     | 36.63  |
| 6000      | 41.18    | 46.78    | 47.64   | 4.63   | 5.6      | 36.75  |
| 6100      | 41.17    | 46.66    | 46.34   | 4.58   | 5.49     | 36.14  |
| 6200      | 41.16    | 46.52    | 44.87   | 4.60   | 5.36     | 34.84  |
| 6300      | 41.1     | 46.36    | 43.25   | 4.67   | 5.26     | 33.08  |
| 6400      | 41       | 46.3     | 42.66   | 4.80   | 5.3      | 31.74  |
| 6500      | 41       | 46.3     | 42.66   | 4.87   | 5.3      | 31.28  |
| 6600      | 41       | 46.34    | 43.05   | 5.00   | 5.34     | 30.75  |
| 6700      | 41       | 46.24    | 42.07   | 5.01   | 5.24     | 29.99  |
| 6800      | 41       | 46.17    | 41.40   | 5.00   | 5.17     | 29.57  |
| 6900      | 41       | 46.24    | 42.07   | 5.15   | 5.24     | 29.18  |
| 7000      | 40.9     | 46.06    | 40.36   | 5.14   | 5.16     | 28.05  |
| 7100      | 40.9     | 46.2     | 41.69   | 5.19   | 5.3      | 28.69  |
| 7200      | 40.88    | 46.3     | 42.66   | 5.17   | 5.42     | 29.47  |
| 7300      | 40.84    | 46.44    | 44.06   | 5.24   | 5.6      | 30.03  |
| 7400      | 40.84    | 46.64    | 46.13   | 5.40   | 5.8      | 30.51  |
| 7500      | 40.85    | 46.71    | 46.88   | 5.32   | 5.86     | 31.47  |
| 7600      | 40.87    | 47.01    | 50.23   | 5.34   | 6.14     | 33.60  |
| 7700      | 40.85    | 47.05    | 50.70   | 5.35   | 6.2      | 33.84  |
| 7800      | 40.84    | 46.89    | 48.87   | 5.14   | 6.05     | 33.95  |
| 7900      | 40.85    | 46.72    | 46.99   | 4.84   | 5.87     | 34.67  |
| 8000      | 40.87    | 46.24    | 42.07   | 4.57   | 5.37     | 32.88  |

## 2. Network Results

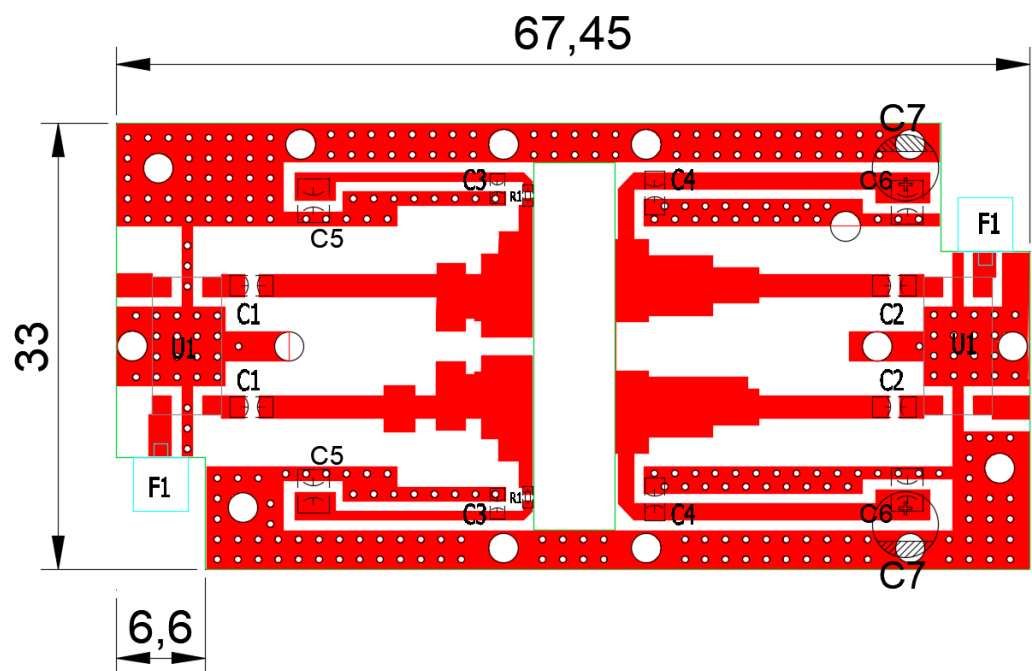
### Test Condition

$V_{gs} = -2.44\text{V}$ ,  $V_{ds} = 28\text{V}$ ,  $I_{dq} = 440\text{mA}$

input power = 0 dBm



**BOM of Test Circuit**



| Component | Description           | Suggested Manufacturer                                 |
|-----------|-----------------------|--------------------------------------------------------|
| C7        | 470uF/63V             |                                                        |
| C5,C6     | 10uF                  | 10uF/100V                                              |
| C2,C2     | 2.4pF(MQ300805)       | BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD |
| C3, C4    | 1.2pF(MQ300805)       | BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD |
| R1        | Chip Resistor,10Ω     | 0603                                                   |
| PCB       | 30mil Rogers 4350B    |                                                        |
| F1        | RFT50-20TM0404(20W)   | RFTYTTechnology Co., LTD                               |
| U1        | HLD-T0133-3-100(100W) | ChengduHuaLuo Communication Technology Co.,Ltd         |