

STCV58200F4C^{V0}X2 Class AB 5800MHz

June 20, 2024

Introduction

This amplifier is designed with Innogrations 50V GaN transistor to demonstrate 400W CW operation at ISM band 5.8GHz. For more product info, please refer to its datasheet.

Demo and Transistor

Frequency band :	5800MHz
Application :	RF Energy
Configuration :	Class AB
Test Signal :	CW/Pulse
Transistor :	STCV58200F4C ^{V0} X2
Date code :	241601S-01, 241601S-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 $V_{ds} = 50V$, $V_{gs} = -3.34V$,

$I_{dq} = 200mA$ all measurements unless otherwise noted.

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Test Results

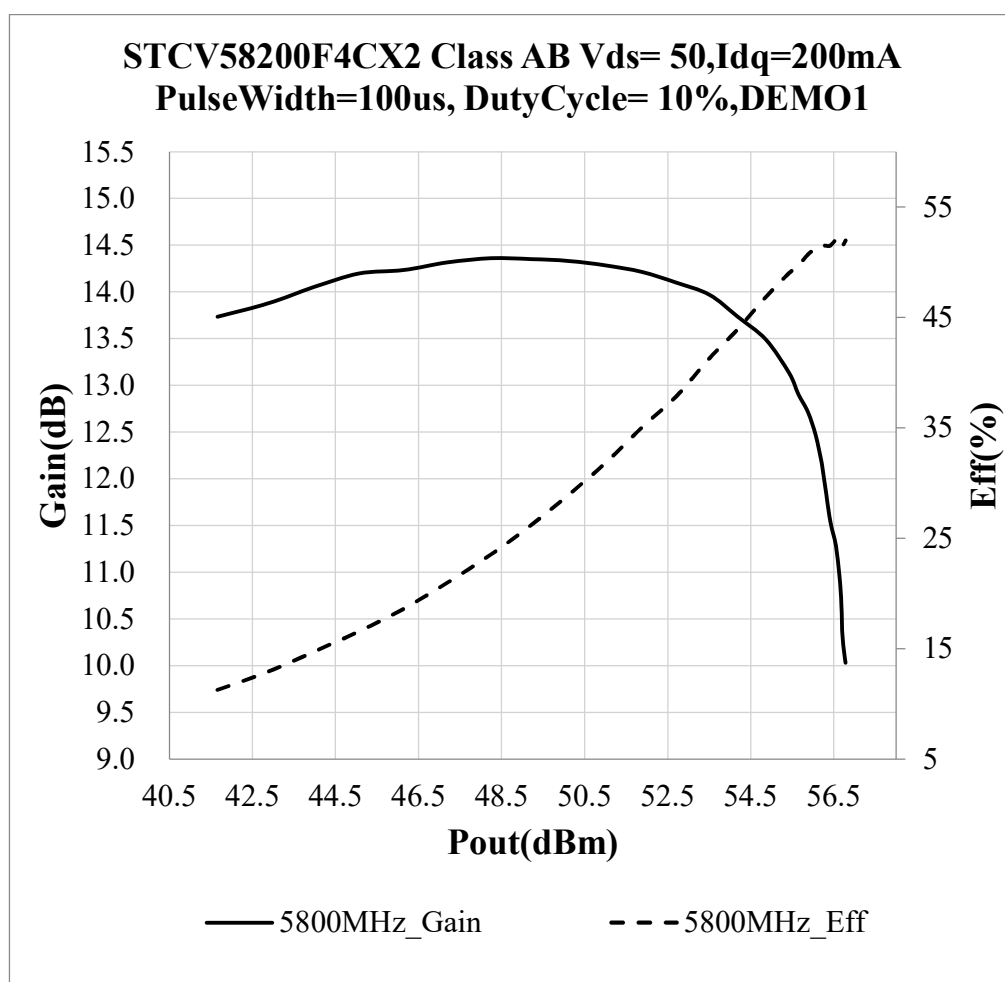
1. Summary @ Bench (Chengdu)

(1) Test Condition

$V_{gs} = -3.34V$, $V_{ds} = 50V$, $I_{dq} = 200mA$

Signal mode : Pulse 100us 10%, Frequency : 5800MHz

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P4dB (dBm)	P4dB (W)	P4dB Eff (%)
5800	55.04	319.2	47.5	13.38	56.71	468.3	52



(2) Test Condition

$V_{gs} = -3.35V$, $V_{ds} = 50V$, $I_{dq} = 100mA$, Signal mode : CW

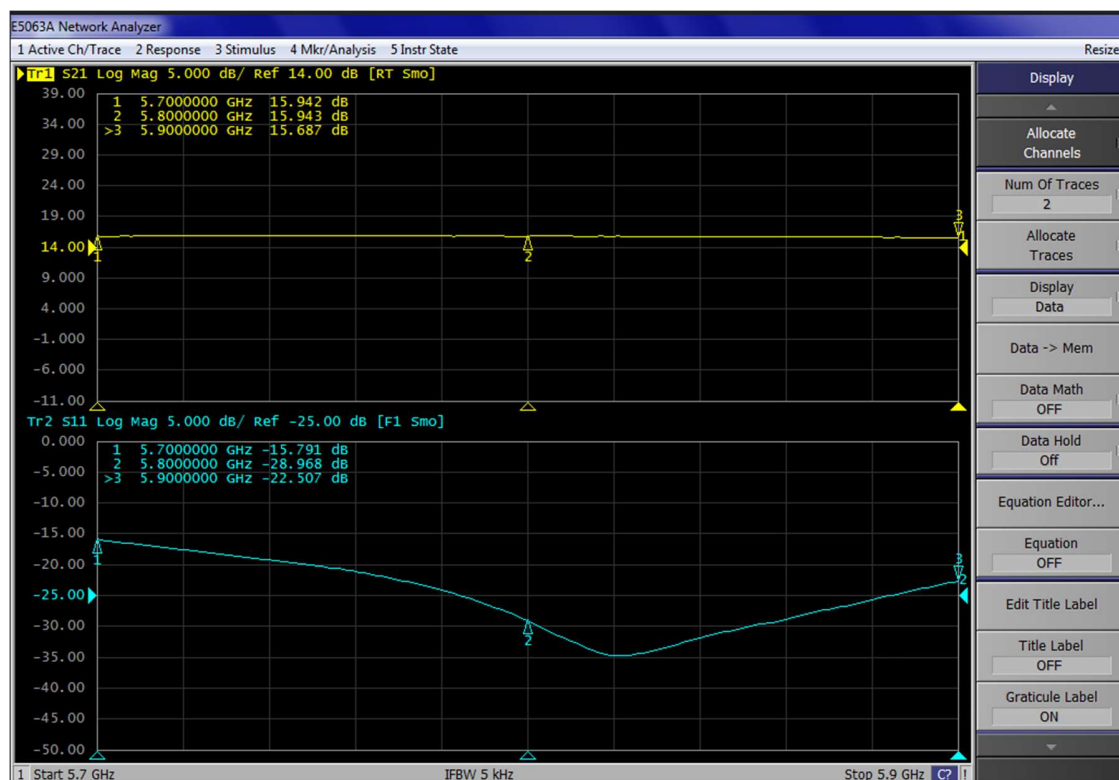
Freq (MHz)	Pin (dBm)	Psat (dBm)	Psat (W)	IDS (A)	Gain (dB)	Eff (%)
5800	46.3	56.17	414	16.8	9.87	50

2. Network Results

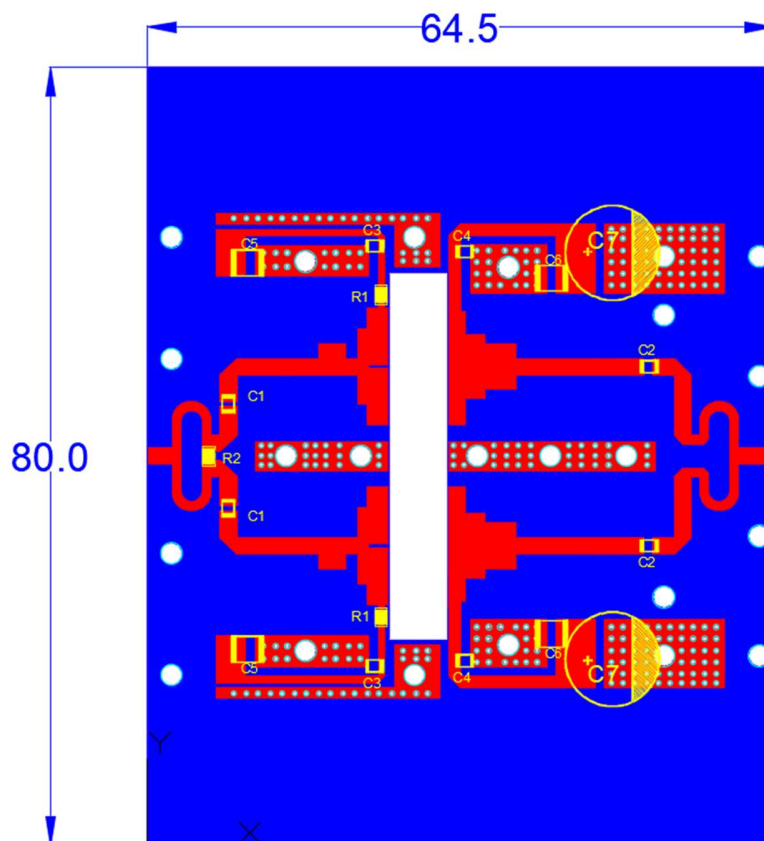
Test Condition

$V_{gs} = -3.21V$, $V_{ds} = 50V$, $I_{dq} = 1000mA$

input power = 0 dBm



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BOM of Test Circuit



Component	Description	Suggested Manufacturer
C7	2200uF/63V	-
C5,C6	10uF(1210)	-
C1, C2, C3 C4	3.9pF(MQ100505)	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD
C2,	3.3pF(MQ100505)	BEIJING YUANLU HONGYUAN ELECTRONIC TECHNOLOGY CO., LTD
R1	Chip Resistor,10Ω(0805)	-
R2	Chip Resistor,100Ω(0805)	-
PCB	30mil Rogers 4350B	-