

Product Features

5.7-5.9GHz:>400W, Pulsed CW

Typically 48% Drain Efficiency@50V

50ohm in and out, 50*30mm, screw down

Device used: STCV58400F4

Applications

5G Power amplifier

C band communication

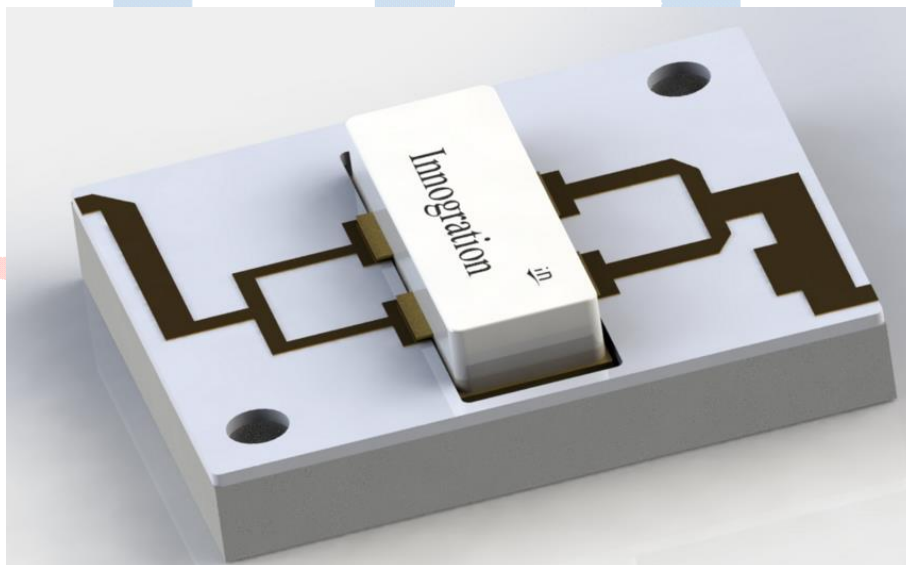
ISM

Commercial pulsed CW Power amplifier

Description

The SMPA5759-400V is designed for 5G communication, test and measurement and other ISM applications at 5700-5900MHz. This Amplifier pallet is suitable for use in linear and saturated applications. Featured by its tiny size 50*30mm, and 50ohm fully matched at input and output, drop-in placement by screwing it down and 100% RF test, it enables easier power combination to reach higher power with high production yield as part of customer's power amplifier system.

Pallet concept demonstration purpose only, Not exactly the design itself





Electrical Specifications @VCC=50V, T=25°C, 50Ωsystem

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	5700	-	5900	fo
Operating Bandwidth	MHz		200	-	OBW
Pulse CW Output Power	W		400	-	Pout
Power Gain	dB		10	-	Gp
Gain Flatness	dB	-	-	±0.5	Gf
Input Return Loss	dB	-	--10		S11
Operating Voltage	V	-	50	60	VDS
Quiescent Current	mA	-	100	-	IdQ
Efficiency@Psat	%	45	50	-	Eff

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	°C	-40	-	60	Ta
Storage Temperature	°C	-40		100	Tstg
Relative humidity w/o condensation	%	-	-	95	RH

Mechanical Specifications

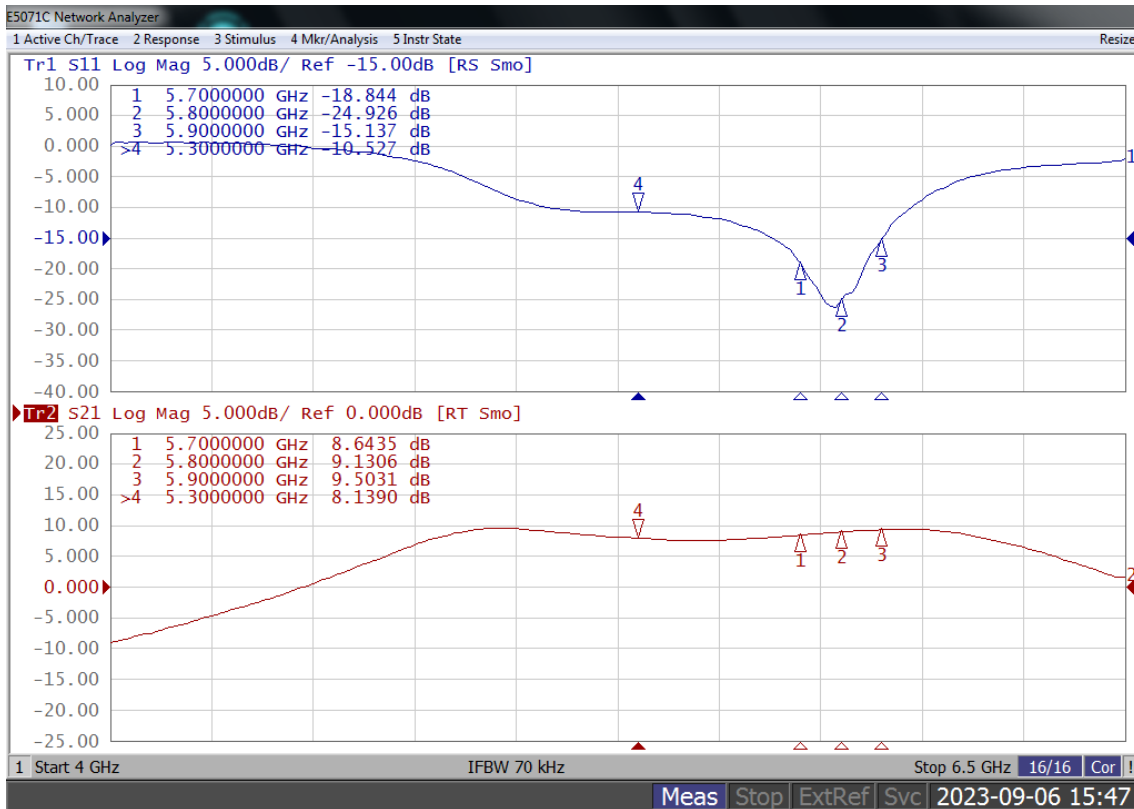
PARAMETER	UNIT	VALUE
Dimensions(L × W × H)	mm	50×30×10
Weight	g	300
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

Typical performance

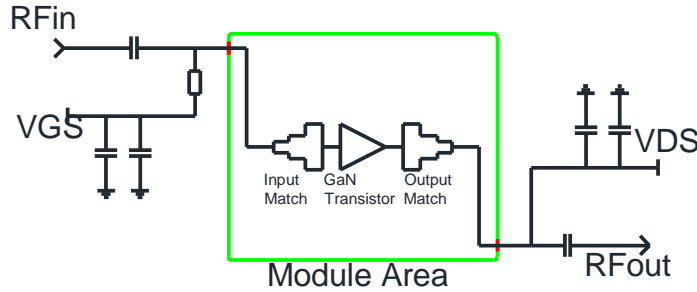
- Pulsed CW performance: VDS=50V VGS=-3.3V IDQ=200mA, Pulse: 20uS width, 10%;

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P3dB (dBm)	P3dB (W)	P3dB Eff(%)
5700	54.55	284.9	41.1	12.27	56.45	441.3	46.9
5800	54.77	299.9	43.2	13	56.67	464.3	49.2
5900	54.26	266.6	44.0	12.39	56.3	426.4	50.8

- S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA



Evaluation board Block Diagram



Evaluation board outline (DUT:STCV58400F4)

PCB RO4350B 20mils

Designator	Comment	Footprint	Quantity
C1, C2, C3, C4	3.9 pF/250V	0805	4
C5, C6	10uF/100V	1210	2
C7	100uF/63V		1
R1, R2	10 Ω	0603	2

Revision History

Document revision history

Date	Revision	Datasheet Status
2023/9/6	Rev 1.0	Preliminary Datasheet

Application data based on LSM-23-29

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