

Product Features

5.7-5.9GHz:>250W, pulsed CW

5.3-5.9GHz:>200W, pulsed CW

>50% Drain Efficiency@50V

50ohm in and out, 25*43mm, screw down

Device used: SX5825VS

Applications

5G Power amplifier

C band communication and

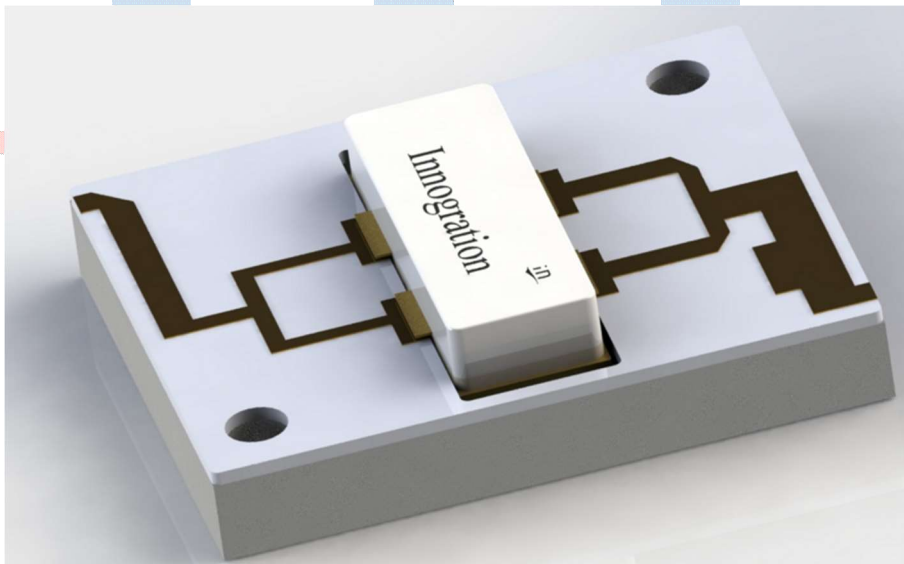
ISM

Commercial pulsed CW Power amplifier

Description

The SMPA5759-250V is designed for 5G communication, test and measurement and other ISM applications at 5700-5900MHz or extended 5300-5900MHz. This Amplifier pallet is suitable for use in linear and saturated applications. Featured by its tiny size 25*43mm, 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	250	270	-	Pout
Power Gain	dB	8	8.5	-	Gp
Gain Flatness	dB	-	-	±0.3	Gf
Input Return Loss	dB	-	-	-10	S11
Operating Voltage	V	-	50	60	VDS
Quiescent Current	mA	-	150	-	IdQ
Efficiency@Psat	%		52	-	Eff

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	°C	0	-	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	25×43×4
Weight	g	100
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

Typical performance

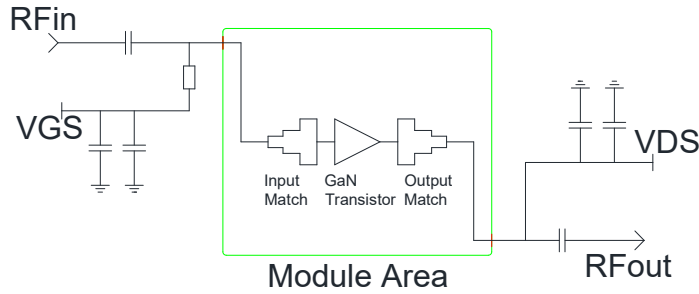
- Pulsed CW performance: VDS=50V VGS=-3.18V IDQ=150mA, Pulse: 20uS width, 10%;

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff (%)	P1dB Gain (dB)	P3dB (dBm)	P3dB (W)	P3dB Eff (%)
5300	51.89	154.7	46.2	8.2	53.37	217.1	49.1
5400	52.63	183.1	47.2	8.57	53.97	249.3	49.5
5500	53.1	204.3	47.5	8.99	54.43	277.2	50.1
5600	53.65	231.7	48.3	10.06	54.93	310.8	50.7
5700	53.66	232.0	49.2	10.41	55.02	317.5	52.3
5800	53.33	215.5	47.6	10.53	54.77	300.2	51.5
5900	52.92	195.7	47.2	10.3	54.5	282.1	51.8
6000	52.52	178.5	47.5	10.19	54.19	262.2	52.7

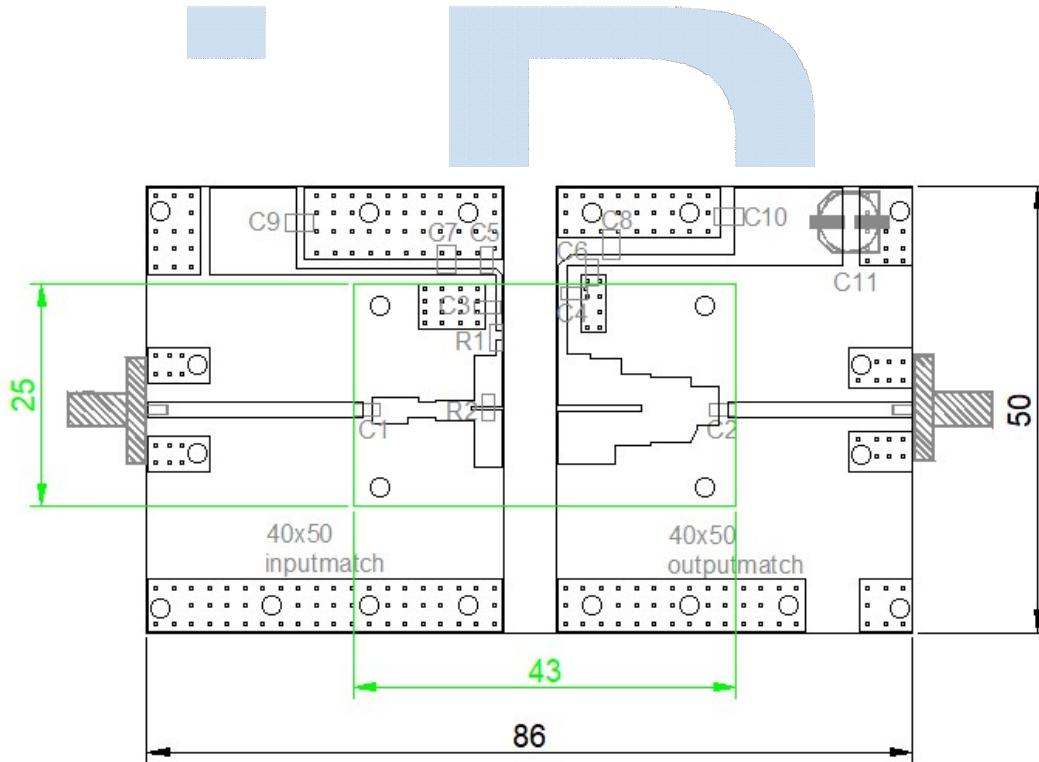
- S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA



Evaluation board Block Diagram



Evaluation board outline (DUT:SL5825VS)



Component	Description	Suggested Manufacturer
C1、 C2、 C3、 C4	3.9pF	ATC600F
C5、 C6、	100pF	ATC600F
C7、 C8、 C9、 C10	Ceramic multilayer capacitor, 10uF, 100V	10uF/100V
C11	470UF	63V/470UF
R1	Chip Resistor, 10 Ω ,0603	
R2	Chip Resistor, 9.1 Ω ,0805	
PCB	board material: Rogers 4350B, $\epsilon_r = 3.48$, thickness 30 mils, 1oz copper on each side	



Revision History

Document revision history

Date	Revision	Datasheet Status
2022/4/19	Rev 1.0	Preliminary Datasheet

Application data based on YHG-22-09



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