

Product Features

- 5.3-5.9GHz:>700W, pulsed CW
- >45% Drain Efficiency@50V
- 50ohm in and out, 50*60mm, screw down
- Device used: STCV58300F4*2

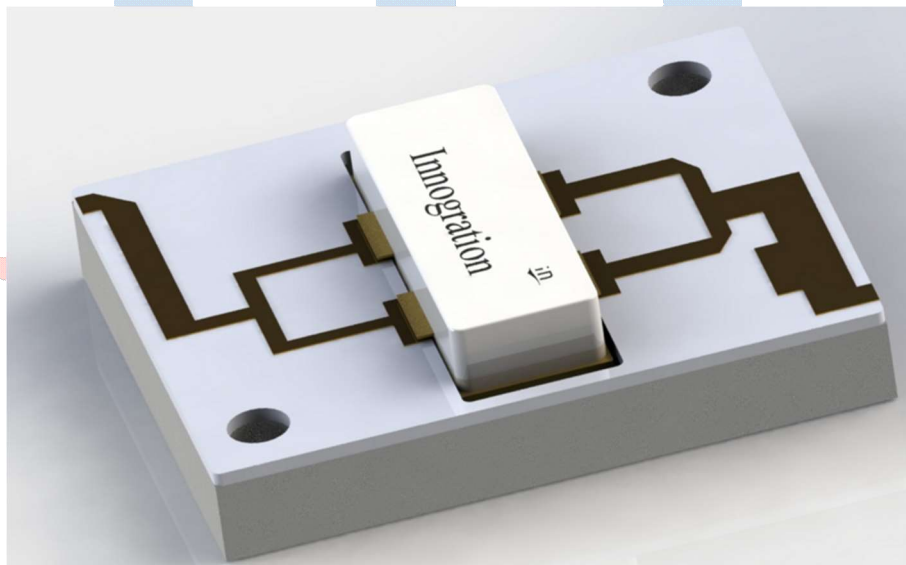
Applications

- 5G Power amplifier
- C band communication
- ISM
- Commercial pulsed CW Power amplifier

Description

The SMPA5359-700V is designed for 5G communication, test and measurement and other ISM applications at 5300-5900MHz. This Amplifier pallet is suitable for use in linear and saturated applications. Featured by its tiny size 50*60mm, 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 demostrati*on purpose only, Not exactly the design itself





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

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	5300	-	5900	fo
Operating Bandwidth	MHz	600		-	OBW
Pulse CW Output Power	W	600	700	-	Pout
Power Gain	dB	8	8	-	Gp
Gain Flatness	dB	-	-	±0.4	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	50×60×10
Weight	g	TBD
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

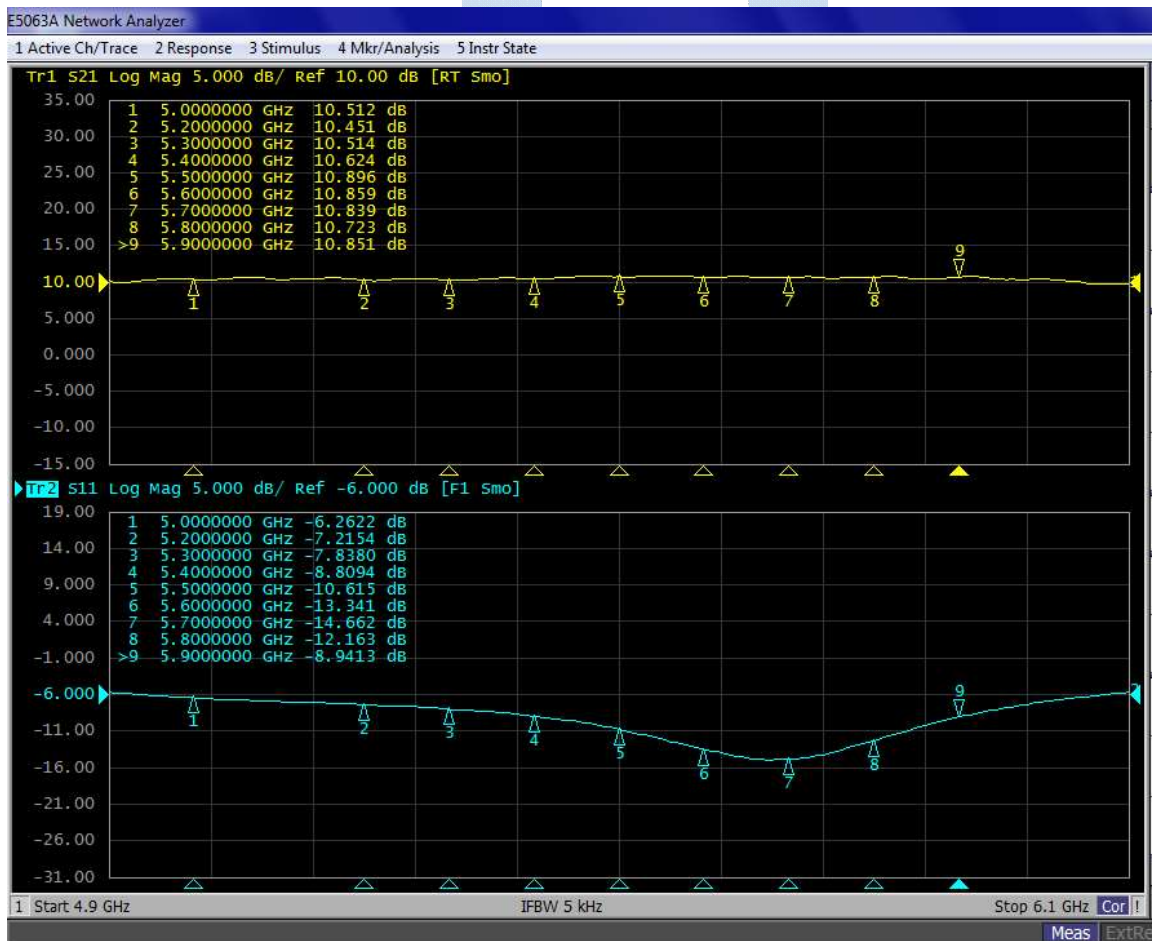


Typical performance

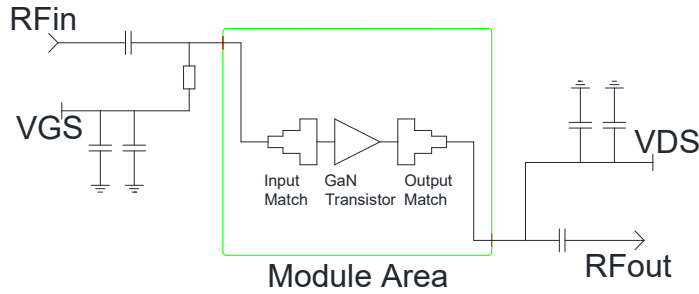
- Pulsed CW performance: VDS=50V VGS=-3.4V IDQ=200mA, Pulse: 100uS width, 10%;

Freq(MHz)	Pin(dBm)	Psat(dBm)	Psat(W)	Ids(A)	Gain(dB)	Eff(%)
5300	51.1	58.9	767.4	2.99	7.7	51.3
5400	50.9	59.1	814.7	3.11	8.2	52.4
5500	51.0	59.2	827.9	3.08	8.2	53.8
5600	50.9	59.1	812.8	3.17	8.2	51.3
5700	50.7	59.2	829.9	3.32	8.5	50.0
5800	50.1	59.1	812.8	3.36	9.1	48.4
5900	50.5	59.0	799.8	3.21	8.6	49.8

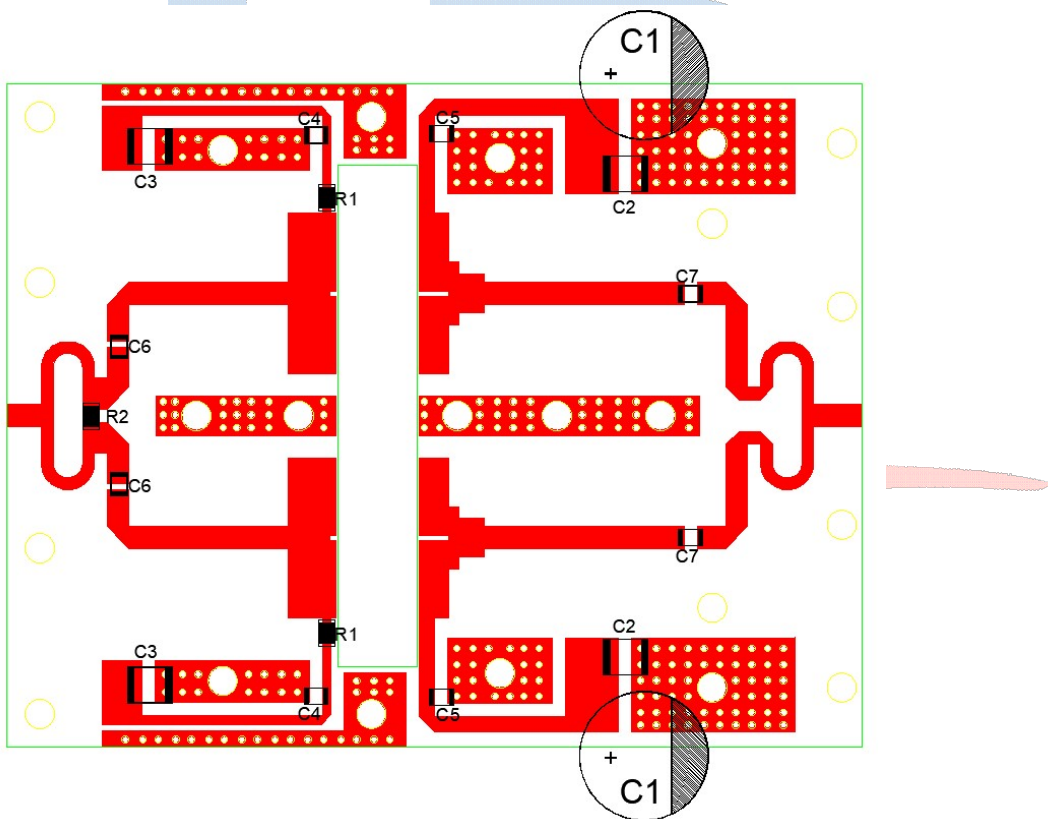
- S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA



Evaluation board Block Diagram



Evaluation board outline (DUT:STCV58300F4*2)



Component	Description	Suggested Manufacturer
C1	1000uF/63V	
C2, C3	10uF	1210
C4, C5, C6, C7	3.9pF	0805
R1	Chip Resistor,10Ω	0805
R2	Chip Resistor,100Ω	1206
PCB	Rogers 4350B, Er = 3.48, thickness 30 mils, 1oz copper	



Revision History

Document revision history

Date	Revision	Datasheet Status
2024/3/12	Rev 1.0	Preliminary Datasheet

Application data based on RXT-24-14



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