

Product Features

5.3-5.9GHz:>300W, pulsed CW

5.7-5.9GHz:>350W, Pulsed CW

>45% Drain Efficiency@50V

50ohm in and out, 24*28mm, screw down

Device used: STCV58300F4

Applications

5G Power amplifier

C band communication

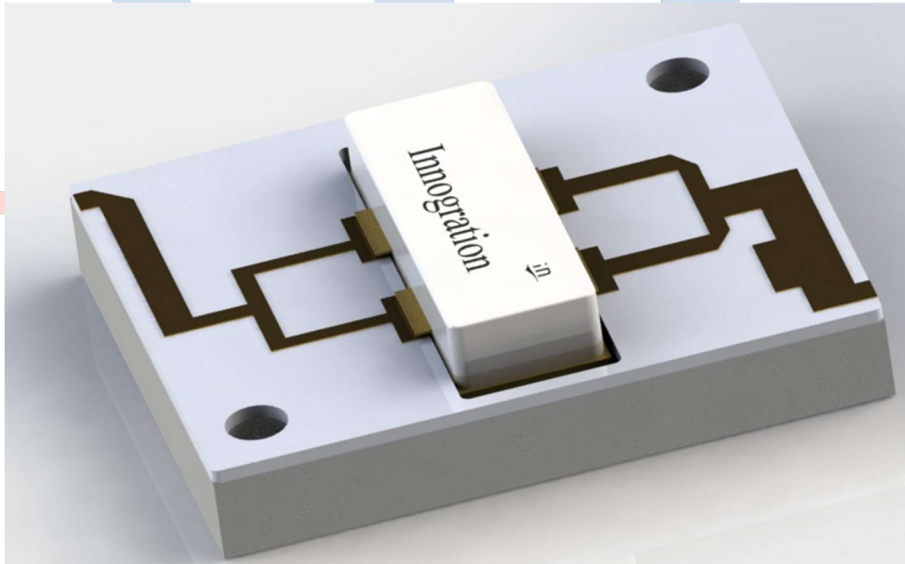
ISM

Commercial pulsed CW Power amplifier

Description

The SMPA5359-300V 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 24*28mm, 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	5300	-	5900	fo
Operating Bandwidth	MHz	600		-	OBW
Pulse CW Output Power	W	300	350	-	Pout
Power Gain	dB	8	8.5	-	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	24×28×4
Weight	g	100
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

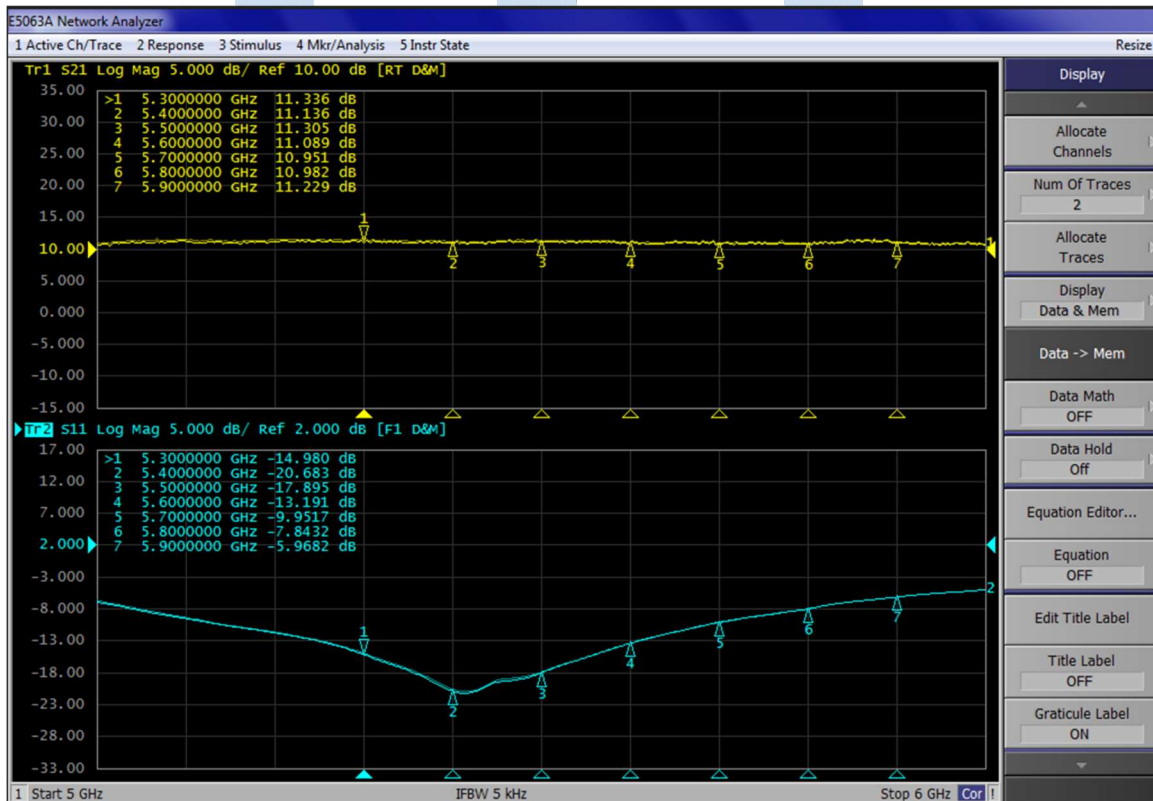


Typical performance

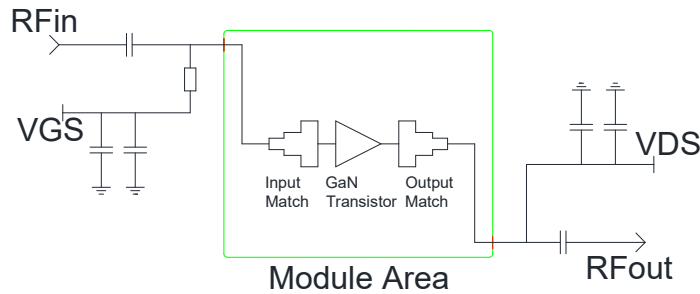
- Pulsed CW performance: VDS=50V VGS=-3.18V IDQ=150mA, Pulse: 100uS width, 10%;

Freq(MHz)	Pin(dBm)	Psat(dBm)	Psat(W)	IDS(A)	Gain(dB)	Eff(%)
5300	47.2	55.27	336.51	1.37	8.07	49.13
5400	47.4	55.67	368.98	1.5	8.27	49.20
5500	47.5	55.73	374.11	1.58	8.23	47.36
5600	47.2	55.89	388.15	1.59	8.69	48.82
5700	47	55.82	381.94	1.6	8.82	47.74
5800	47.75	55.93	391.74	1.57	8.18	49.90
5900	47.32	55.47	352.37	1.4	8.15	50.34

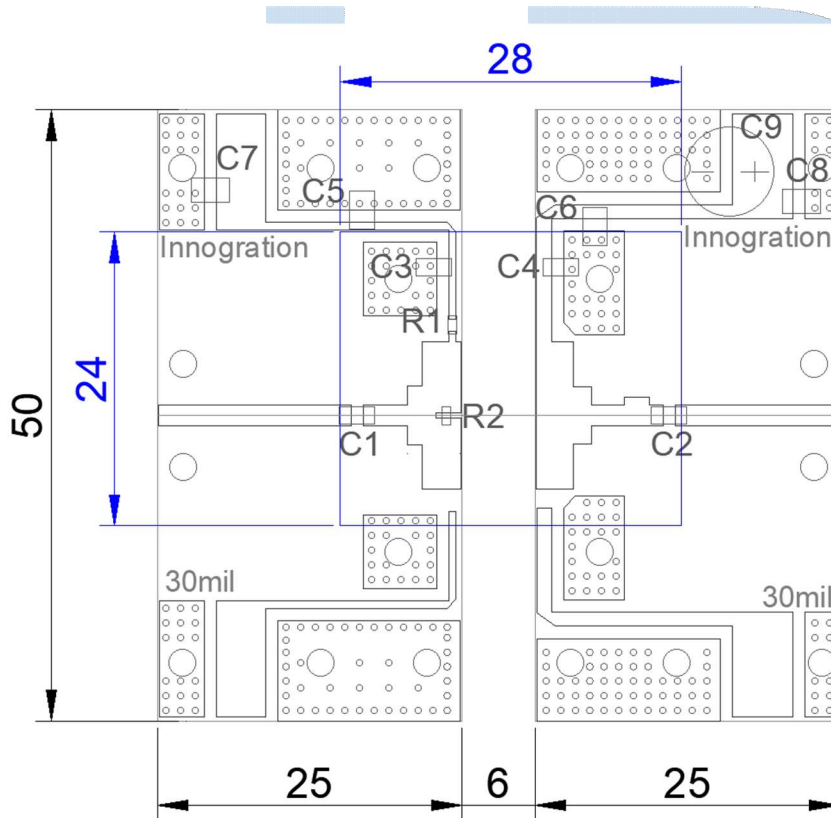
- S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA



Evaluation board Block Diagram



Evaluation board outline (DUT:STCV58300F4)



Component	Description	Suggestion
C1,C2,C3,C4	3.9pF	MQ200805C0G2E6R8NDB
C5,C6,C7,C8	Ceramic multilayer capacitor, 10uF, 100V	10uF/100V
C9	470uF	63V/470uF
R1,R2	Chip Resistor, 10 Ω	1206
PCB	30mil thick, Er=3.48, Rogers RO4350B, 1 oz. copper	



Revision History

Document revision history

Date	Revision	Datasheet Status
2022/10/14	Rev 1.0	Preliminary Datasheet

Application data based on YHG-22-28



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