

Product Features**2.7-3.1GHz:>1000W, pulsed CW**

>55% Drain Efficiency@50V

50ohm in and out, screw down

Device used: STCV351K0C2

Applications

5G Power amplifier

S band communication

ISM

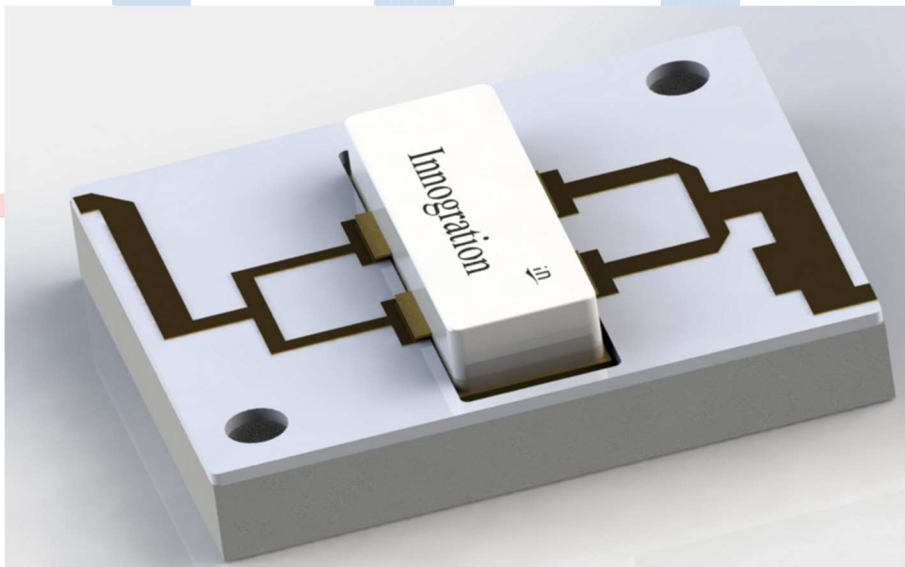
Commercial pulsed CW Power amplifier

Description

The SMPA3135-1000V is designed for 5G communication, test and measurement and other ISM applications at 3100-3500MHz. This Amplifier pallet is suitable for use in linear and saturated applications. Featured by 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.

This standard pallet is with typical size 50*90mm, but can be shrunk to much smaller size.

Pallet concept demostration purpose only, Not exactly the design itself



GaN Power Amp Pallet

SMPA3135-1000V

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

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	3100	-	3500	fo
Operating Bandwidth	MHz	400		-	OBW
Pulse CW Output Saturated Power	W		1000	-	Psat
Power Gain	dB	9	10	-	G _P
Gain Flatness	dB	-	-	±0.5	G _F
Input Return Loss	dB	-3	-	-10	S ₁₁
Operating Voltage	V	-	50	55	V _{DS}
Quiescent Current	mA	-	300	-	I _{DQ}
Efficiency@Psat	%		55	-	Eff

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	°C	-40	-	60	T _a
Storage Temperature	°C	-40		100	T _{stg}
Relative humidity w/o condensation	%	-	-	95	RH

Mechanical Specifications

PARAMETER	UNIT	VALUE
Dimensions(L × W × H)	mm	50×90×4
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink



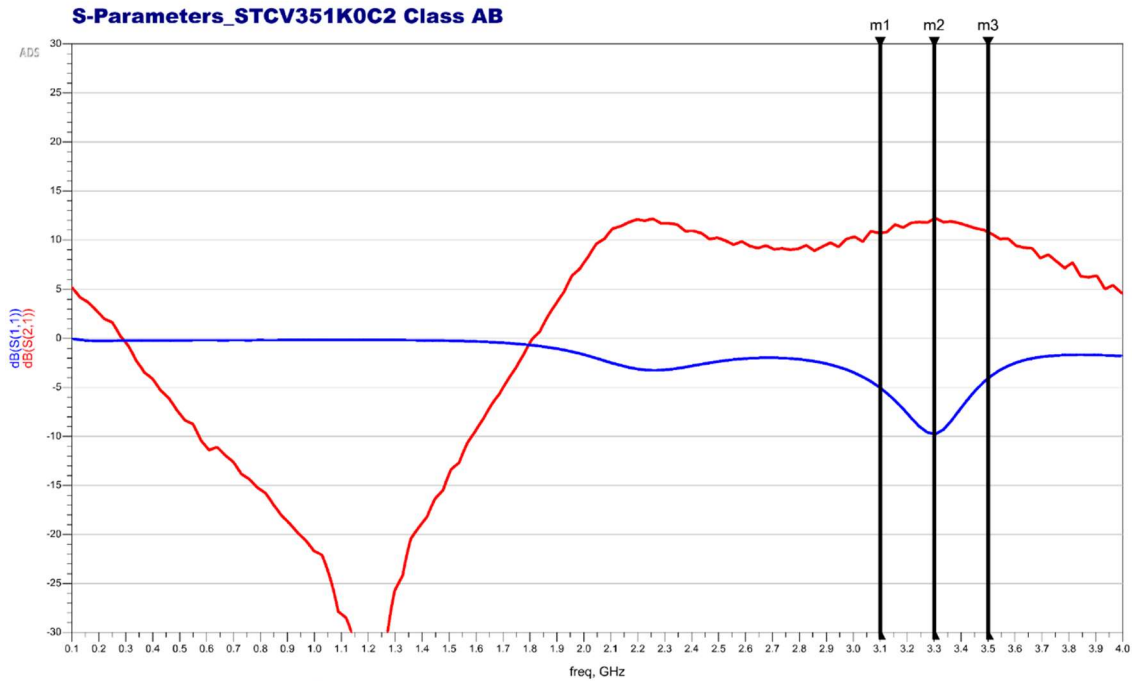
Typical performance

- Pulsed CW performance: 20uS width, 10% duty cycle

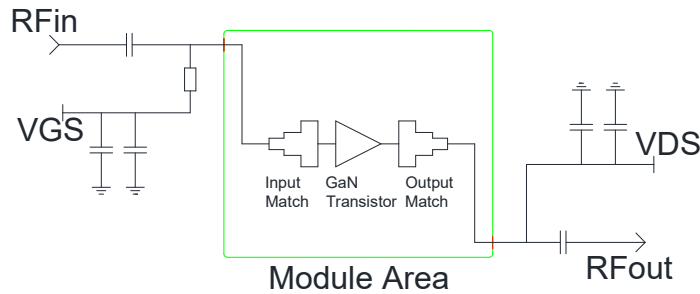
Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P4dB (dBm)	P4dB (W)	P4dB Eff(%)
3100	58.61	726.44	48.53	10.64	60.24	1057.97	55.02
3300	58.52	711.11	48.09	11.64	60.13	1031.04	54.36
3500	58.40	692.24	49.61	11.42	60.09	1020.44	56.74

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

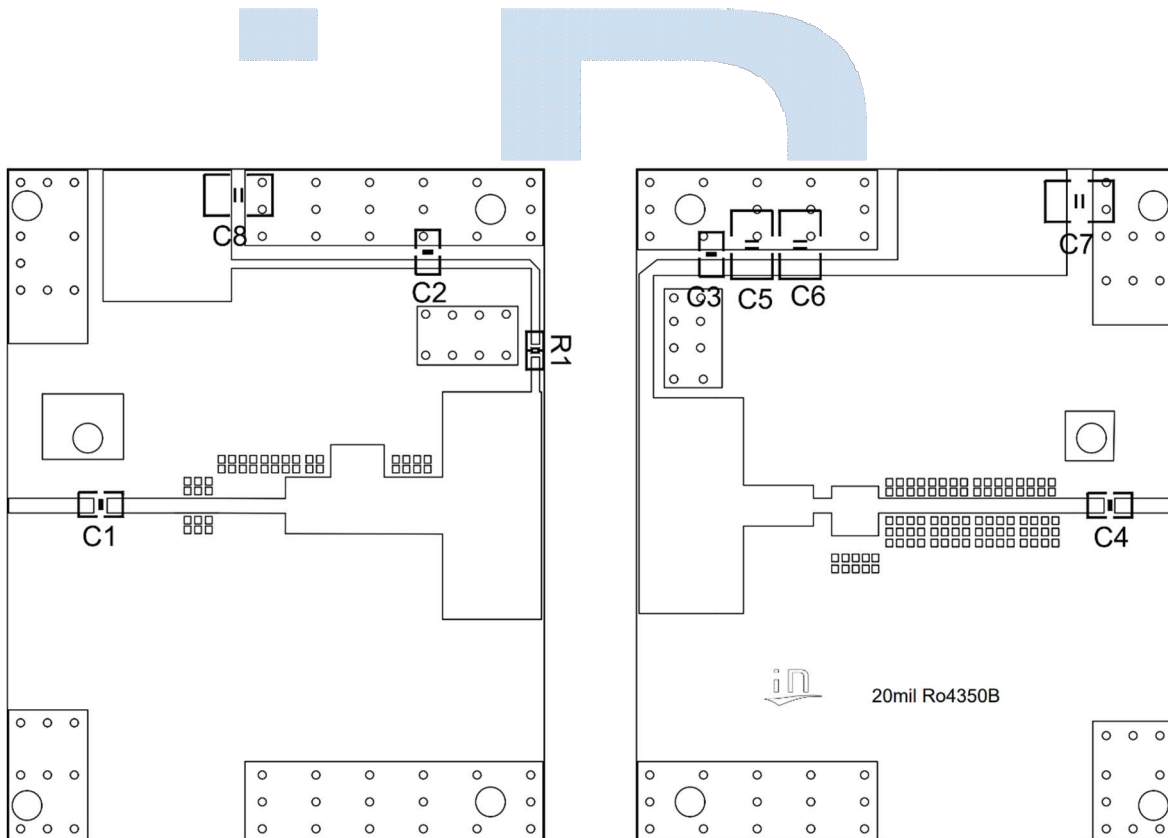
m1	m2	m3
freq=3.100 GHz	freq=3.300 GHz	freq=3.500 GHz
dB(S(2,1))=10.729	dB(S(2,1))=12.150	dB(S(2,1))=10.797
dB(S(1,1))=-5.060	dB(S(1,1))=-9.729	dB(S(1,1))=-4.089



Evaluation board Block Diagram



Evaluation board outline (DUT:STCV351K0C2)



Reference	Footprint	Value	Quantity
C1, C2, C3, C4	0805	10pF/250V	4
C5, C7, C8	1210	10uF/100V	3
R1	0603	10R	1
/	T1	STCV351K0C2	1
PCB	Rogers 4350B	20mils	



Revision History

Document revision history

Date	Revision	Datasheet Status
2023/7/26	Rev 1.0	Preliminary Datasheet

Application data based on ZBB-23-24



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