

## Product Features

2.7-3.9GHz:>1500W, pulsed CW

>55% Drain Efficiency@50V

50ohm in and out, screw down

Device used: STBV311K5D4

## Applications

Weather Radar Power amplifier

S band communication

ISM

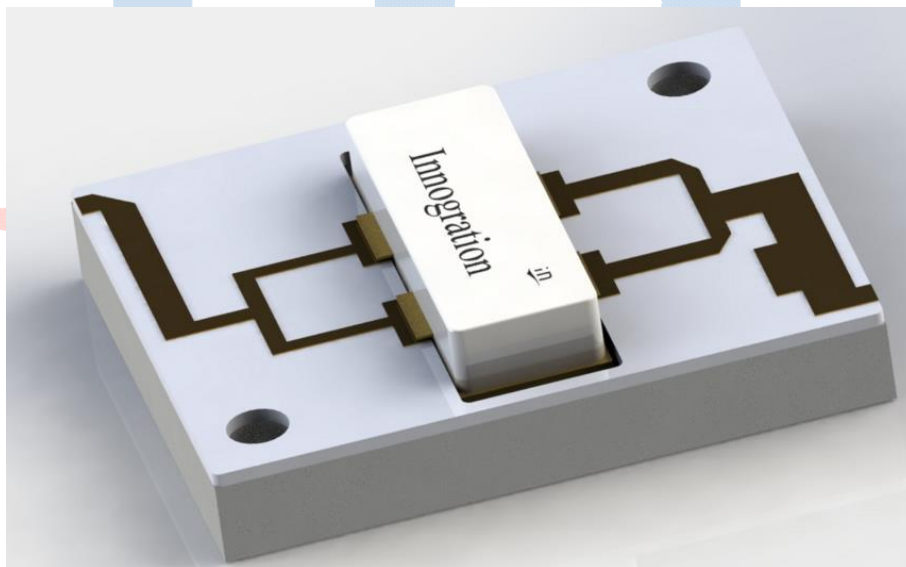
Commercial pulsed CW Power amplifier

## Description

The SMPA2729-1500V is designed for test and measurement and other ISM applications at 2700-2900MHz. 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 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	2700	-	2900	fo
Operating Bandwidth	MHz		200	-	OBW
Pulse CW Output Saturated Power	W		1500	-	Psat
Power Gain	dB		11	-	G <sub>P</sub>
Gain Flatness	dB	-	-	±0.8	G <sub>F</sub>
Input Return Loss	dB	-3	-10-		S <sub>11</sub>
Operating Voltage	V	-	50	55	V <sub>DS</sub>
Quiescent Current	mA	-	100	-	I <sub>DQ</sub>
Efficiency@Psat	%	55	58	-	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**

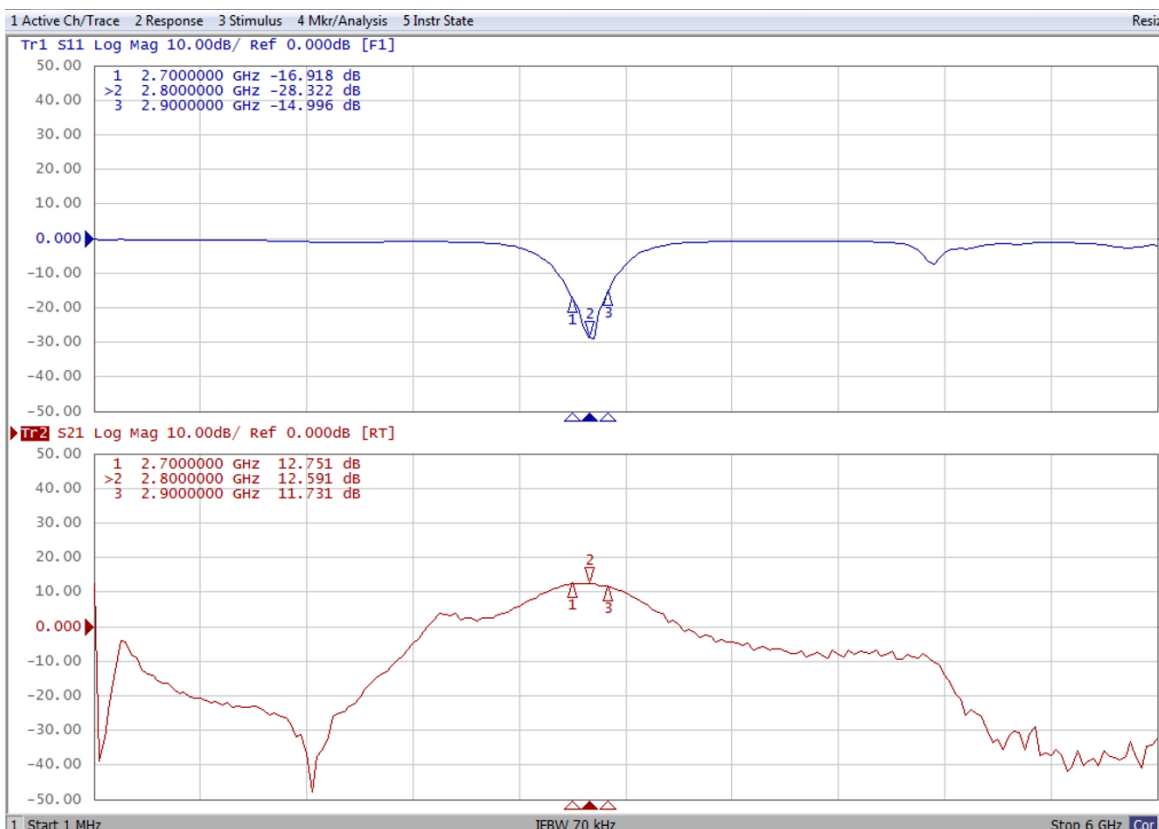
PARAMETER	UNIT	VALUE
Dimensions(L × W × H)	mm	50×90×4
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

## Typical performance

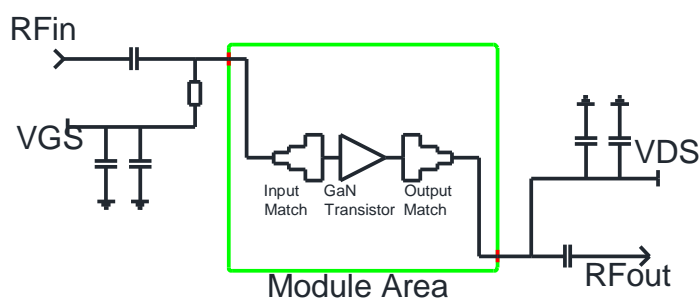
- Pulsed CW performance: 100uS width, 10% duty cycle

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P5dB (dBm)	P5dB (W)	P5dB Eff(%)
2700	62.12	1628.0	57.2	15.8	62.34	1714.6	58.5
2800	61.91	1552.6	59.1	16.6	62.34	1714.4	61.1
2900	61.63	1454.0	55.4	15.3	62.22	1666.4	58.1

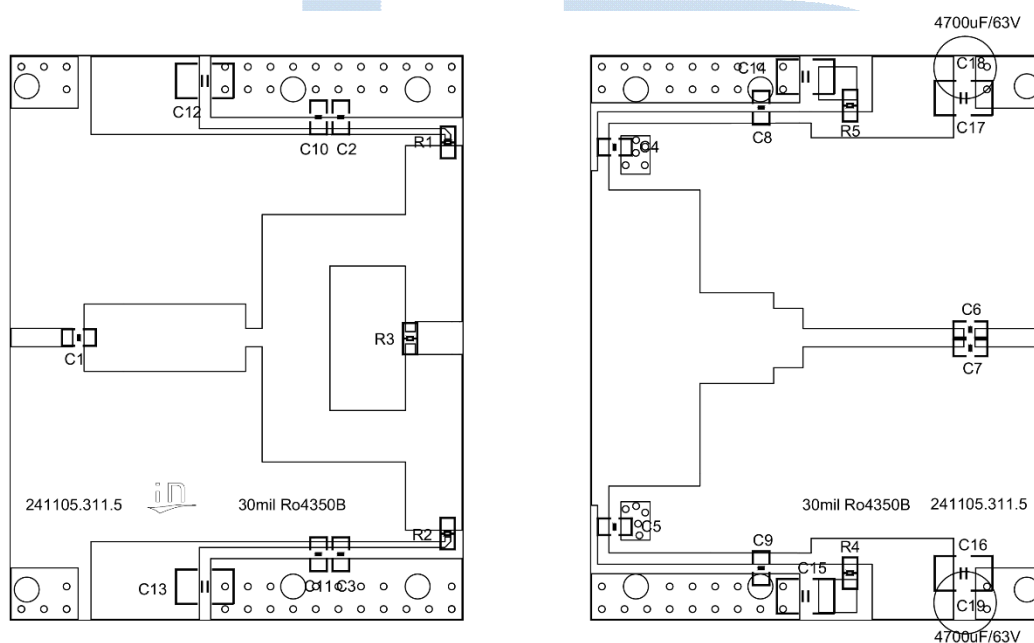
- S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA



## Evaluation board Block Diagram



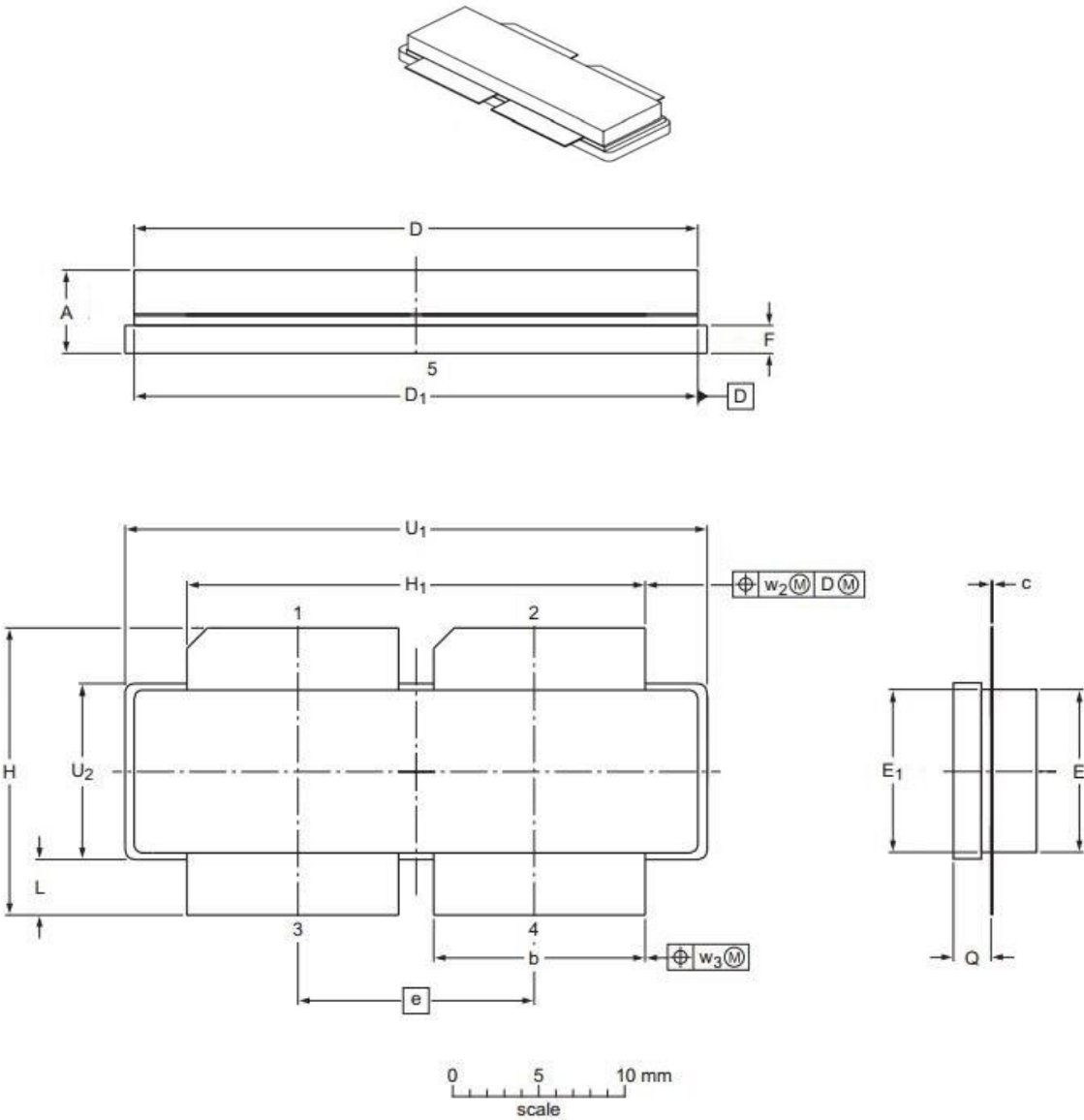
## Evaluation board outline (DUT:STBV311K5D4)



C1, C2, C3, C4, C5	0805	12pF/250V	5
C6, C7	0805	8.2pF/250V	2
C8, C9	0805	47pF/250V	2
C10, C11	0603	4.7nF/50V	2
C12, C13, C14, C15, C16, C17	0805	10uF/100V	6
C18, C19	-	4700uF/63V	2
R1, R2	0603	27R	2
R3, R4, R5	1206	10R	3
/	D4	STBV311K5D4	1



Transistor information: STBV311K5D4



UNIT	A	b	c	D	D <sub>1</sub>	e	E	E <sub>1</sub>	F	H	H <sub>1</sub>	L	Q	U <sub>1</sub>	U <sub>2</sub>	W <sub>2</sub>	W <sub>2</sub>
mm	4.7	11.81	0.18	31.55	31.52	13.72	9.50	9.53	1.75	17.12	25.53	3.48	2.26	32.39	10.29	0.25	0.25
	4.2	11.56	0.10	30.94	30.96		9.30	9.27	1.50	16.10	25.27	2.97	2.01	32.13	10.03		
inches	0.185	0.465	0.007	1.242	1.241	0.540	0.374	0.375	0.069	0.674	1.005	0.137	0.089	1.275	0.405	0.01	0.01
	0.165	0.455	0.004	1.218	1.219		0.366	0.365	0.059	0.634	0.995	0.117	0.079	1.265	0.395		



**Revision History**

Document revision history

Date	Revision	Datasheet Status
2024/11/27	Rev 1.0	Preliminary Datasheet

Application data based on ZBB-24-53



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