Product Features

2.7-3.0GHz:>1300W, pulsed CW

>55% Drain Efficiency@50V

50ohm in and out, screw down

Device used: STCV311K3BY2(Single ended)

Applications

Weather Radar Power amplifier

S band communication

ISM

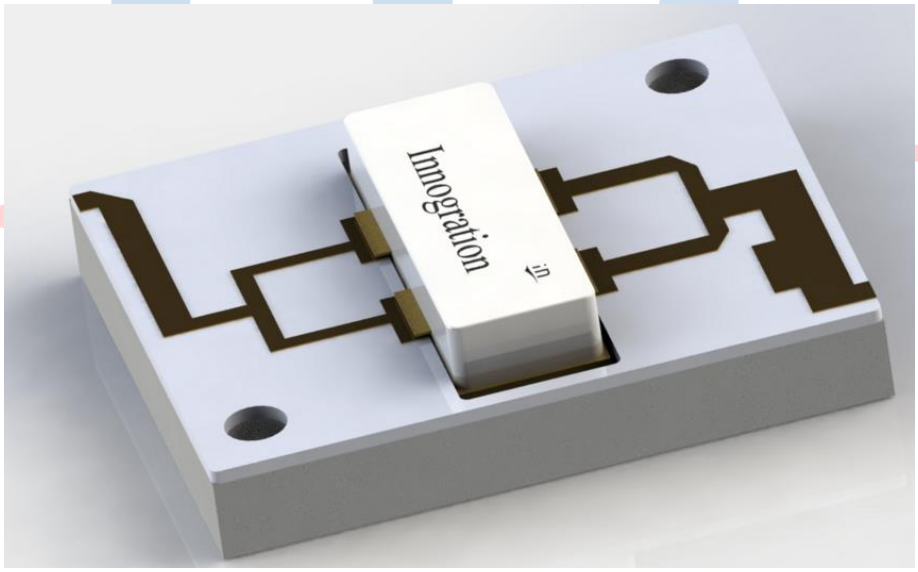
Commercial pulsed CW Power amplifier

Description

The SMPA2730-1300V is designed for test and measurement and other ISM applications at 2700-3000MHz. 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



Electrical Specifications @VCC=50V, T=25℃, 50Ωsystem

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Frequency	MHz	2700	-	3000	fo
Operating Bandwidth	MHz		300	-	OBW
Pulse CW Output Saturated Power	W		1300	-	Psat
Power Gain	dB		9	-	G_P
Gain Flatness	dB	-	-	±0.8	G_F
Input Return Loss	dB	-3	-10-		S_{11}
Operating Voltage	V	-	50		V_{DS}
Quiescent Current	mA	-	100	-	I_{DQ}
Efficiency@Psat	%	55	58	-	Eff

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Case Temperature	℃	-40	-	60	Ta
Storage Temperature	℃	-40		100	Tstg
Relative humidity w/o condensation	%	-	-	95	RH

Mechanical Specifications

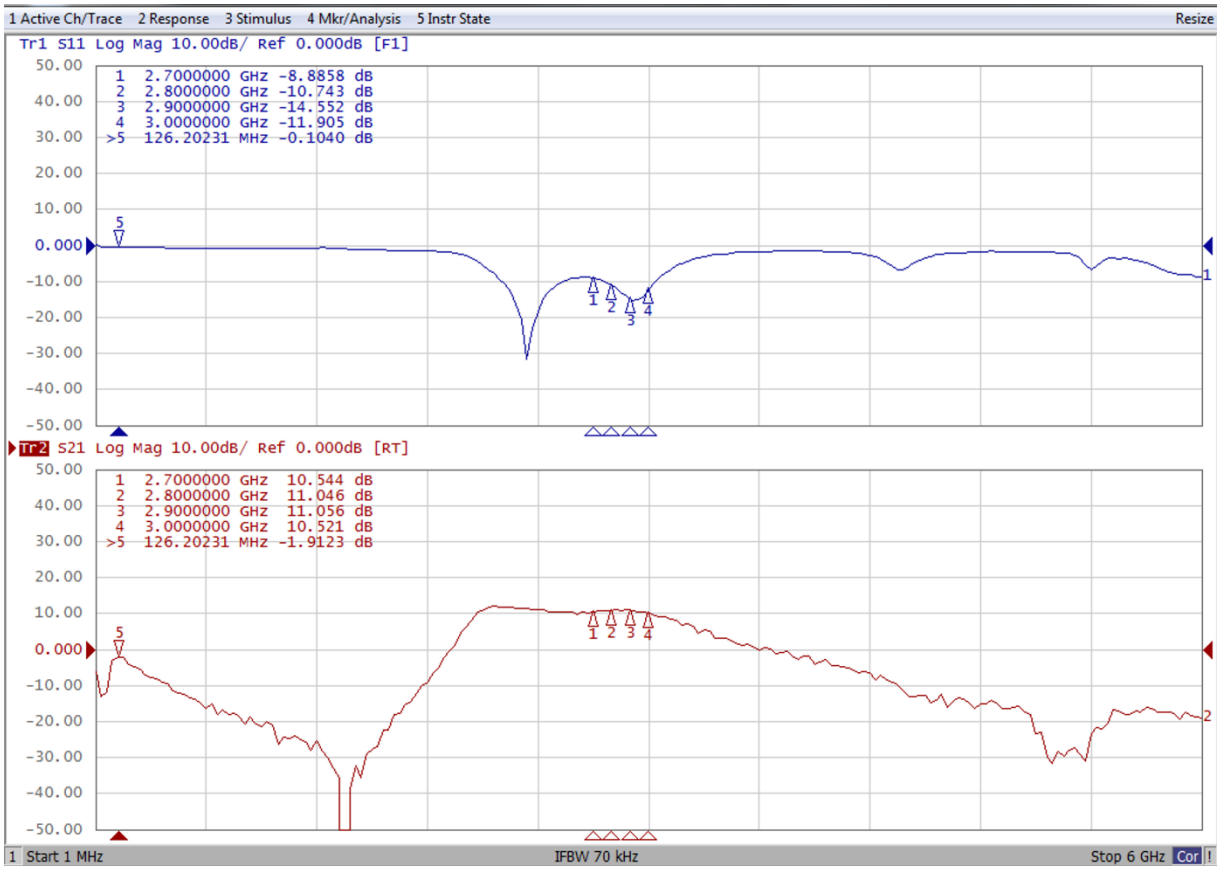
PARAMETER	UNIT	VALUE
Dimensions(L × W × H)	mm	50×90×4
RF Input Connector	-	N/A
RF Output Connector	-	N/A
Cooling	-	External Heat-sink

Typical performance

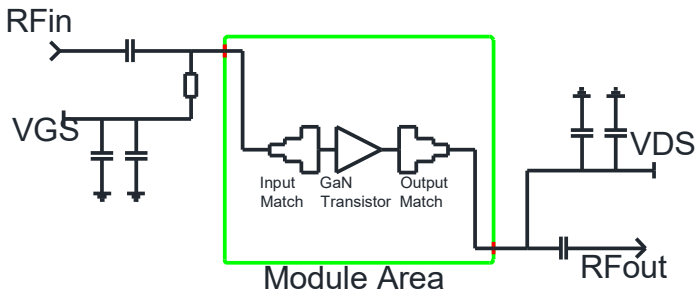
- **Pulsed CW performance: 100uS width, 10% duty cycle**

Freq (MHz)	P1dB (dBm)	P1dB (W)	P1dB Eff(%)	P1dB Gain(dB)	P4dB (dBm)	P4dB (W)	P4dB Eff(%)
2700	61.27	1338.2	55.2	12.33	61.34	1361.8	55.9
2800	61.15	1304.5	57.0	12.6	61.25	1333.0	57.7
2900	61.26	1336.1	58.0	13.03	61.37	1371.7	58.7
3000	61.16	1306.2	55.7	12.28	61.31	1351.1	56.4

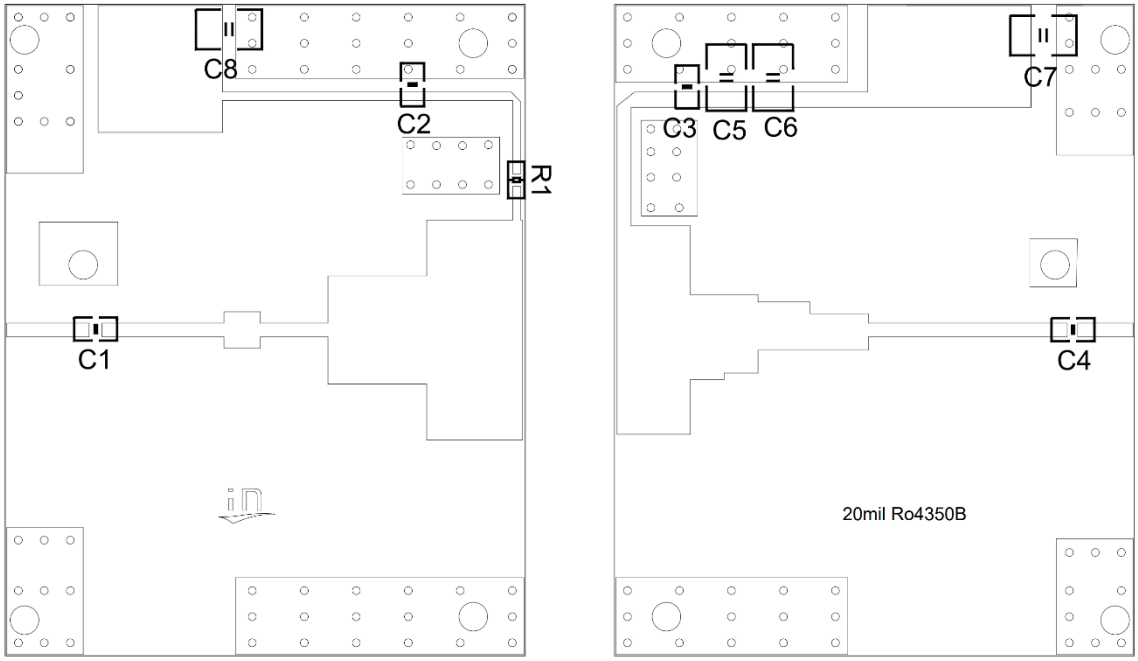
- **S21/S11 from network analyzer VDS=50V VGS=-3.02V IDQ=500mA**



Evaluation board Block Diagram

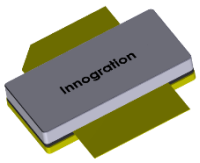


Evaluation board outline (DUT:STCV311K3BY2)

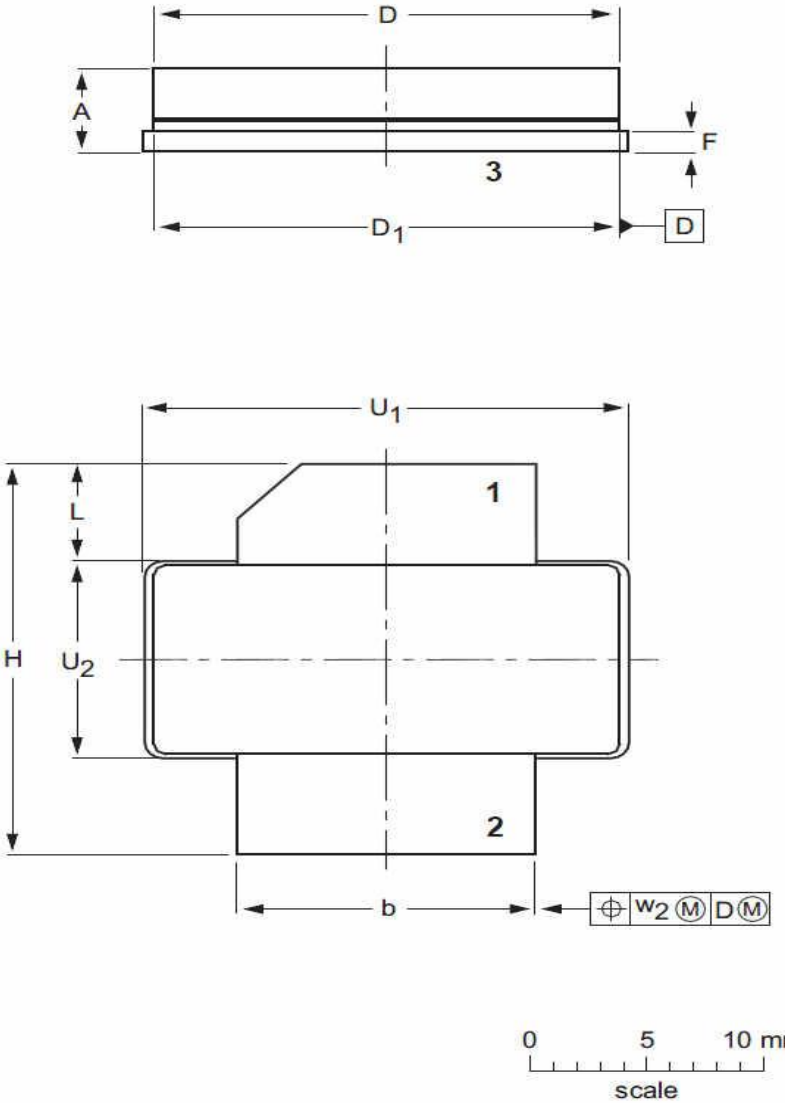


Reference	Footprint	Value	Quantity
Reference	**Footprint**	**Value**	**Quantity**
C1, C2, C3, C4	0805	12pF/250V	4
C5, C6, C7, C8	1210	10uF/100V	4
R1	0603	10R	1
/	BY2	STCV311K3BY2$^{V1.1}$	1

Transistor information：STCV311K3BY2



Earless flanged ceramic package; 2 leads（1—DRAIN、2—GATE、3—SOURCE）



UNIT	A	b	c	D	D_1	E	E_1	F	H	L	Q	U_1	U_2	W_2
mm	4.72 3.43	12.83 12.57	0.15 0.08	20.02 19.61	19.96 19.66	9.50 9.30	9.53 9.25	1.14 0.89	19.94 18.92	5.33 4.32	1.70 1.45	20.70 20.45	9.91 9.65	0.25
inches	0.186 0.135	0.505 0.495	0.006 0.003	0.788 0.772	0.786 0.774	0.374 0.366	0.375 0.364	0.045 0.035	0.785 0.745	0.210 0.170	0.067 0.057	0.815 0.805	0.390 0.380	0.010

Revision History

Document revision history

Date	Revision	Datasheet Status
2026/6/2	Rev 1.0	Preliminary Datasheet

Application data based on ZBB-26-10

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