

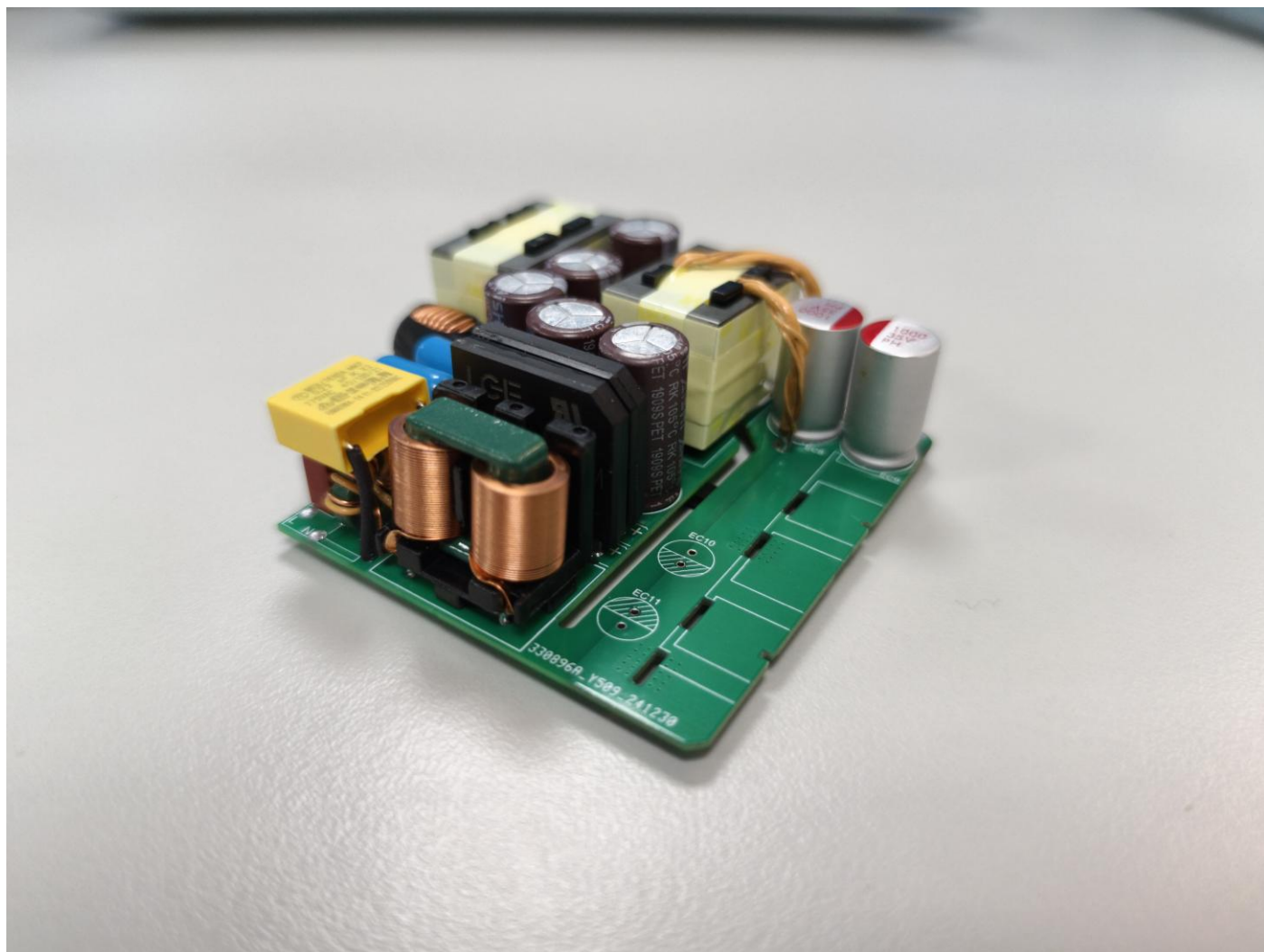
JP8320+JP8520 Evaluation Board: 140W

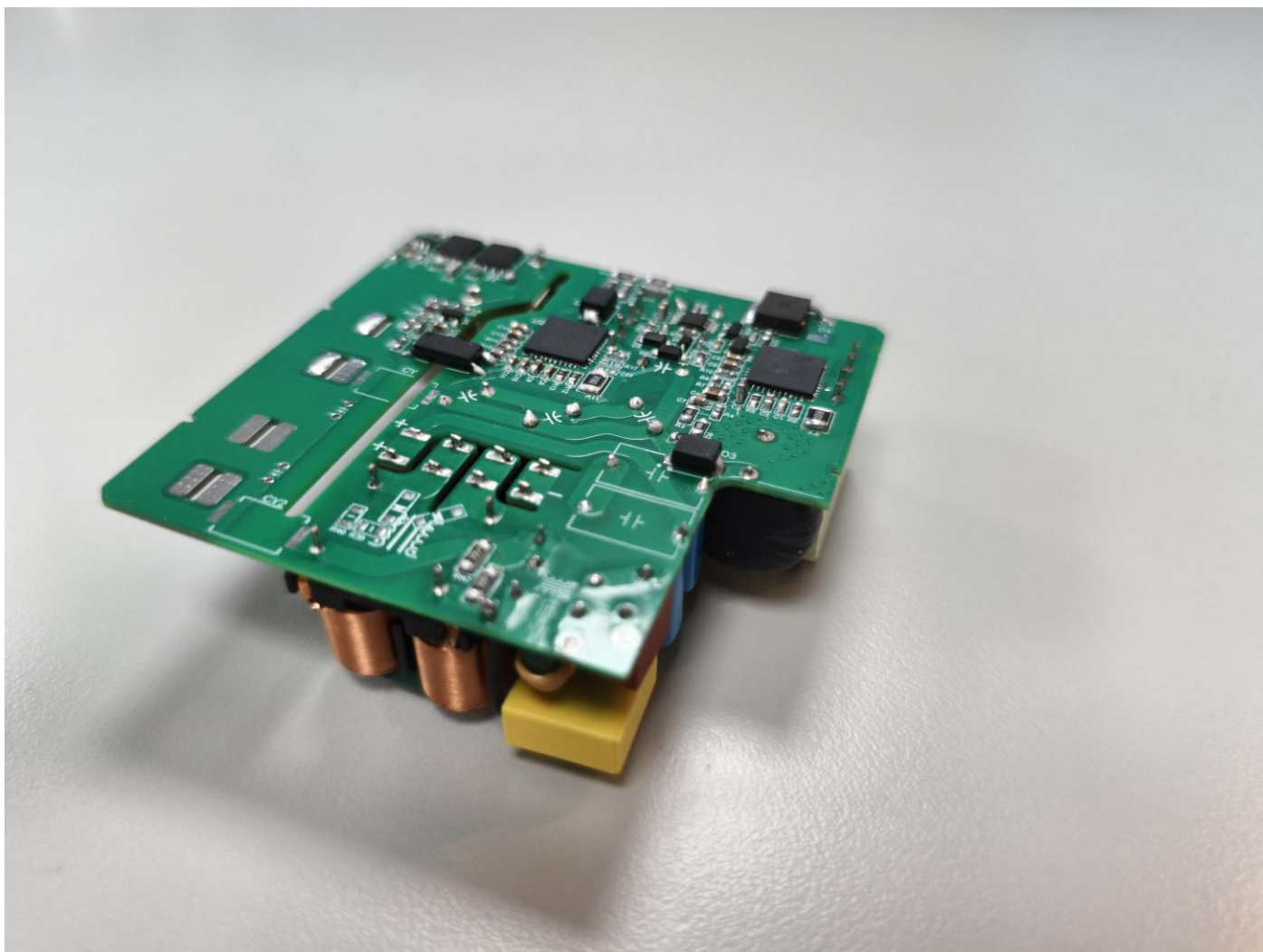
Operating Conditions

Parameter	Value
Input Voltage Range	100~240 Vac
Input Frequency Range	60/50 Hz
Output Voltage @ PD FOR TYPE C	28.4V
Output Current @ PD FOR TYPE C	4.93A
Max. Output Wattage	140W
Operating Temperature	--
Performance	
No-Load / Stand-by Power Consumption 230Vac/50Hz	< 0.3W

Power Supply Specification

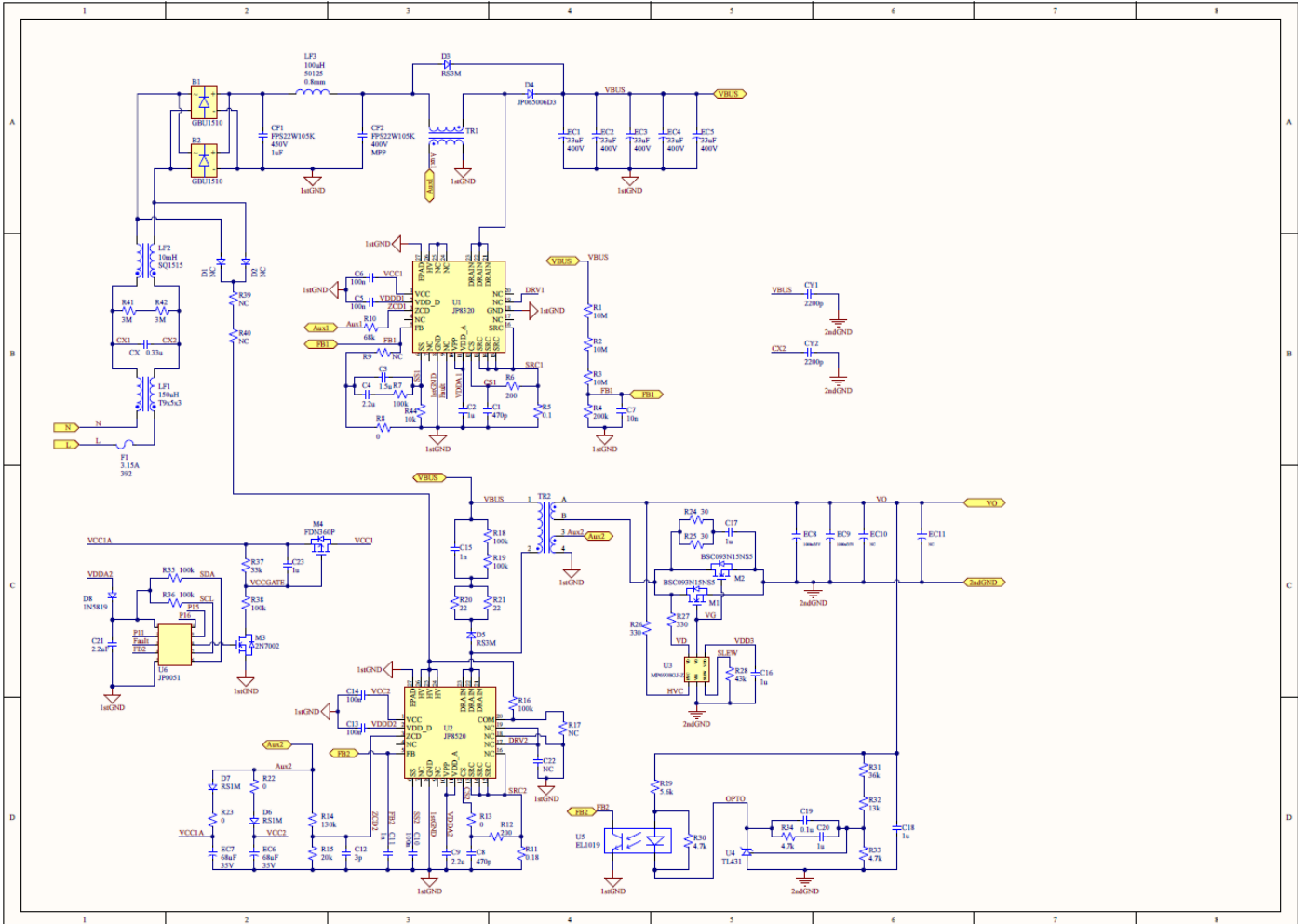
Description	Symbol	Min	Typ	Max	Units	Comment/Conditions
INPUT						
Voltage	V _{IN}	100		240	VAC	2 Wire, no P.E
Frequency	F _{IN}	47	50/60	63	Hz	
No-load Input Power	P _{IN}			0.5	W	Input 230 VAC
OUTPUT						
Output Voltage(28.4V)			28.4		V	Measured at the End of PCB
Output Current(28.4V)			4.93		A	
Output Ripple Voltage(28.4V)				<300	mV	
Continuous Output Power			140		W	
Average Efficiency	η		>90%			
Ambient Temperature	T _{AMB}	0		40	°C	





1 Application Circuit

140W Demo Board Schematic



2 BOM

Designator	Footprint	Comment
B1, B2	Bridge_GBU	GBU1510
C1, C8	C0603-0.8mm	470p
C2, C16, C18, C20, C23	C0603-0.8mm	1u
C3	C0603-0.8mm	1.5u
C4	C0805	2.2u
C5, C6, C10, C13, C14	C0603-0.8mm	100n
C7	C0603-0.8mm	10n
C9	C0603-0.8mm	2.2u
C11	C0603-0.8mm	1n
C12	C0603-0.8mm	3p
C15	C1206	1n
C17	C0805	1u
C19	C0603-0.8mm	0.1u
C21	C0603-0.8mm	2.2uF
C22	C0603-0.8mm	NC
CF1, CF2	C_FILM_W7_L11_H15_P10	FPS22W105K
CX	C_X2_W6_L13_H12_P10_H_Float13	0.33u
CY1, CY2	CAP-Y-7R8x5R4	2200p
D1, D2	SOD-123-F	NC
D3, D5	SMB	RS3M
D4	TO-252	JP065006D3
D6, D7	SOD-123-F	RS1M
D8	SOD-323	1N5819
EC1, EC2, EC3, EC4, EC5	CEC_V_D10_L20_P5	33uF
EC6, EC7	CEC_V_D5_L11_P2	68uF
EC8, EC9	CEC_V_D10_L18_P5	1000u/35V
EC10, EC11	CPC_V_D6.3_L14_P2.5	NC
F1	Fuse_392_W4_L8.5_H8_P5.08	3.15A
LF1	T953	150uH
LF2	SQ1515_立式	10mH
LF3	L_V_D15_H7	100uH
M1, M2	DFN 5x6	BSC093N15NS5
M3	SOT-23	2N7002
M4	SOT-23	FDN360P
R1, R2, R3	R0805	10M
R4	R0603-0.8mm	200k
R5	R1210	0.1

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R6, R12	R0603-0.8mm	200
R7, R16, R35, R36, R38	R0603-0.8mm	100k
R8, R13	R0603-0.8mm	0
R9, R17	R0603-0.8mm	NC
R10	R0603-0.8mm	68k
R11	R1210	0.18
R14	R0603-0.8mm	150k
R15	R0603-0.8mm	24k
R18, R19	R1206	100k
R20, R21	R1206	22
R22, R23	R0805	0
R24, R25	R0805	30
R26, R27	R0603-0.8mm	330
R28	R0603-0.8mm	43k
R29	R0603-0.8mm	5.6k
R30, R33, R34	R0603-0.8mm	4.7k
R31	R0603-0.8mm	36k
R32	R0603-0.8mm	13k
R37	R0603-0.8mm	33k
R39, R40	R0805	NC
R41, R42	R1206	3M
R44	R1206	10k
TR1	ATQ2516_BDAG	ATQ2516_BDAG
TR2	ATQ 25/16 _1234AB	ATQ25_1458
U1	JP8320	JP8320
U2	JP8520	JP8520
U3	SOT-23-6	MP6908AGJ-Z
U4	SOT-23	TL431
U5	LSOP-4	EL1019
U6	MSOP-10	JP0051

3 Performance Evaluation

3.1 Standby Power

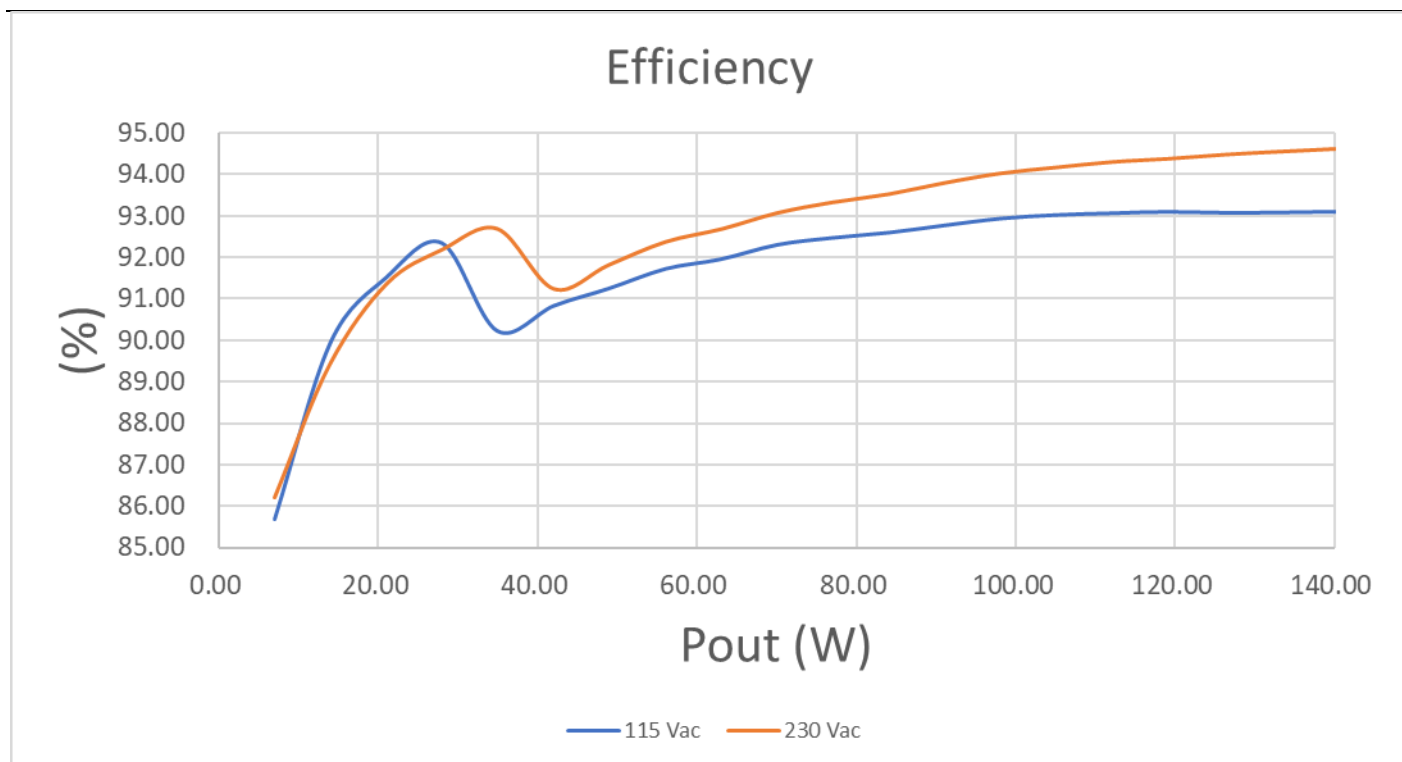
	PIN	SPEC
230V/50HZ	0.205W	<0.3W

3.2 System efficiency

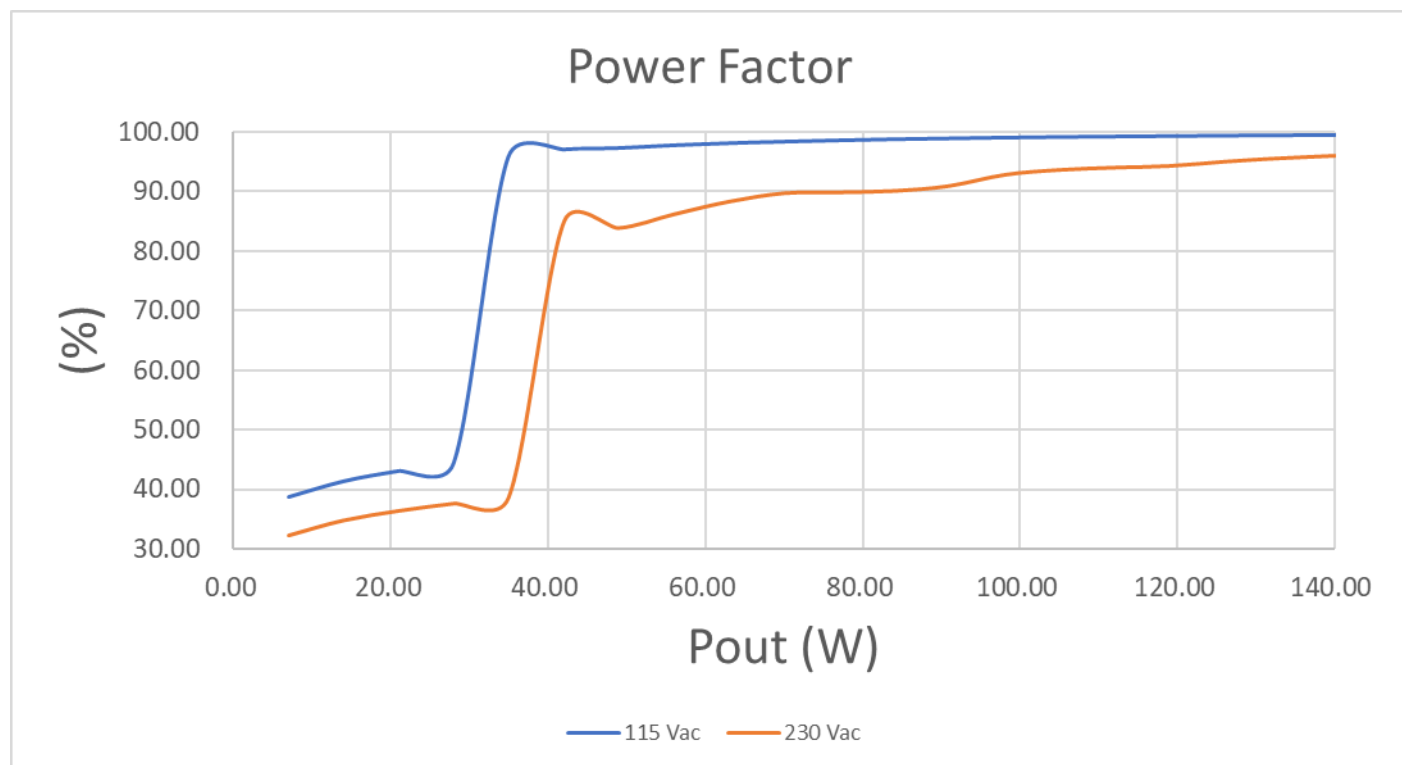
Vout @ PCB end

Vin (Vrms)	Fin (Hz)	Pin (W)	Iout (A)	Vout (V)	Pout (W)	EFF (%)	PF (%)
115	60	8.19	0.25	28.53	7.02	85.69	38.81
		15.57	0.49	28.52	14.00	89.94	41.45
		22.94	0.74	28.52	20.99	91.50	43.17
		30.32	0.98	28.51	28.00	92.34	44.49
		38.72	1.23	28.38	34.94	90.23	95.74
		46.32	1.48	28.37	42.07	90.83	96.99
		53.61	1.73	28.34	48.91	91.24	97.23
		61.15	1.98	28.34	56.08	91.72	97.69
		68.44	2.22	28.32	62.93	91.94	98.03
		75.97	2.48	28.33	70.12	92.30	98.30
		83.25	2.72	28.32	76.97	92.46	98.51
		90.84	2.97	28.30	84.11	92.59	98.70
		98.09	3.21	28.31	90.99	92.76	98.84
		105.66	3.47	28.32	98.19	92.93	98.97
		112.94	3.71	28.33	105.05	93.01	99.07
		120.56	3.96	28.33	112.19	93.05	99.16
		127.87	4.20	28.32	119.03	93.09	99.23
		135.52	4.46	28.31	126.12	93.06	99.30
		142.87	4.70	28.31	132.97	93.07	99.36
		150.56	4.95	28.32	140.16	93.09	99.41

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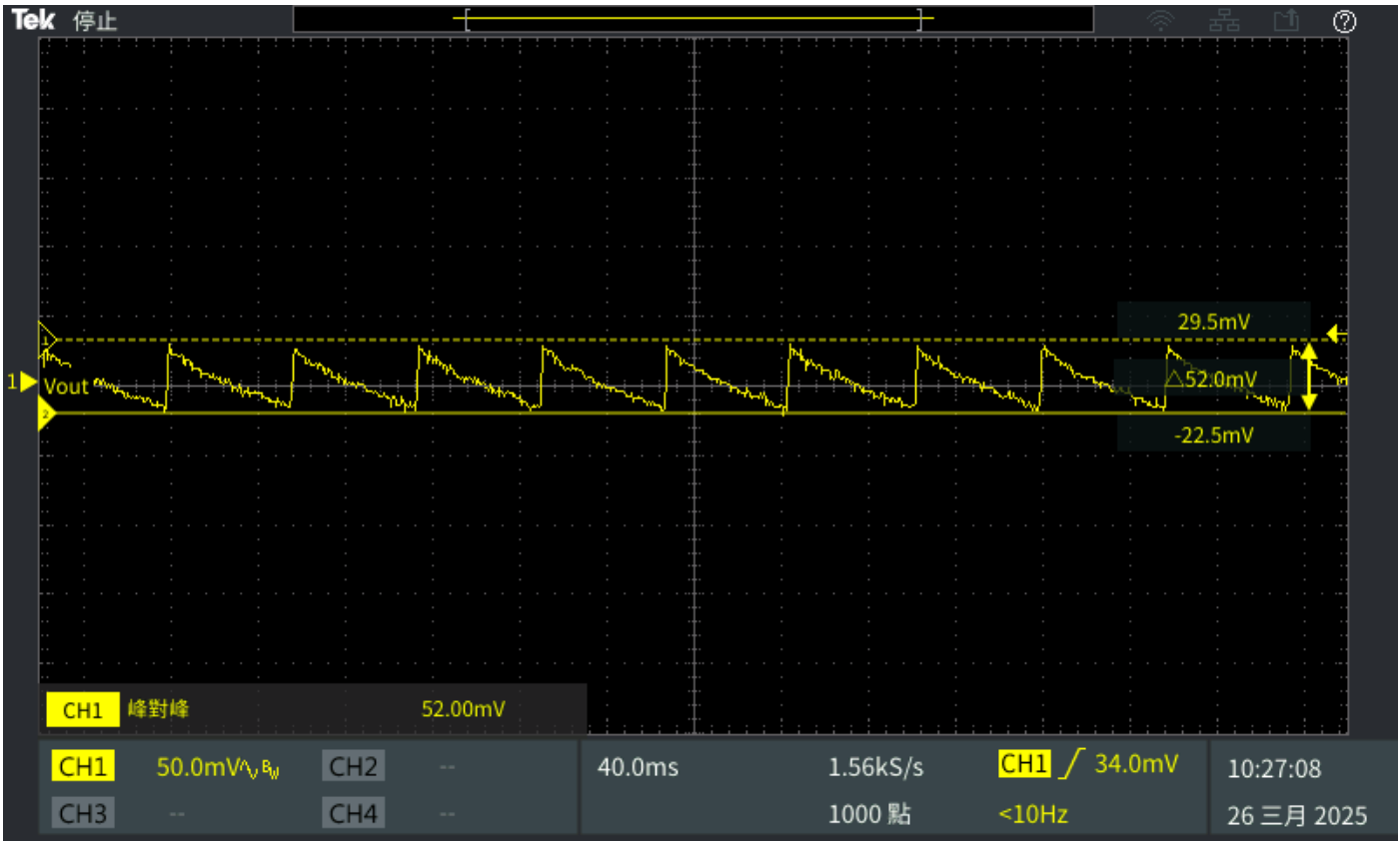
Vin (Vrms)	Fin (Hz)	Pin (W)	Iout (A)	Vout (V)	Pout (W)	EFF (%)	PF (%)
230	50	8.13	0.25	28.49	7.01	86.21	32.33
		15.56	0.49	28.45	13.91	89.41	34.84
		23.09	0.74	28.43	21.10	91.36	36.48
		30.42	0.99	28.41	28.04	92.18	37.69
		37.71	1.23	28.39	34.95	92.68	38.67
		46.07	1.48	28.36	42.03	91.23	85.09
		53.25	1.73	28.34	48.89	91.81	83.94
		60.67	1.98	28.33	56.04	92.36	86.27
		68.15	2.23	28.31	63.16	92.68	88.42
		75.26	2.47	28.32	70.04	93.06	89.79
		82.43	2.72	28.31	76.92	93.31	89.92
		89.85	2.97	28.29	84.02	93.51	90.17
		96.93	3.21	28.30	90.90	93.78	90.99
		104.34	3.47	28.31	98.09	94.01	92.89
		111.46	3.71	28.31	104.95	94.16	93.70
		118.90	3.96	28.31	112.11	94.29	94.08
		126.05	4.20	28.30	118.94	94.36	94.35
		133.48	4.46	28.29	126.09	94.46	95.09
		140.59	4.70	28.29	132.91	94.53	95.65
		148.05	4.95	28.30	140.06	94.60	96.07



3.3 Ripple & Noise

No Load
52 mV

Full Load
138 mV



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TEST REPORT

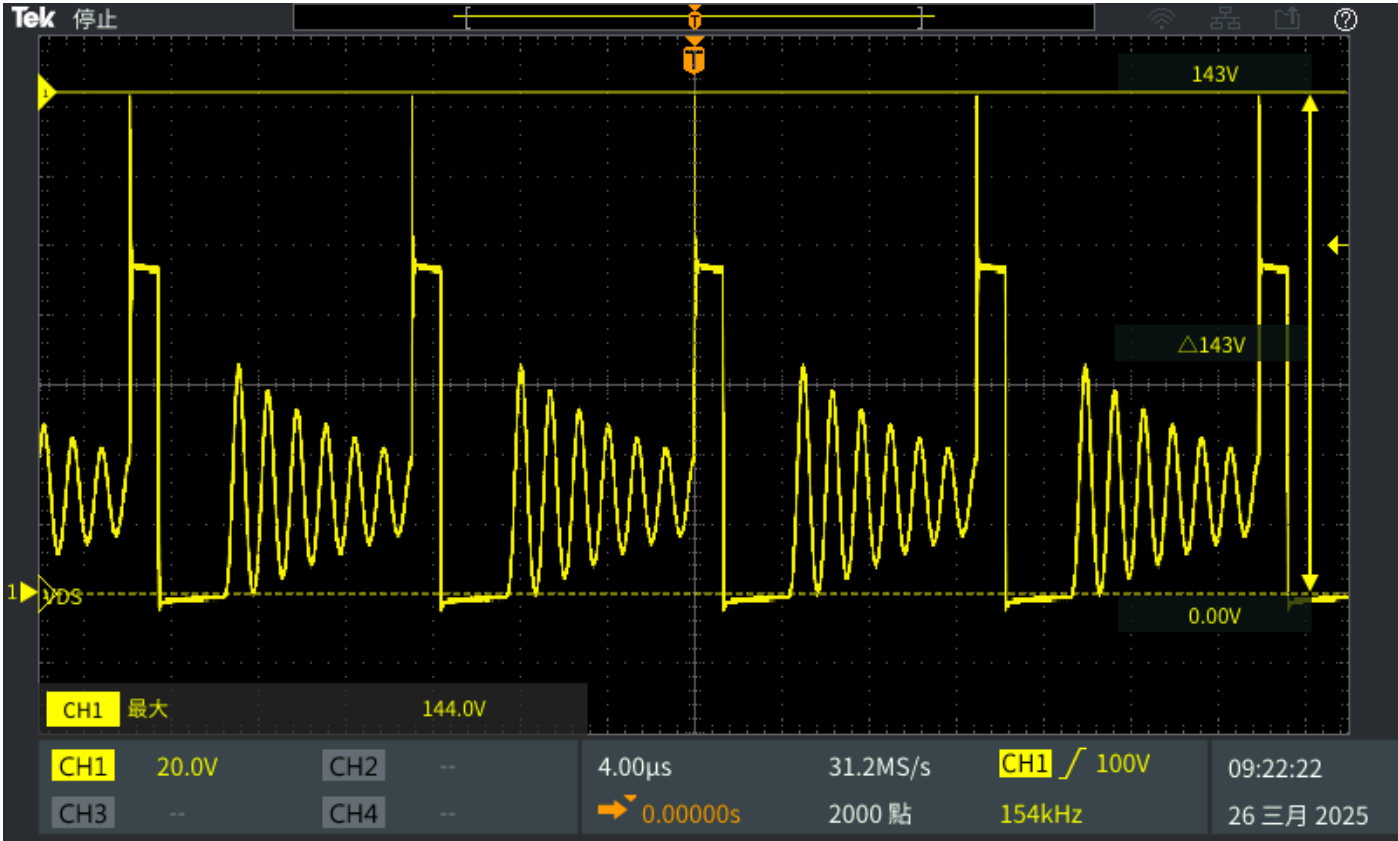


3.4 Maximum Drain Voltage

Maximum Primaru Side Vds
564 V

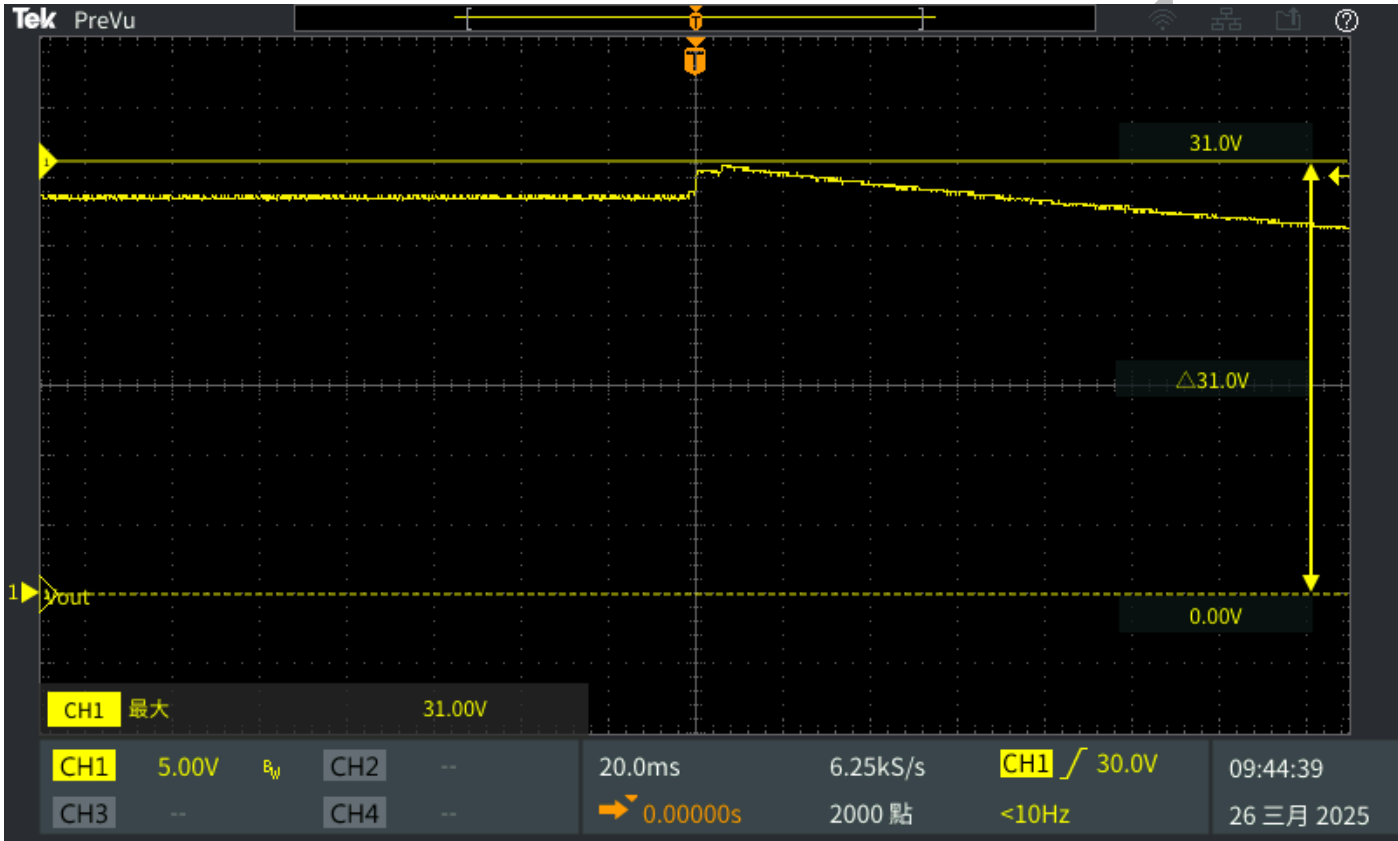


Maximum Secondary Side Vds
144 V

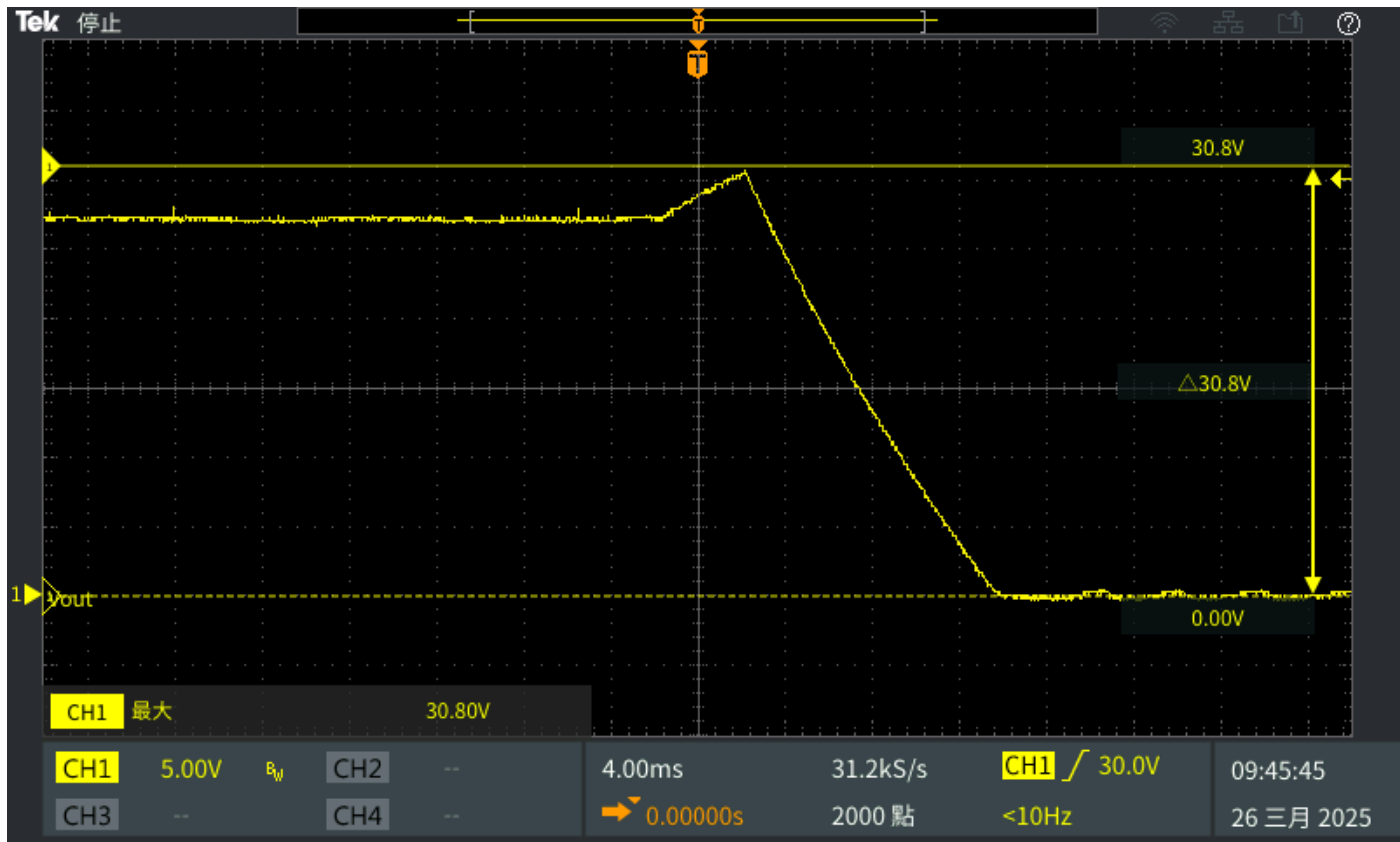


3.5 OVP Test

No Load
31 V



Full Load
30.8 V



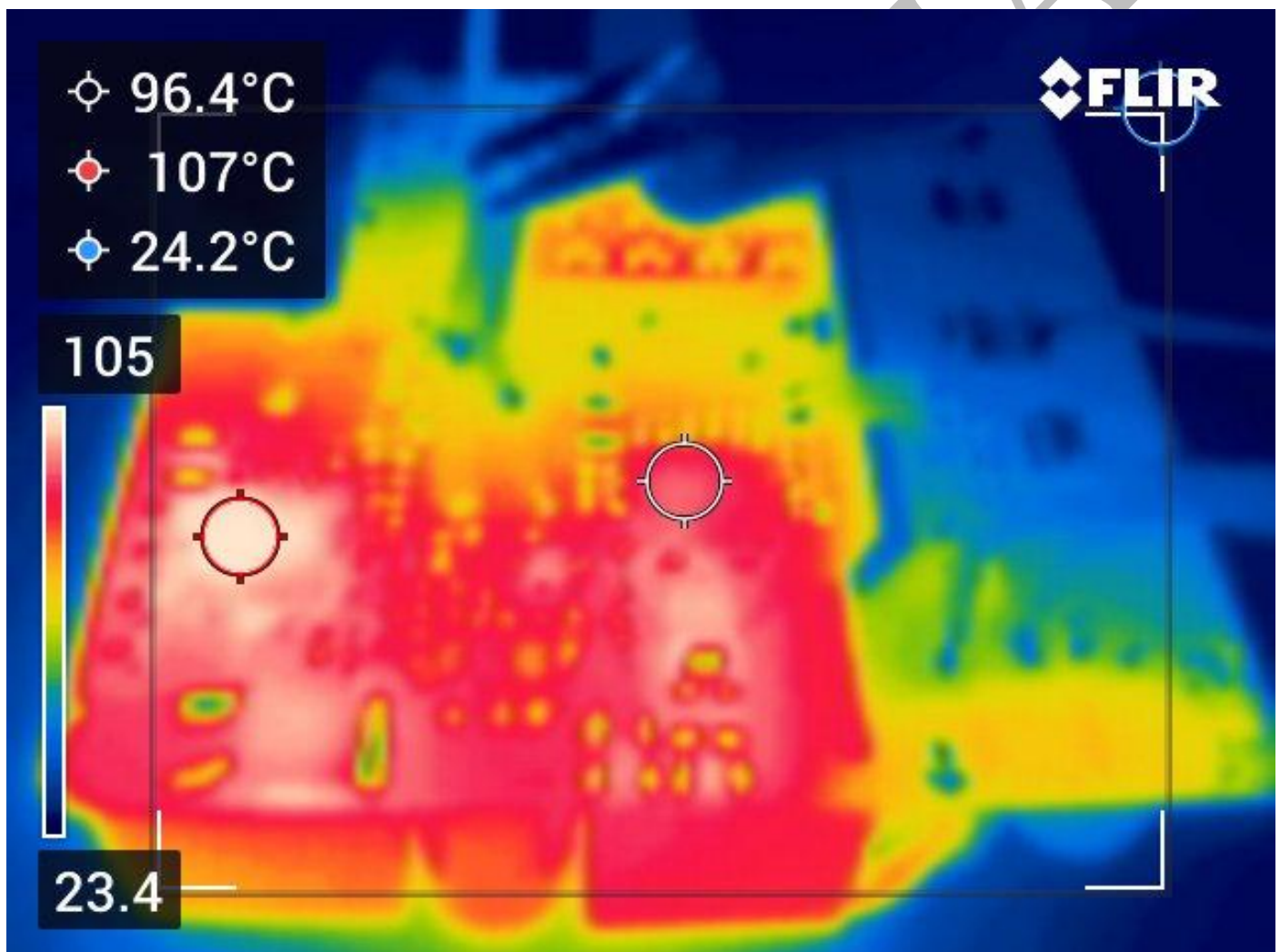
3.6 Thermal Test

THERMAL PERFORMANCE IS MEASURED ROOM TEMPERATURE @90V FULL LOAD

INPUT : 90 VAC / 47 HZ

OUTPUT : 28.4V / 4.93A

TIME DURATION : 2HR



JP8520 : 96°C

JP8320 : 107°C