



Test Report: CXLPA320F-48

320W AC-DC Enclosed

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

Environment Test

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DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	OUTPUT VOLTAGE TOLERANCE.	No specification	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	47.82 ~ 48.32V	
2	LINE REGULATION	-0.5%~+0.5%	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	85 to 115VAC	-0.02% ~ +0.02%
				230 to 305VAC	-0.01% ~ +0.01%
3	LOAD REGULATION	-1%~+1%	I/P: 85VAC I/P: 305VAC O/P: NO ~ FULL LOAD Ta: 25°C	-0.12% ~ +0.12%	
4	RIPPLE & NOISE	250mVp-p	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC	45.9mVp-p
				305VAC	76.1mVp-p
	85VAC/ FULL LOAD		305VAC/ FULL LOAD		
	25°C 45.9mV		25°C 76.1mV		
					

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5	START UP TIME		3000ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: -30°C, 25°C, 50°C	85VAC 305VAC	983.7ms 1307.0ms
	INPUT=85VAC/47HZ @ FULL LOAD			INPUT=305V/63HZ @ FULL LOAD		
	-30°C: 756.4ms CH1: AC Input Voltage, CH3: Output Voltage			-30°C: 743.0ms CH1: AC Input Voltage, CH3: Output Voltage		
	25°C: 937.6ms CH1: AC Input Voltage, CH3: Output Voltage			25°C: 1121.0ms CH1: AC Input Voltage, CH3: Output Voltage		
	50°C: 983.7ms CH1: AC Input Voltage, CH3: Output Voltage			50°C: 1307.0ms CH1: AC Input Voltage, CH3: Output Voltage		

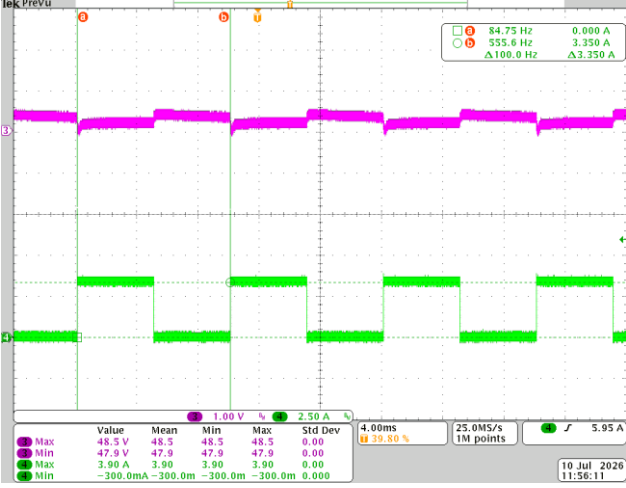
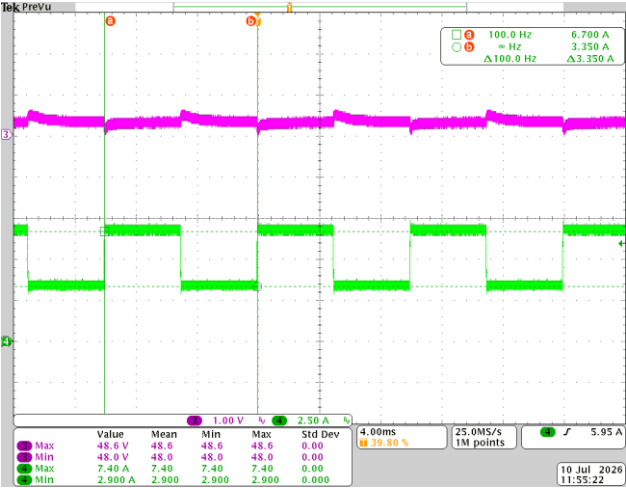
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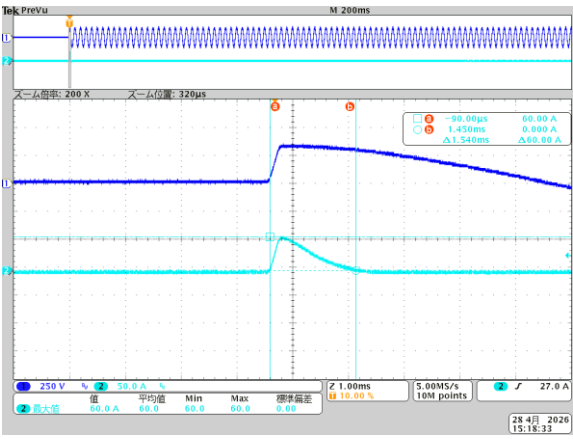
6	RISE TIME		80ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC 59.78ms 305VAC 59.71ms
	INPUT=85VAC/47HZ @ FULL LOAD			INPUT=305V/63HZ @ FULL LOAD	
	25°C: 59.78ms			25°C: 59.71ms	
7	HOLD UP TIME		> 16ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	24.10ms
	INPUT=115VAC/60HZ @ FULL LOAD				
	25°C CH1: AC Input Voltage, CH3: Output Voltage				

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DYNAMIC LOAD		No specification	I/P: 85VAC O/P: (1) LOAD 0%~50% 50%DUTY / 100HZ (2) LOAD 50%~100% 50%DUTY / 100HZ (3) LOAD 0%~50% 50%DUTY / 1KHZ (4) LOAD 50%~100% 50%DUTY / 1KHZ Ta: 25°C	-
(1) INPUT=85VAC/47HZ @ LOAD 0%~50% 50%DUTY / 100HZ		(3) INPUT=85VAC/47HZ @ LOAD 0%~50% 50%DUTY / 1KHZ		
25°C CH3: Output Voltage, CH4: Output Current 		25°C CH3: Output Voltage, CH4: Output Current 		
(2) INPUT=85VAC/47HZ @ LOAD 50%~100% 50%DUTY / 100HZ		(4) INPUT=85VAC/47HZ @ LOAD 50%~100% 50%DUTY / 1KHZ		
25°C CH3: Output Voltage, CH4: Output Current 		25°C CH3: Output Voltage, CH4: Output Current 		

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT CURRENT	4.0A/115VAC 2.0A/230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	3.222A @115VAC 1.553A @230VAC
2	LEAKAGE CURRENT	< 1mA / 240VAC	I/P: 240VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.153mA N-FG: 0.155mA
3	STANDBY POWER	No specification	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/1.42W 230VAC/1.22W
4	INRUSH CURRENT	60A at 230Vac (cold start)	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	60.0A
INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage, CH4: Input Current 				
5	EFFICIENCY	91.5% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/89.02% 230VAC/91.46%
6	POWER FACTOR	> 0.9	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/0.997 230VAC/0.994

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	105%~135% rated current 7.035A<OCP<9.045A	I/P: 85VAC I/P: 305VAC O/P: TESTING Ta: 25°C	85VAC/7.84A 305VAC/7.84A
2	OVER VOLTAGE PROTECTION	120% to 150% of Rated Voltage	I/P: 85VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	85VAC/62.8V 305VAC/62.7V
3	SHORT CIRCUIT PROTECTION	NO DAMAGE (auto-recovery)	I/P: 85VAC ~ 305VAC O/P: NO LOAD, FULL LOAD Ta: 25°C	PASS
4	OVER TEMPERATURE PROTECTION	NO DAMAGE (auto-recovery)	I/P: 85VAC ~ 305VAC O/P: FULL LOAD	O.T.P. Active at 68.7°C Shut down o/p voltage recovers automatically after temperature goes down

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COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Power Transistor	Q050 Rated 12A/600V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 445.2V (2) 1.566A
2	PFC Power Transistor	Q010 Rated 18A/600V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 428.4V (2) 2.235A
3	Input Capacitor	C051 Rated 180uF/450V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 425.6V (2) 1.873A

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CXLPA320F-48**SAFETY TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.0KVAC/min I/P-FG: 2.0KVAC/min O/P-FG: 0.5KVAC/min	I/P-O/P: 3.0KVAC/min I/P-FG: 2.0KVAC/min O/P-FG: 0.5KVAC/min Ta: 25°C	PASS
2	ISOLATION RESISTANCE	I/P-O/P: 500VDC: >100MΩ I/P-FG: 500VDC: >100MΩ O/P-FG: 500VDC: >100MΩ	I/P-O/P: 500VDC I/P-FG: 500VDC O/P-FG: 500VDC Ta: 25°C	PASS

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
2	RADIATION	EN55032 CLASS B	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
3	CONDUCTION	EN55032 CLASS B	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
4	E. S. D	EN61000-4-2 Air: ±8KV, Contact: ±4KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
5	E. F. T	EN61000-4-4 INPUT: ±2KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
6	SURGE	EN61000-4-5 L-N: ±1KV L, N-PE: ±2KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
7	VOLTAGE DIPS	IEC61000-4-11 (1) < 5 % residual voltage, 0.5 cycle CRITERIA A (2) 70% residual voltage, 25 cycles (at 50Hz) CRITERIA A (3) < 5 % residual voltage, 250 cycles (at 50 Hz) CRITERIA B	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS

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8	Conducted Immunity	IEC61000-4-6 0.15-10 MHz, 3V, 80% AM (1kHz), 10-30 MHz, 3V-1V, 80% AM (1kHz), 30-80 MHz, 1V, 80% AM (1kHz), CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
9	Radiated Immunity	IEC61000-4-3 (1) 80 to 1000(MHz), 3 V/m, 80 % AM (1 kHz) (2) 1800, 2600, 3500, 5000 MHz (± 1 %), 3V/m, 80% AM (1kHz) CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
10	Power Frequency Magnetic Field	IEC61000-4-8 1A/m, 50Hz CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	TEMPERATURE	No components damaged	I/P: 85VAC @ 47Hz O/P: FULL LOAD Ta: 50°C	PASS*Table 1
2	CAPACITOR LIFE CYCLE	The electrolytical capacitor life is greater than 43,800 hours	I/P: 230 VAC @ 50Hz O/P: FULL LOAD Ta: 50°C	LIFETIME= 160,929 hours
3	MTBF	The power supply reliability, when calculated by SR332 exceeds 2,000,000 hours with all output at 100% of maximum load and at ambient temperature of 25°C		4,512,175 hours @ 115VAC 5,916,469 hours @ 230VAC
4	HUMIDITY	Storage: 25°C / 10 ~ 95% RH Working: 25°C/ 20 ~ 90% RH I/P: 100~277VAC (Working) O/P: 100% load (Working)		PASS
5	VIBRATION TEST	Ware form: Random Acceleration: 2Grms Axis/Time: X, Y, Z / 10min per axis Frequency: 10~500Hz No functional, mechanical and safety fail.		PASS
6	ALTITUDE	Operational and Non-operational Altitude: 5000 meters Temperature: -5°C Dwell time: 24Hrs I/P: 100~277VAC (Operational) O/P: 100% load (Operational)		PASS
7	OVERLOAD BURN-IN TEST	I/P: 115VAC/ 60Hz O/P: Just before OCP kicks in Ta: 50°C		PASS

*1 All component temperatures should not exceed maximum operation temperature.

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Table 1. Components temperature @ 50°C 100% Load. (Unit °C)

No.	Location	85VAC	Result
1	L001	85.3	Pass
2	L002	92.9	Pass
3	L003	101.1	Pass
4	D050	106.7	Pass
5	L010	81.7	Pass
6	L201	64.8	Pass
7	Q010	87.9	Pass
8	D010	82.4	Pass
9	C051	60.3	Pass
10	C054	57.0	Pass
11	C056	56.9	Pass
12	C060	55.7	Pass
13	T050(C)	76.9	Pass
14	T050(W)	91.8	Pass
15	C501	66.0	Pass
16	C502	66.0	Pass
17	C208	61.9	Pass
18	C209	62.0	Pass
19	C210	64.8	Pass
20	Q050	73.5	Pass
21	Q210	57.6	Pass
22	Q2	78.2	Pass
23	IC201	71.9	Pass

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Jalen Wu	Arvin Wang	Senne Xu