



Test Report: CXLPA150F-24

150W 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

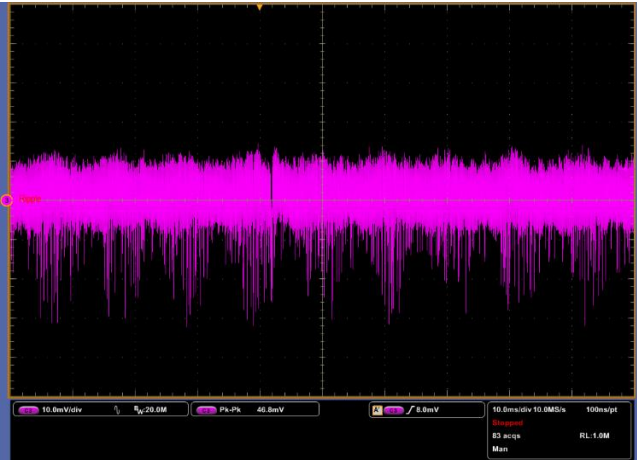
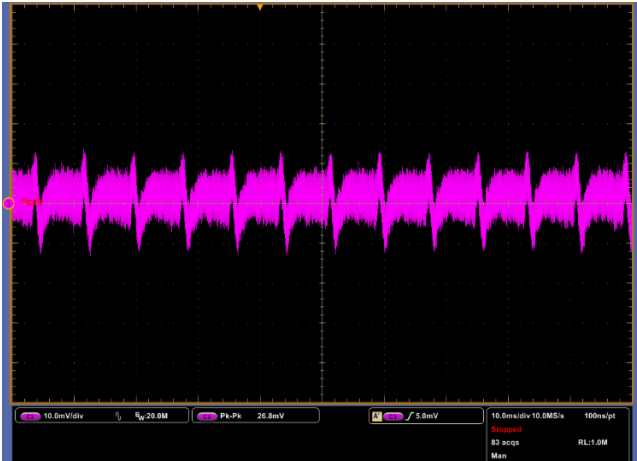
E.M.C. Test

■ RELIABILITY TEST

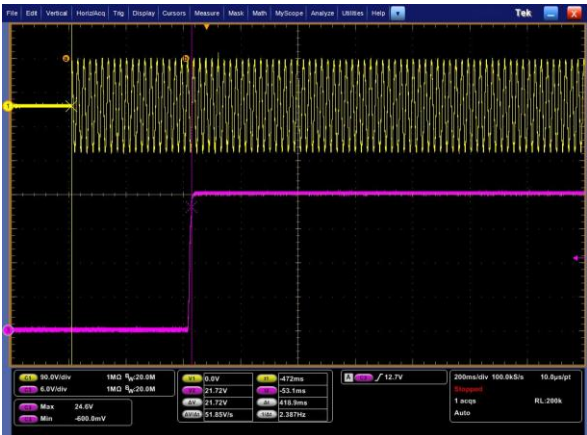
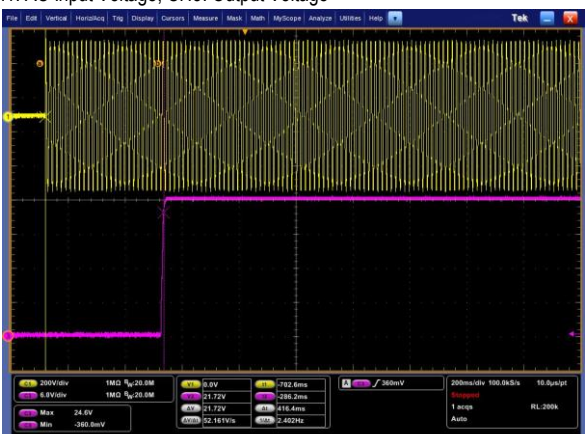
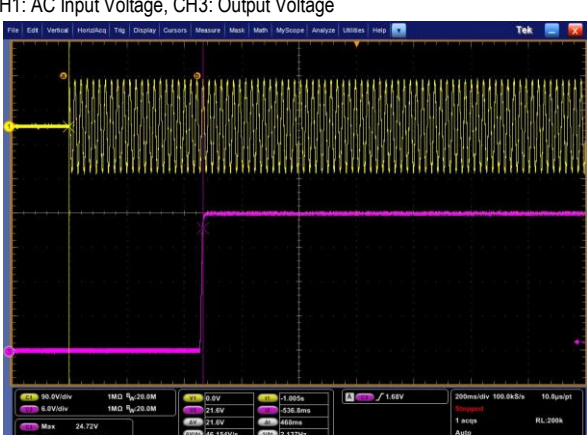
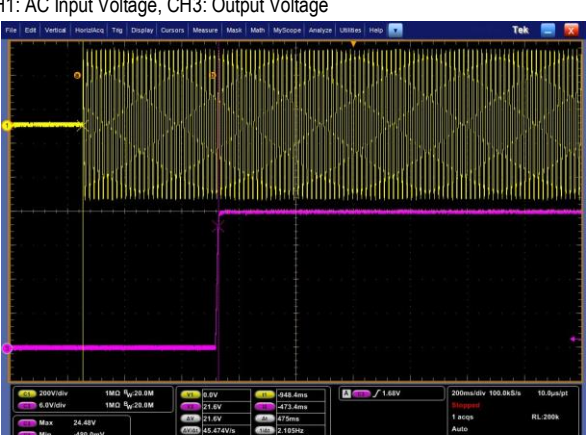
Environment Test

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

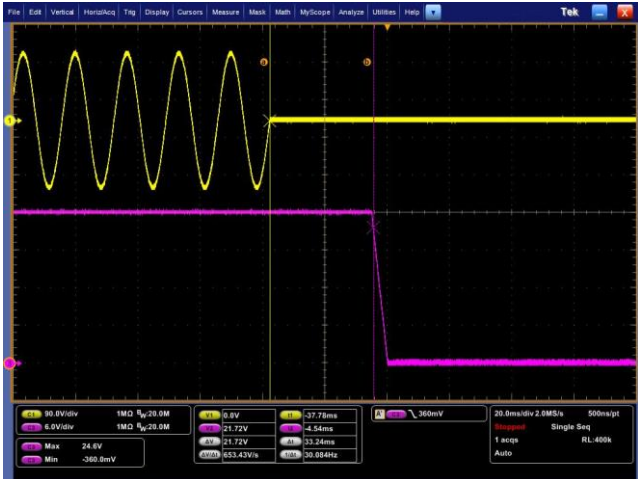
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	OUTPUT VOLTAGE TOLERANCE.	No specification	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	24.027 ~ 24.690V	
2	LINE REGULATION	-0.5%~+0.5%	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	85 to 115VAC	-0.01% ~ +0.01%
				230 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	-0.08% ~ +0.08%	
4	RIPPLE & NOISE	150mVp-p	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC	46.8mVp-p
	85VAC/ FULL LOAD		305VAC/ FULL LOAD		
	25°C 46.8mV		25°C 26.8mV		
					

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START UP TIME	1000ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: -30°C, 25°C, 50°C	85VAC	468ms
INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD		
-30°C: 418.9ms CH1: AC Input Voltage, CH3: Output Voltage 		-30°C: 320.9ms CH1: AC Input Voltage, CH3: Output Voltage 		
25°C: 448ms CH1: AC Input Voltage, CH3: Output Voltage 		25°C: 416.4ms CH1: AC Input Voltage, CH3: Output Voltage 		
50°C: 468ms CH1: AC Input Voltage, CH3: Output Voltage 		50°C: 475ms CH1: AC Input Voltage, CH3: Output Voltage 		

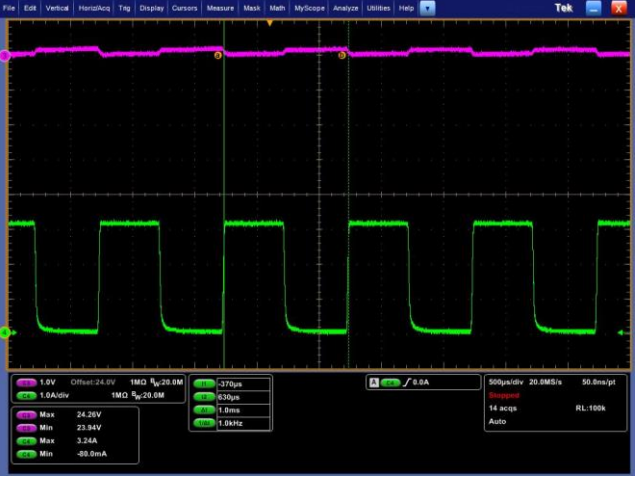
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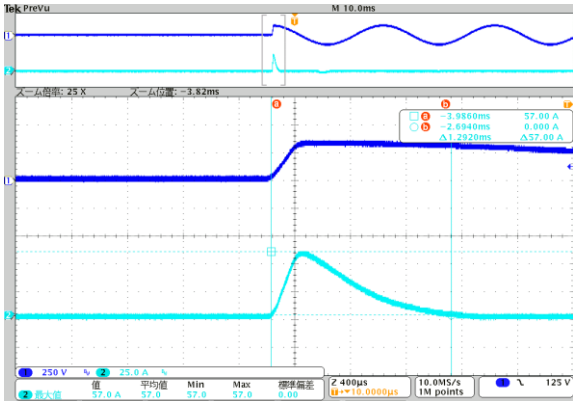
6	RISE TIME	50ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC 305VAC	9.373ms 9.185ms
	INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD		
	25°C: 9.373ms 		25°C: 9.185ms 		
7	HOLD UP TIME	> 20ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	33.24ms	
	INPUT=115VAC/60HZ @ FULL LOAD				
	25°C 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	1.6A/115VAC 0.8A/230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	1.44A @115VAC 0.69A @230VAC
2	LEAKAGE CURRENT	< 2mA / 240VAC	I/P: 240VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.167mA N-FG: 0.167mA
3	STANDBY POWER	No specification	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/0.80W 230VAC/0.75W
4	INRUSH CURRENT	60A at 230Vac (cold start)	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	57.0A
	INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage, CH2: Input Current 			
5	EFFICIENCY	92.0% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/91.84% 230VAC/94.12%
6	POWER FACTOR	> 0.9	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/0.998 230VAC/0.996

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	105%~135% rated current 6.615A<OCP<8.505A	I/P: 85VAC I/P: 305VAC O/P: TESTING Ta: 25°C	85VAC/7.6A 305VAC/7.63A
2	OVER VOLTAGE PROTECTION	120% to 150% of Rated Voltage	I/P: 85VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	85VAC/33.0V 305VAC/32.9V
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 64.8°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 11.5A/600V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 437.5V (2) 0.7944A
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) 436.2V (2) 2.226A
3	Input Capacitor	C052 Rated 82uF/450V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 433.8V (2) 1.09A

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NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4.0KVAC/min I/P-FG: 2.0KVAC/min O/P-FG: 0.5KVAC/min	I/P-O/P: 4.0KVAC/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= 46,163 hours
3	MTBF	The power supply reliability, when calculated by SR332 exceeds 2,500,000 hours with all output at 100% of maximum load and at ambient temperature of 25°C		4,805,112hours @ 115VAC 6,868,200hours @ 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	Q010	107.7	Pass
2	L010	112.5	Pass
3	L003	104.3	Pass
4	D050	91.5	Pass
5	L002	109.2	Pass
6	L001	90.2	Pass
7	T050W	90.5	Pass
8	T050C	91.0	Pass
9	C200	79.5	Pass
10	C052	85.8	Pass
11	Q050	96.1	Pass
12	D010-1	95.2	Pass
13	Q210	86.9	Pass
14	IC201	102.5	Pass

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Keyley Wang	Caroe Tsai	Miles Chiu