



Test Report: CXLPA150F-36

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

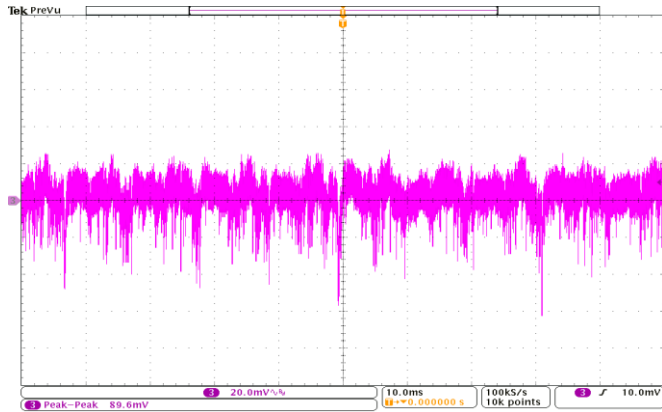
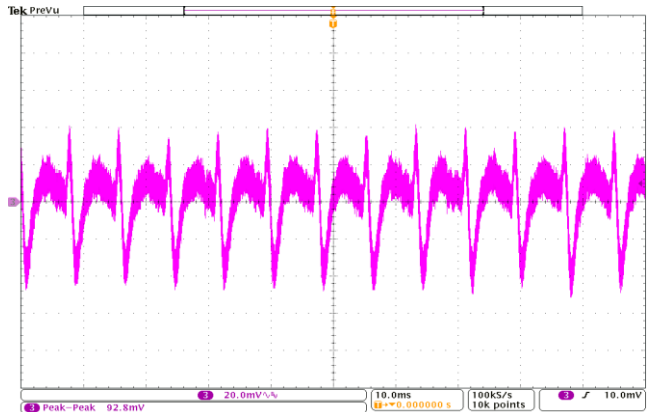
Environment Test

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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	35.90 ~ 36.11V	
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	-0.05% ~ +0.05%	
4	RIPPLE & NOISE	250mVp-p	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC	89.6mVp-p
				305VAC	92.8mVp-p
	85VAC/ FULL LOAD		305VAC/ FULL LOAD		
	25°C 89.6mV 		25°C 92.8mV 		

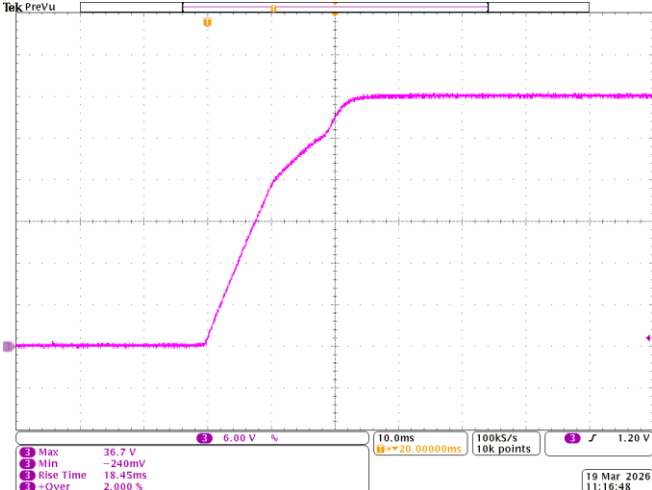
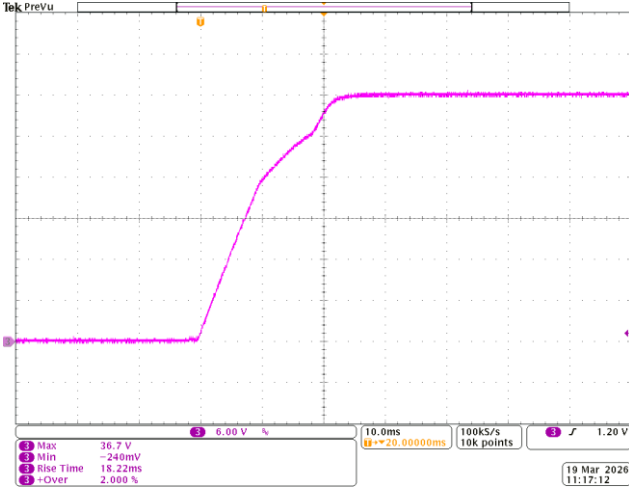
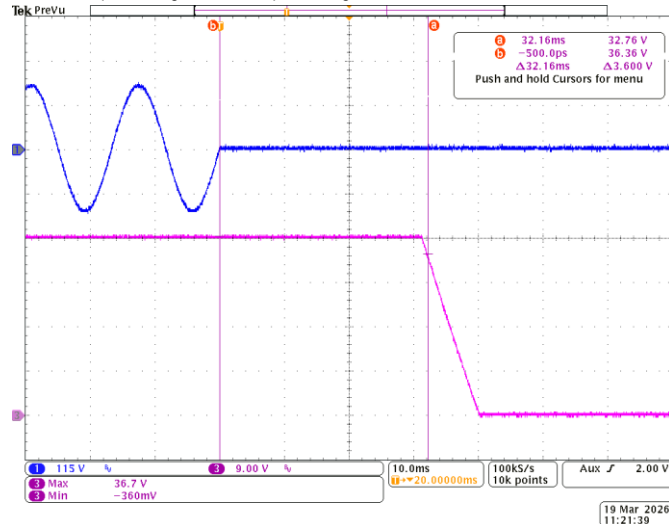
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5	START UP TIME	1000ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: -30°C, 25°C, 50°C	85VAC 434.2ms	305VAC 478.8ms
	INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD		
	-30°C: 346.9ms CH1: AC Input Voltage, CH3: Output Voltage		-30°C: 307.8ms CH1: AC Input Voltage, CH3: Output Voltage		
	25°C: 392.3ms CH1: AC Input Voltage, CH3: Output Voltage		25°C: 390.1ms CH1: AC Input Voltage, CH3: Output Voltage		
	50°C: 434.2ms CH1: AC Input Voltage, CH3: Output Voltage		50°C: 478.8ms CH1: AC Input Voltage, CH3: Output Voltage		

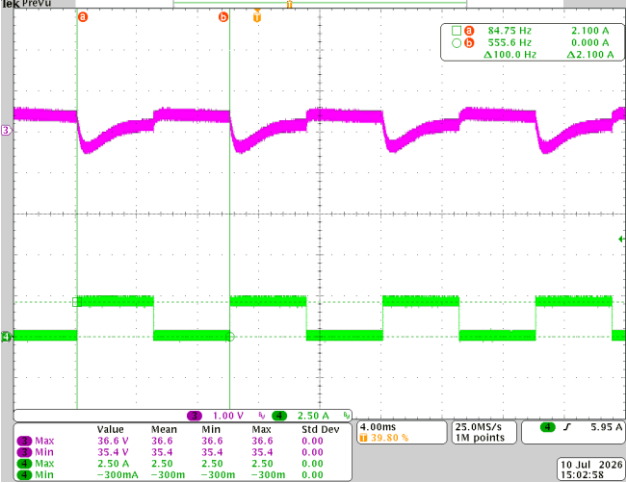
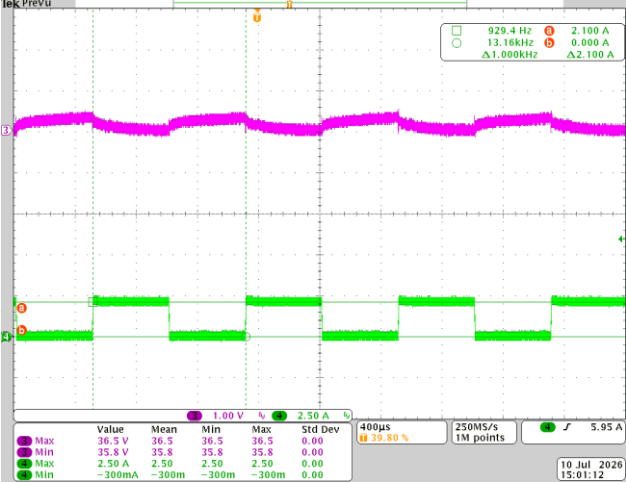
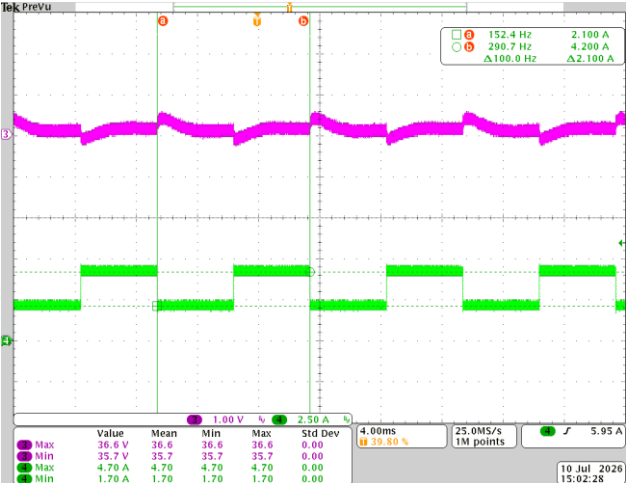
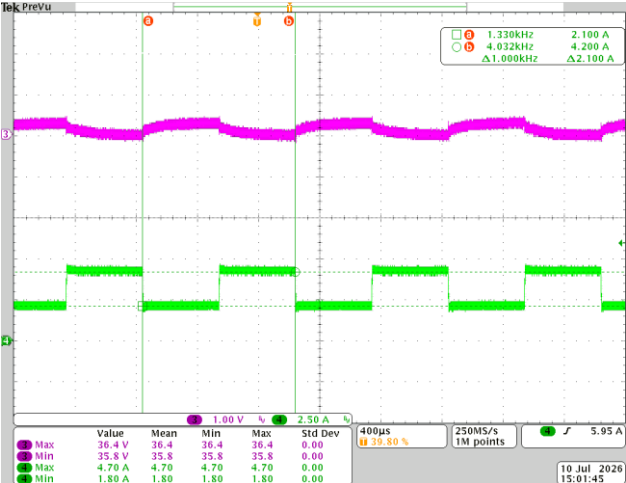
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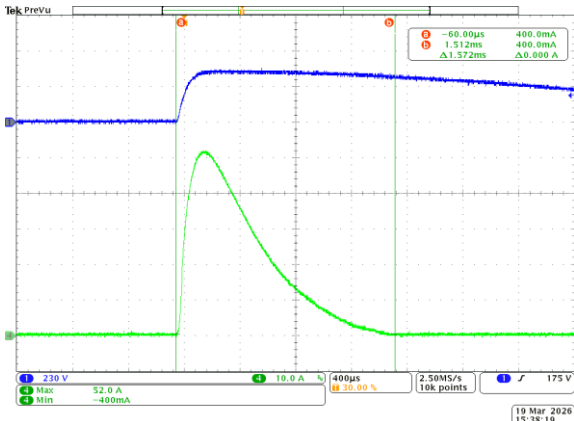
6	RISE TIME	50ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC 18.45ms 305VAC 18.22ms
	INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD	
25°C: 18.45ms  25°C: 18.22ms 				
7	HOLD UP TIME	> 20ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	32.16ms
	INPUT=115VAC/60HZ @ FULL LOAD 25°C CH1: 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	1.465A @115VAC 0.711A @230VAC
2	LEAKAGE CURRENT	< 2mA / 240VAC	I/P: 240VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.150mA N-FG: 0.154mA
3	STANDBY POWER	No specification	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/0.38W 230VAC/0.40W
4	INRUSH CURRENT	60A at 230Vac (cold start)	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	52.0A
	INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage, CH4: Input Current 			
5	EFFICIENCY	92.0% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/90.53% 230VAC/93.32%
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 4.41A<OCP<5.67A	I/P: 85VAC I/P: 305VAC O/P: TESTING Ta: 25°C	85VAC/4.92A 305VAC/4.92A
2	OVER VOLTAGE PROTECTION	120% to 150% of Rated Voltage	I/P: 85VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	85VAC/46.8V 305VAC/46.8V
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 80.2°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) 439.2V (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) 425.6V (2) 2.226A
3	Input Capacitor	C052 Rated 120uF/450V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 428.8V (2) 1.199A

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CXLPA150F-36**SAFETY TEST**

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= 74,259 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		4,736,580 hours @ 115VAC 5,734,184 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	Q010	102.9	Pass
2	L010	99.3	Pass
3	L003	91.8	Pass
4	D050	89.8	Pass
5	L002	104.5	Pass
6	L001	87.7	Pass
7	T050W	85.5	Pass
8	T050C	87.9	Pass
9	C200	75.9	Pass
10	C052	77.0	Pass
11	C206	70.5	Pass
12	Q050	78.4	Pass
13	D010	90.2	Pass
14	D210	82.9	Pass

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Louis Yen	Geoffrey Wu	Jimmy LW Lin