



Test Report: CXLDA240F-48

240W AC-DC DIN Rail (1 Φ)

■ 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 ~ 264VAC O/P: NO ~ FULL LOAD Ta: -25°C, 25°C, 55°C	47.86 ~ 48.06V	
2	LINE REGULATION	-0.5%~+0.5%	I/P: 85VAC ~ 264VAC O/P: NO ~ FULL LOAD Ta: -25°C, 25°C, 55°C	85 to 115VAC	-0.02% ~ +0.02%
				230 to 264VAC	-0.01% ~ +0.01%
3	LOAD REGULATION	-1%~+1%	I/P: 85VAC I/P: 264VAC O/P: NO ~ FULL LOAD Ta: 25°C	-0.04% ~ +0.04%	
4	RIPPLE & NOISE	120mVp-p	I/P: 85VAC	85VAC	36.0mVp-p
			I/P: 264VAC O/P: FULL LOAD Ta: 25°C	264VAC	37.9mVp-p
	85VAC/ FULL LOAD		264VAC/ FULL LOAD		
	25°C 36.0mV		25°C 37.9mV		

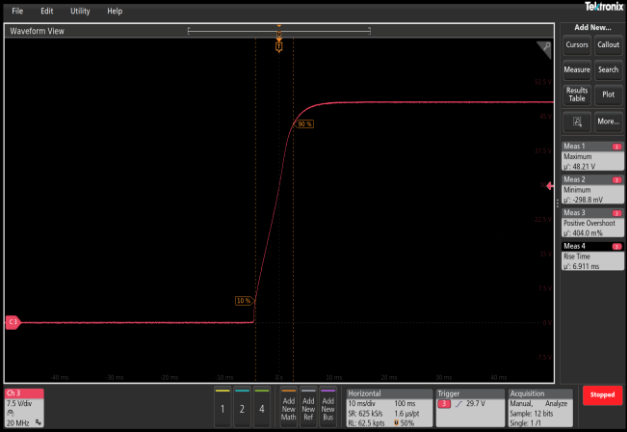
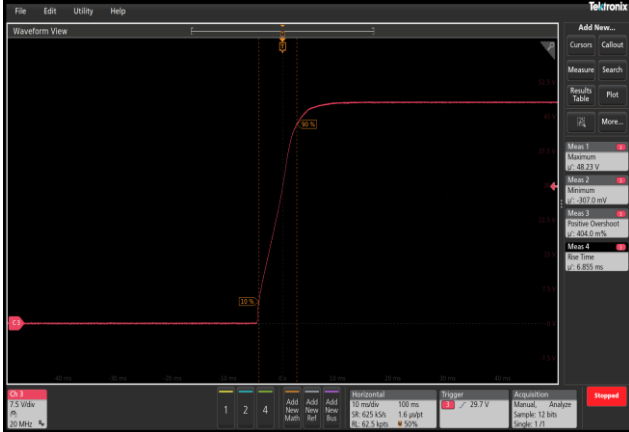
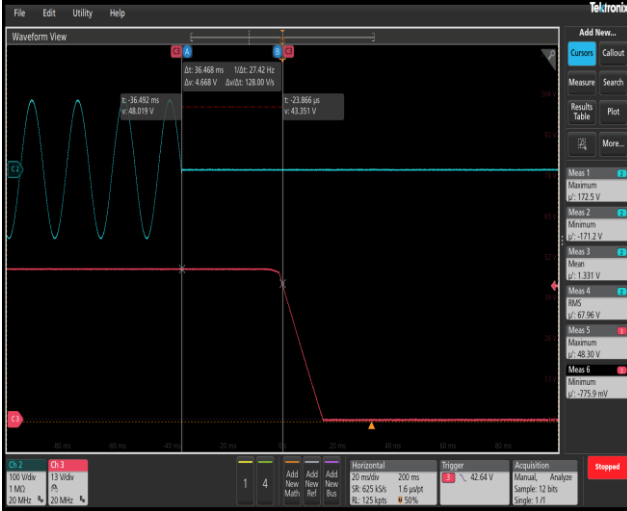
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5	START UP TIME		1000ms	I/P: 100VAC I/P: 264VAC O/P: FULL LOAD Ta: -25°C, 25°C, 55°C	100VAC 264VAC	316.9ms 320.5ms
	INPUT=100VAC/60HZ @ FULL LOAD			INPUT=264V/50HZ @ FULL LOAD		
	-25°C: 297.8ms CH1: AC Input Voltage, CH3: Output Voltage			-25°C: 291.8ms CH1: AC Input Voltage, CH3: Output Voltage		
	25°C: 314.5ms CH1: AC Input Voltage, CH3: Output Voltage			25°C: 320.5ms CH1: AC Input Voltage, CH3: Output Voltage		
55°C: 316.9ms CH1: AC Input Voltage, CH3: Output Voltage			55°C: 316.9ms CH1: AC Input Voltage, CH3: Output Voltage			

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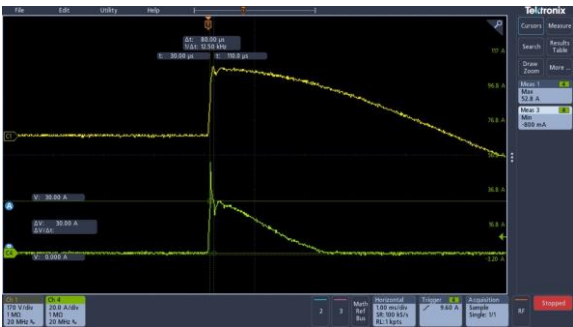
6	RISE TIME	50ms	I/P: 100VAC I/P: 264VAC O/P: FULL LOAD Ta: 25°C	100VAC 264VAC	6.91ms 6.86ms
	INPUT=100VAC/47HZ @ FULL LOAD		INPUT=264V/63HZ @ FULL LOAD		
	25°C: 6.91ms 		25°C: 6.86ms 		
7	HOLD UP TIME	> 20ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	36.47ms	
	INPUT=115VAC/60HZ @ FULL LOAD				
	25°C CH1: AC Input Voltage, CH3: Output Voltage 				

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DYNAMIC LOAD		No specification	I/P: 115VAC O/P: (1) LOAD 10%~100% 50%DUTY / 5HZ (2) LOAD 10%~100% 50%DUTY / 10KHZ (3) LOAD 100%~150% 100%: 100s, 150%: 3s (4) LOAD 50%~150% 50%: 15s, 150%: 3s Ta: 25°C	-
(1) INPUT=115VAC/60HZ @ LOAD 10%~100% 50%DUTY / 5HZ 25°C CH3: Output Voltage, CH4: Output Current		(3) INPUT=115VAC/60HZ @ LOAD 100%~150% 100%: 100s, 150%: 3s 25°C CH3: Output Voltage, CH4: Output Current		
8				
(2) INPUT=115VAC/60HZ @ LOAD 10%~100% 50%DUTY / 10KHZ 25°C CH3: Output Voltage, CH4: Output Current		(4) INPUT=115VAC/60HZ @ LOAD 50%~150% 50%: 15s, 150%: 3s 25°C CH3: Output Voltage, CH4: Output Current		

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT CURRENT	2.5A/115VAC 1.3A/230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	2.25A @115VAC 1.11A @230VAC
2	LEAKAGE CURRENT	< 0.75mA / 240VAC	I/P: 240VAC O/P: FULL LOAD Ta: 25°C	L-PE: 0.210mA N-PE: 0.208mA
3	STANDBY POWER	<1.5W	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/0.53W 230VAC/0.59W
4	INRUSH CURRENT	40A at 230Vac (cold start)	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	30.0A
	INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage, CH4: Input Current 			
5	EFFICIENCY	93.5% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/93.5% 230VAC/95.3%
6	POWER FACTOR	> 0.9	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/0.999 230VAC/0.997

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	150%~185% rated current 7.5A<OCP<9.25A	I/P: 85VAC I/P: 100VAC I/P: 264VAC O/P: TESTING Ta: 25°C	85VAC/8.61A 100VAC/8.59A 264VAC/8.57A
2	OVER VOLTAGE PROTECTION	<63V Auto-recovery	I/P: 85VAC I/P: 264VAC O/P: NO LOAD Ta: 25°C	85VAC/59.9V 264VAC/60.0V
3	SHORT CIRCUIT PROTECTION	NO DAMAGE (auto-recovery)	I/P: 85VAC I/P: 264VAC O/P: NO LOAD, FULL LOAD Ta: 25°C	PASS
4	OVER TEMPERATURE PROTECTION	NO DAMAGE (auto-recovery)	I/P: 100VAC O/P: FULL LOAD	O.T.P. Active at 69.2°C Shut down o/p voltage recovers automatically after temperature goes down

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Power Transistor	Q051 Rated 18A/700V	O/P: (1) Peak voltage at I/P: 264VAC (2) Peak current at I/P: 90VAC	(1) 415.6V (2) 1.171A
2	PWM Power Transistor	Q052 Rated 18A/700V	O/P: (1) Peak voltage at I/P: 264VAC (2) Peak current at I/P: 90VAC	(1) 414.1V (2) 1.182A
3	PFC Power Transistor	Q010 Rated 31A/600V	O/P: (1) Peak voltage at I/P: 264VAC (2) Peak current at I/P: 90VAC	(1) 472.2V (2) 3.051A
4	Input Capacitor	C050 Rated 180uF/450V	O/P: (1) Peak voltage at I/P: 264VAC (2) Peak current at I/P: 90VAC	(1) 412.2V (2) 1.933A

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.0KVAC/min I/P-PE: 2.0KVAC/min O/P-PE: 0.5KVAC/min	I/P-O/P: 3.0KVAC/min I/P-PE: 2.0KVAC/min O/P-PE: 0.5KVAC/min Ta: 25°C	PASS
2	ISOLATION RESISTANCE	I/P-O/P: 500VDC: >100M Ω I/P-PE: 500VDC: >20M Ω O/P-PE: 500VDC: >100M Ω	I/P-O/P: 500VDC I/P-PE: 500VDC O/P-PE: 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: ± 15 KV, Contact: ± 8 KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
5	E. F. T	EN61000-4-4 INPUT: ± 2 KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
6	SURGE	EN61000-4-5 L-N: ± 2 KV L, N-PE: ± 4 KV 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: 100VAC @ 47Hz O/P: FULL LOAD Ta: 55°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: 70% Load Ta: 50°C	LIFETIME= 214,840 hours
3	MTBF	The power supply reliability, when calculated by SR332 exceeds 1,250,000 hours with all output at 100% of maximum load and at ambient temperature of 25°C		3,483,944hours @ 230VAC
4	HUMIDITY	Storage: 25°C / 5 ~ 95% RH Working: 25°C/ 20 ~ 95% RH I/P: 100~240VAC (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 O/P: 100% load (Operational)		PASS
7	OVERLOAD BURN-IN TEST	I/P: 100VAC/ 47Hz O/P: Just before OCP kicks in Ta: 55°C		PASS

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

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Table 1. Components temperature @ 55°C 100% Load. (Unit °C)

No.	Location	100VAC	Result
1	F001	78.8	Pass
2	L001	90.5	Pass
3	C001	88.2	Pass
4	L002	103.4	Pass
5	C223	87.4	Pass
6	L202	85.3	Pass
7	L003	83.7	Pass
8	C003	90.0	Pass
9	RL001	86.9	Pass
10	L010-C	92.3	Pass
11	L010-W	100.4	Pass
12	Q010	102.0	Pass
13	IC201	101.2	Pass
14	D010	100.2	Pass
15	C050	92.9	Pass
16	C055	98.4	Pass
17	T050-C	98.7	Pass
18	T050-W	101.1	Pass
19	C113	93.3	Pass
20	C114	93.6	Pass
21	C211	88.5	Pass
22	RL201	95.5	Pass
23	BD050	114.2	Pass
24	BD051	113.8	Pass
25	RT101-1	81.5	Pass
26	R009	100.1	Pass
27	IC100	104.4	Pass
28	Q052	104.8	Pass
29	Q051	105.2	Pass
30	L201	90.8	Pass
31	RT001	82.4	Pass
32	Q201	101.3	Pass
33	Q200	98.8	Pass
34	PC300	95.0	Pass
35	C210	87.8	Pass
36	D012	91.7	Pass

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Luke Zhou	Kobe Lu	Xiubing Xiag