For Reference

COSELSYNC.

Test Report: CXLPA150F-12

150W AC-DC Enclosed

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Component Stress Test

■ SAFETY & E.M.C. TEST

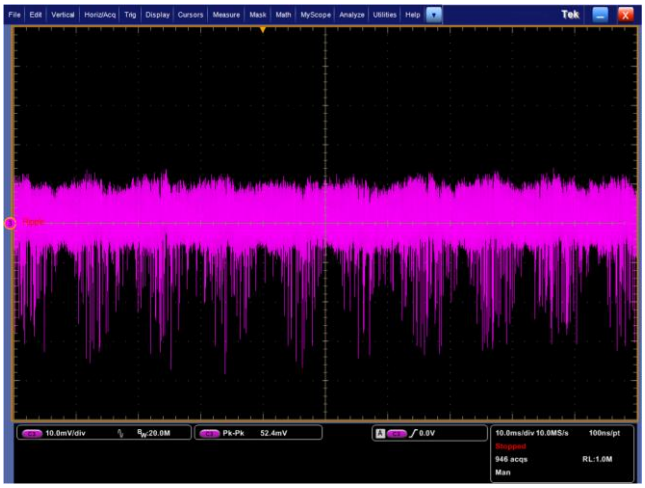
Safety Test
E.M.C. Test

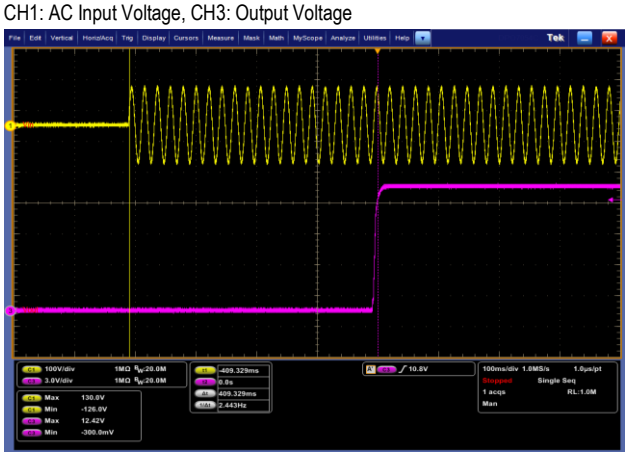
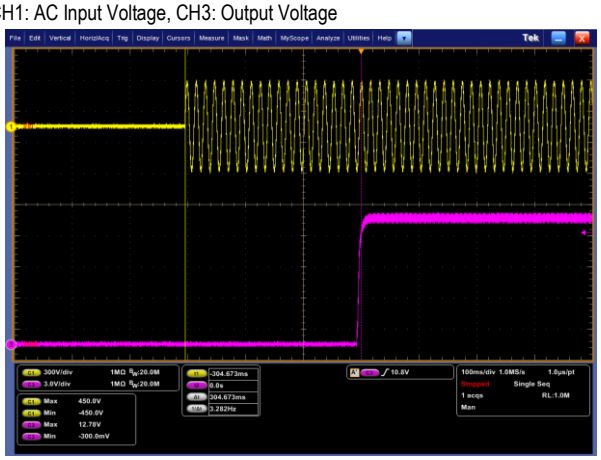
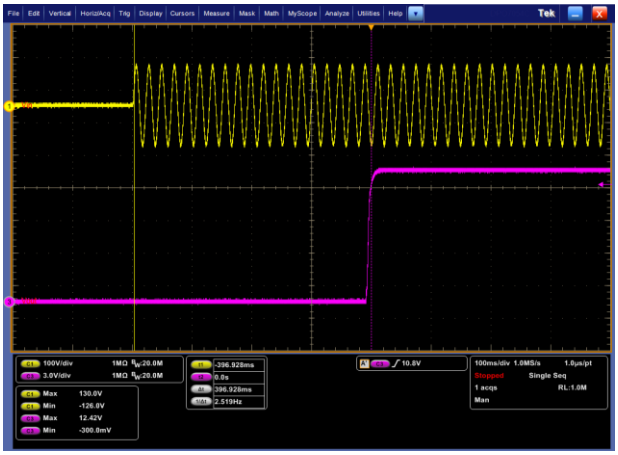
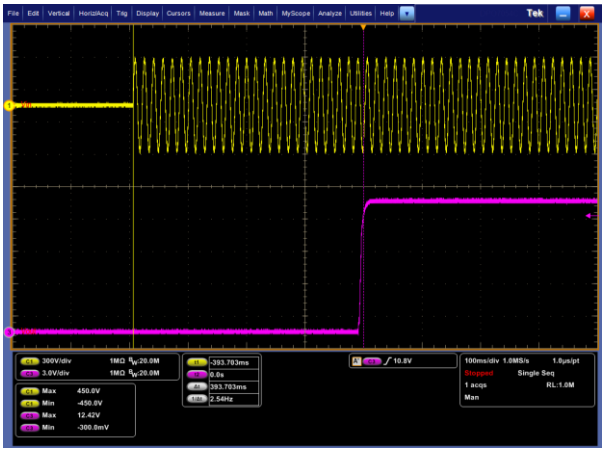
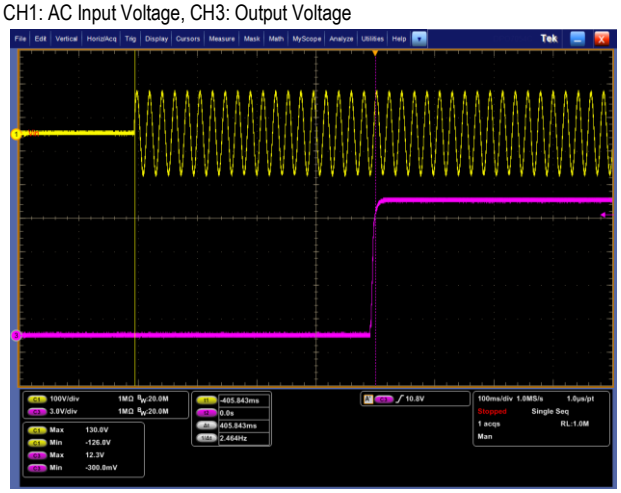
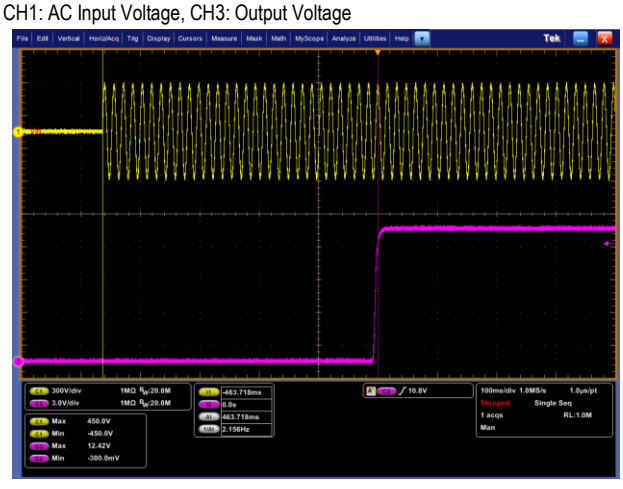
■ RELIABILITY TEST

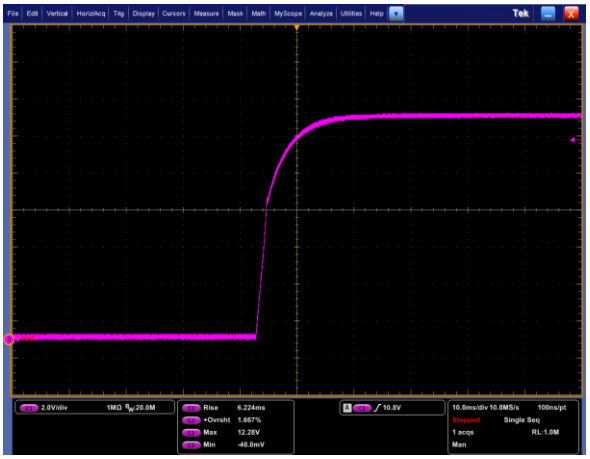
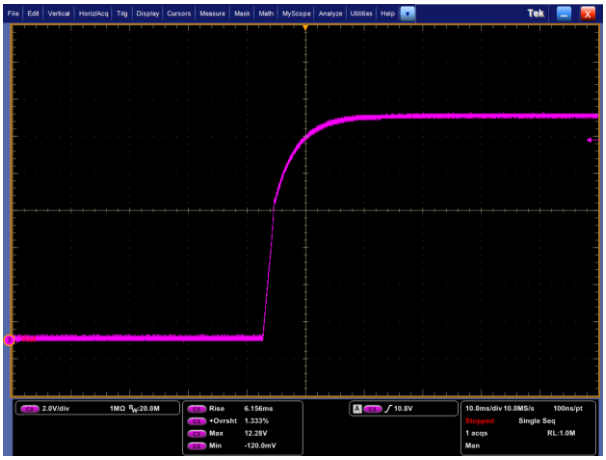
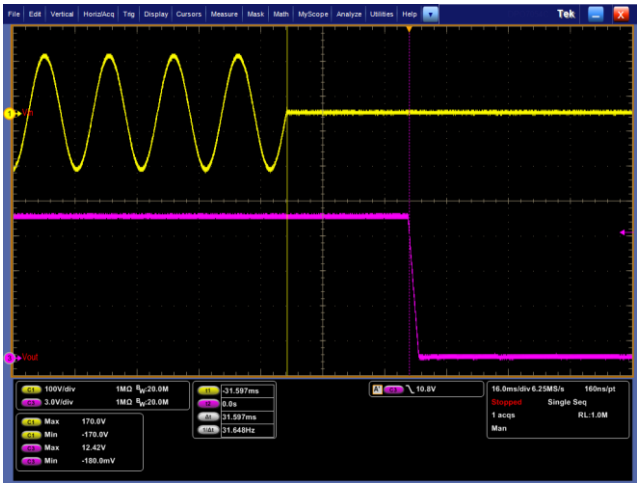
Environment Test

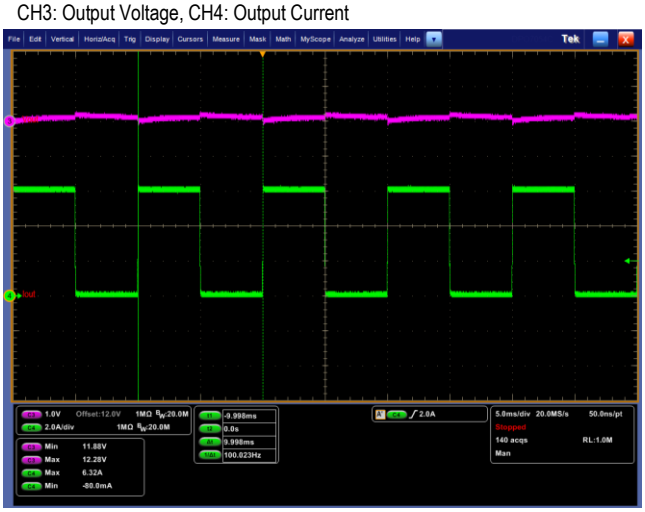
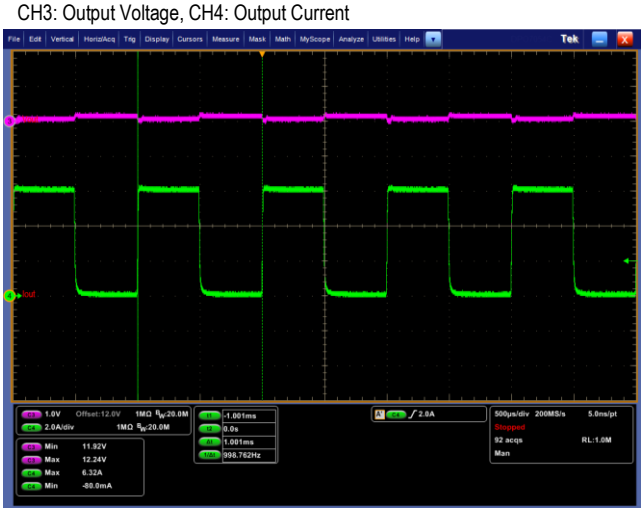
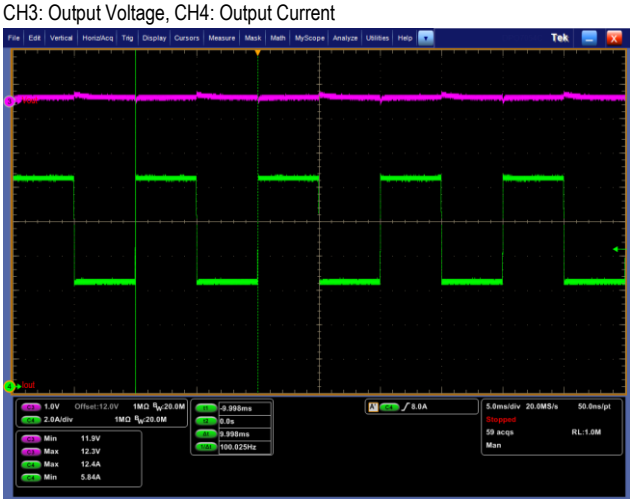
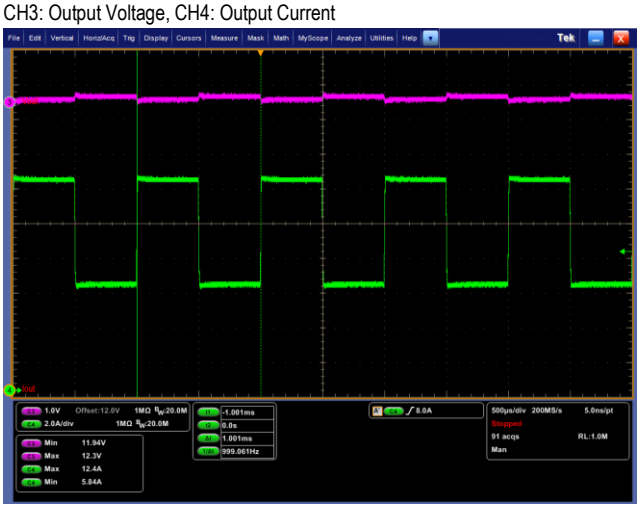
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

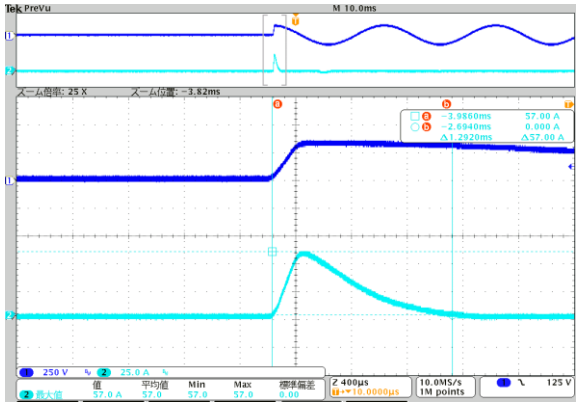
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	OUTPUT VOLTAGE TOLERANCE.	No specification	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	11.98 ~ 12.11V	
2	LINE REGULATION	-0.5%~+0.5%	I/P: 85VAC ~ 305VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 50°C	85 to 115VAC	-0.01% ~ +0.01%
				230 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	-0.03% ~ +0.03%	
4	RIPPLE & NOISE	150mVp-p	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC	52.4mVp-p
				305VAC	35.2mVp-p
	85VAC/ FULL LOAD		305VAC/ FULL LOAD		
	25°C 52.4mV 		25°C 35.2mV 		

5	START UP TIME	1000ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: -30°C, 25°C, 50°C	85VAC	409.3ms
				305VAC	463.7ms
	INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD		
	-30°C: 409.3ms CH1: AC Input Voltage, CH3: Output Voltage 		-30°C: 304.7ms CH1: AC Input Voltage, CH3: Output Voltage 		
	25°C: 396.9ms CH1: AC Input Voltage, CH3: Output Voltage 		25°C: 393.7ms CH1: AC Input Voltage, CH3: Output Voltage 		
	50°C: 405.8ms CH1: AC Input Voltage, CH3: Output Voltage 		50°C: 463.7ms CH1: AC Input Voltage, CH3: Output Voltage 		

6	RISE TIME	50ms	I/P: 85VAC I/P: 305VAC O/P: FULL LOAD Ta: 25°C	85VAC	6.224ms
				305VAC	6.156ms
	INPUT=85VAC/47HZ @ FULL LOAD		INPUT=305V/63HZ @ FULL LOAD		
	25°C: 6.224ms 		25°C: 6.156ms 		
7	HOLD UP TIME	> 20ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	31.59ms	
	INPUT=115VAC/60HZ @ FULL LOAD				
	25°C CH1: AC Input Voltage, CH3: Output Voltage 				

8	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	1.41A @115VAC 0.71A @230VAC
2	LEAKAGE CURRENT	< 2mA / 240VAC	I/P: 240VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.156mA N-FG: 0.156mA
3	STANDBY POWER	No specification	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/0.31W 230VAC/0.29W
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	91.5% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/89.73% 230VAC/92.00%
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 13.125A<OCP<16.875A	I/P: 85VAC I/P: 305VAC O/P: TESTING Ta: 25°C	85VAC/14.52A 305VAC/14.54A
2	OVER VOLTAGE PROTECTION	120% to 150% of Rated Voltage	I/P: 85VAC I/P: 305VAC O/P: NO LOAD Ta: 25°C	85VAC/17.59V 305VAC/17.35V
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 Ta: 50°C	O.T.P. Active at 65.1°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	Q050 Rated 11.5A/600V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 461.25V (2) 0.6852A
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) 438.62V (2) 1.3552A
3	Input Capacitor	C052 Rated 82uF/450V	O/P: (1) Peak voltage at I/P: 305VAC (2) Peak current at I/P: 85VAC	(1) 438.52 (2) 0.452A

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℃	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℃	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℃	PASS
2	RADIATION	EN55032 CLASS B	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25℃	PASS
3	CONDUCTION	EN55032 CLASS B	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25℃	PASS
4	E. S. D	EN61000-4-2 Air: ±8KV, Contact: ±4KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25℃	PASS
5	E. F. T	EN61000-4-4 INPUT: ±2KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25℃	PASS
6	SURGE	EN61000-4-5 L-N: ±1KV L, N-PE: ±2KV CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25℃	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℃	PASS

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℃	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℃	PASS
10	Power Frequency Magnetic Field	IEC61000-4-8 1A/m, 50Hz CRITERIA A	I/P: 230VAC O/P: FULL LOAD Ta: 25℃	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℃	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℃	LIFETIME= 74,220 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℃		7,457,202hours @ 115VAC 8,076,988hours @ 230VAC
4	HUMIDITY	Storage: 25℃ / 10 ~ 95% RH Working: 25℃/ 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℃ 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.

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

No.	Location	85VAC	Result
1	Q010	118.3	Pass
2	L010	106.4	Pass
3	L003	105.4	Pass
4	D050	99.9	Pass
5	L002	118.7	Pass
6	L001	97.7	Pass
7	T050W	106.9	Pass
8	T050C	104.5	Pass
9	C200	101.1	Pass
10	C052	88.4	Pass
11	Q050	92.1	Pass
12	D010	105.5	Pass
13	Q210	102.4	Pass
14	IC201	95.8	Pass

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Kevin Xu	Hilton Lu	Jone Cheng