



Test Report: CXLA150F-15

150W AC-DC Adapter

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

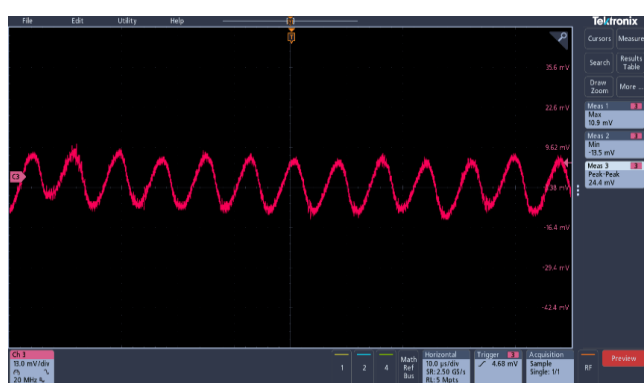
E.M.C. Test

■ RELIABILITY TEST

Environment Test

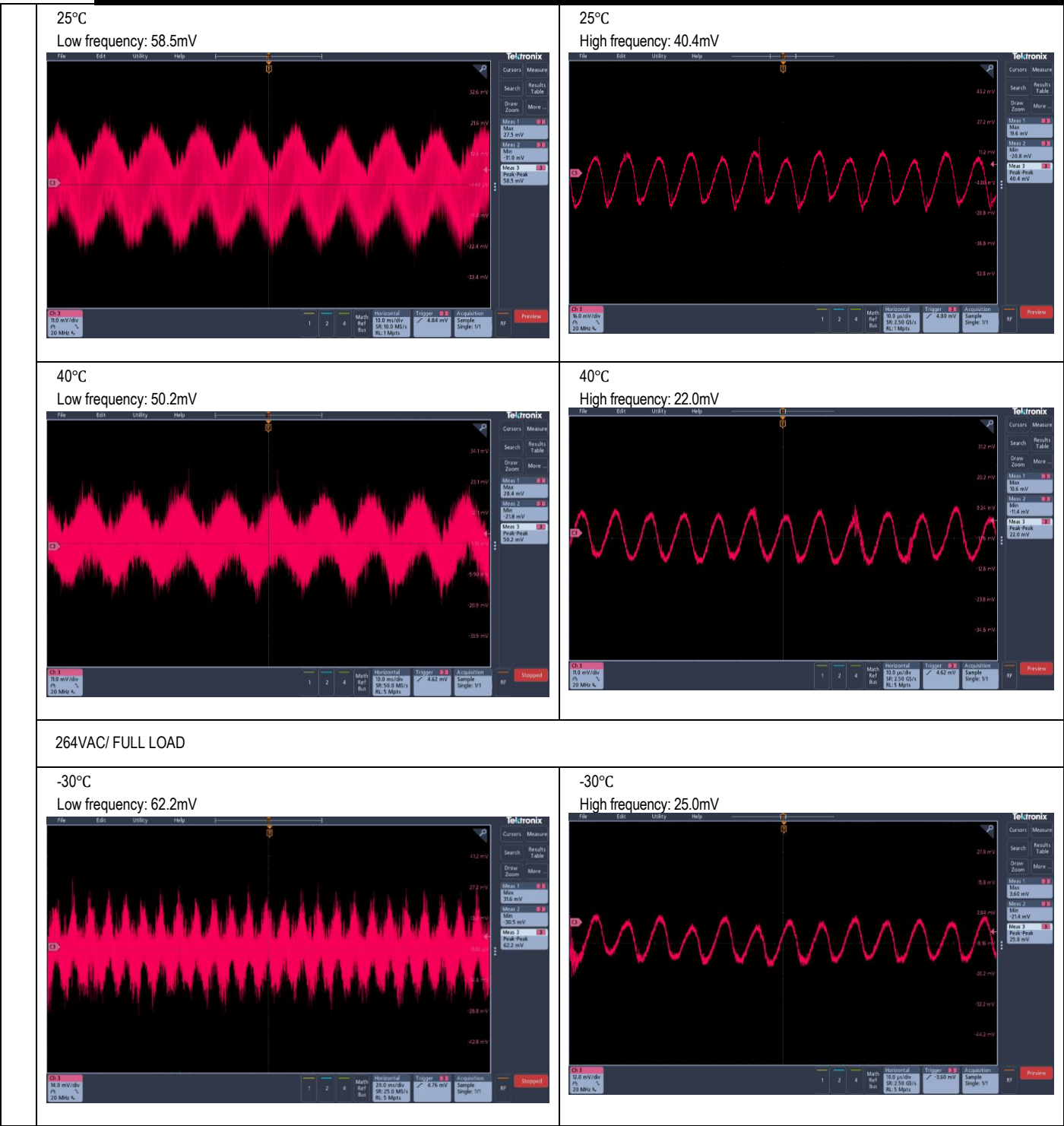
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT		
1	OUTPUT VOLTAGE TOLERANCE.	No specification	I/P: 90VAC ~ 264VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 40°C	14.67 ~ 15.43V		
2	LINE REGULATION	-1%~+1%	I/P: 90VAC ~ 264VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 40°C	90 to 100VAC	0.133%	
				240 to 264VAC	0.186%	
3	LOAD REGULATION	-5%~+5%	I/P: 90VAC ~ 264VAC O/P: NO ~ FULL LOAD Ta: -30°C, 25°C, 40°C	-30°C	4.2%	
				25°C	4.7%	
				-40°C	4.3%	
4	RIPPLE & NOISE	150mVp-p	I/P: 90VAC I/P: 264VAC O/P: FULL LOAD Ta: -30°C, 25°C, 40°C		90VAC	264VAC
				-30°C	58.2mVp-p	62.2mVp-p
				25°C	58.5mVp-p	60.5mVp-p
				40°C	50.2mVp-p	51.5mVp-p
				90VAC/ FULL LOAD		
4	-30°C Low frequency: 58.2mV					
	-30°C High frequency: 24.4mV					

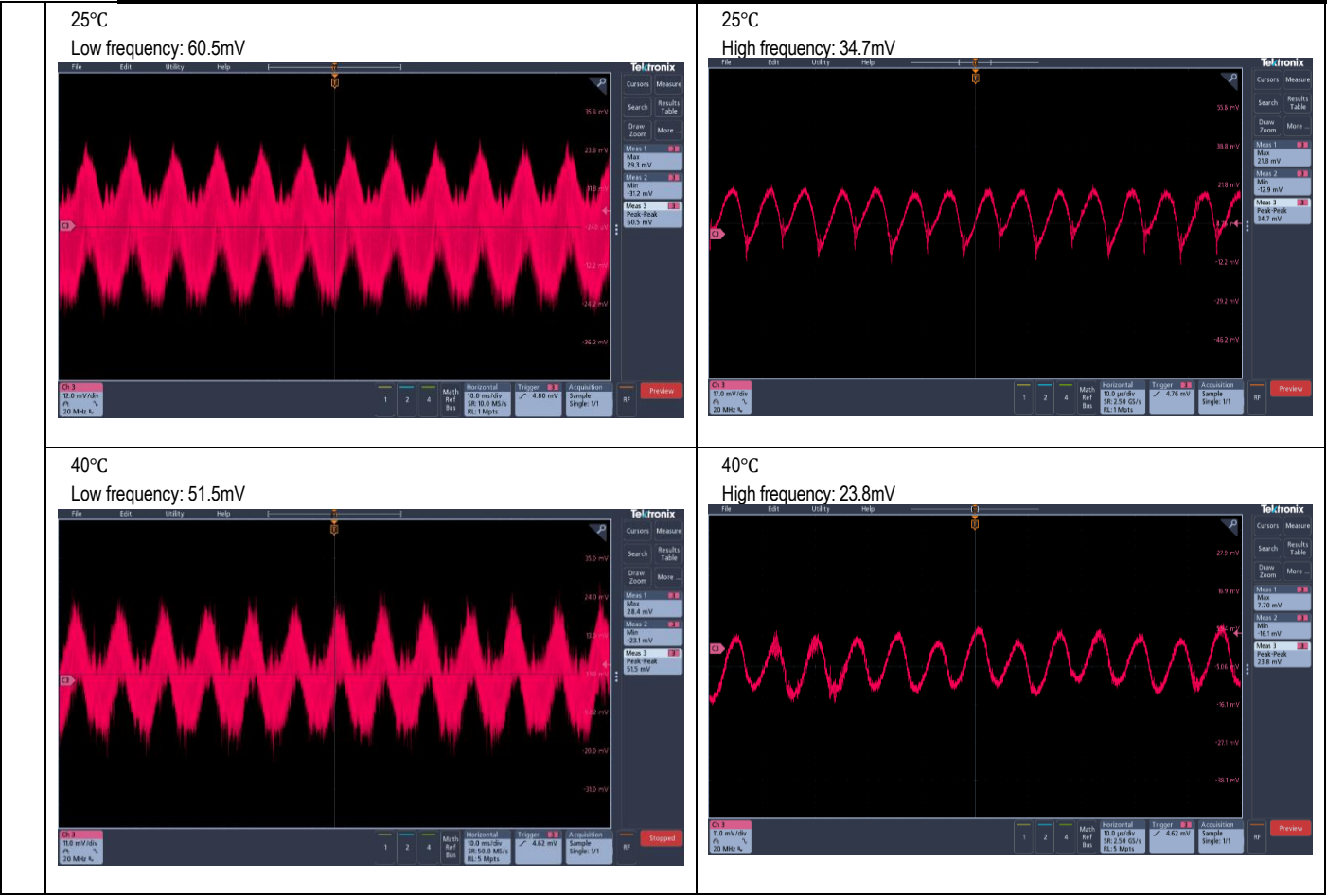
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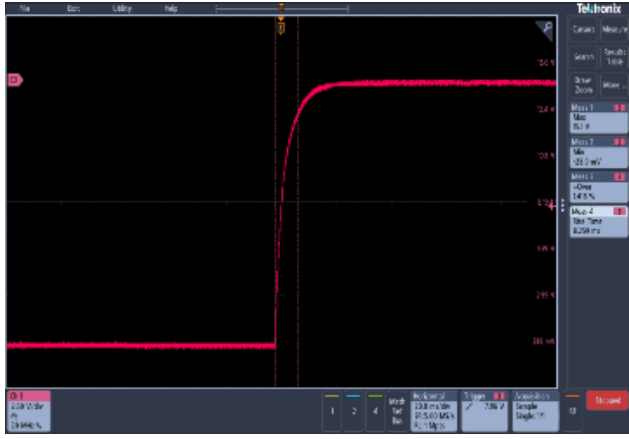
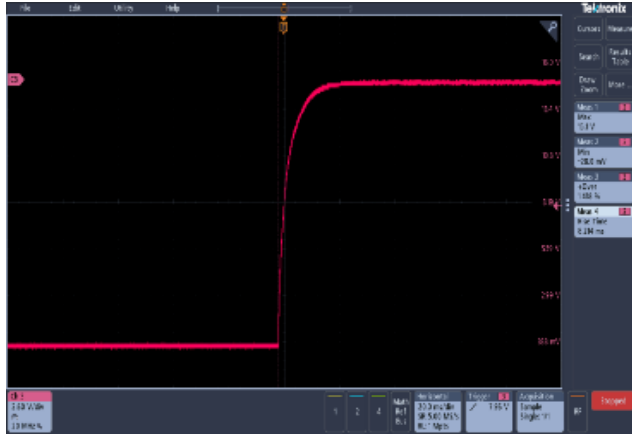
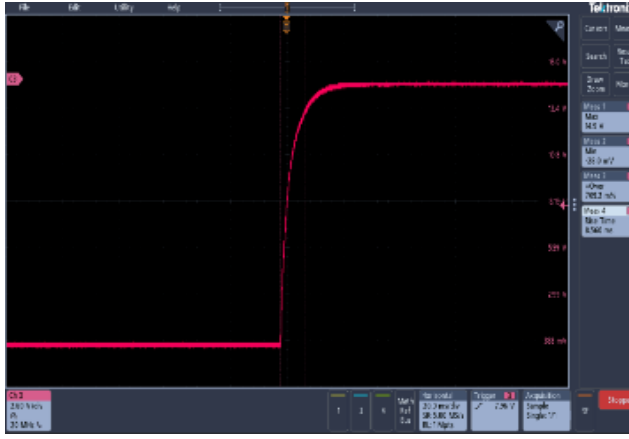
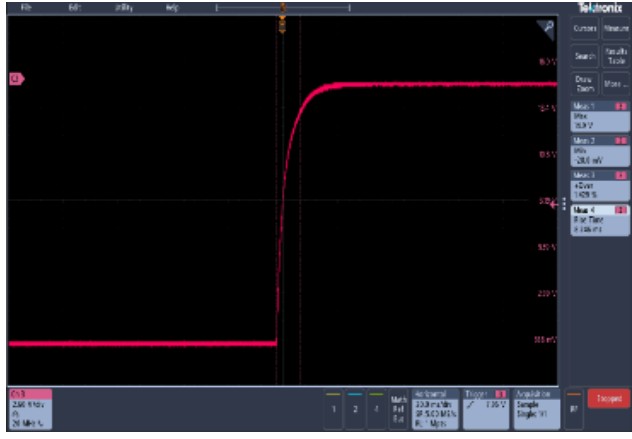
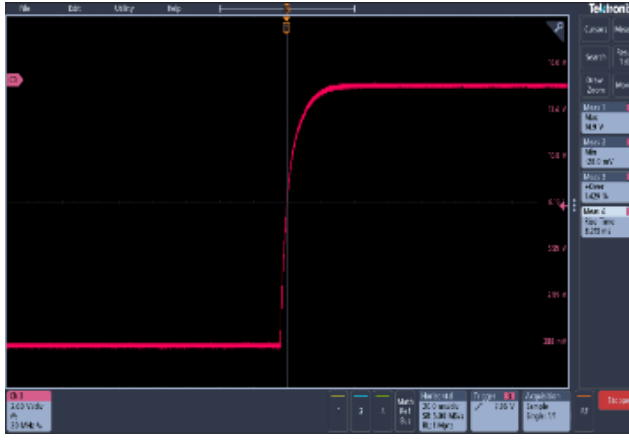
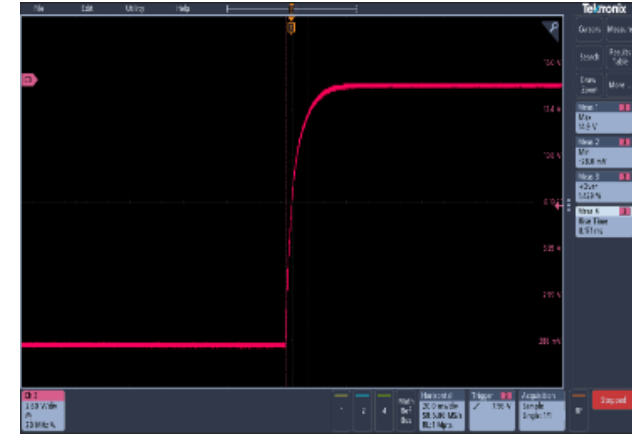
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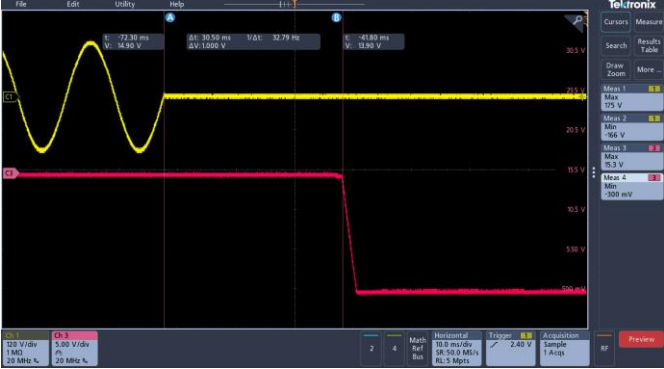
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RISE TIME	50ms	I/P: 90VAC I/P: 264VAC O/P: FULL LOAD Ta: -30°C, 25°C, 40°C	90VAC	264VAC
			8.560ms	8.246ms
INPUT=90VAC/47HZ @ FULL LOAD		INPUT=264V/63HZ @ FULL LOAD		
-30°C: 8.259ms 		-30°C: 8.214ms 		
25°C: 8.560ms 		25°C: 8.246ms 		
40°C: 8.213ms 		40°C: 8.171ms 		

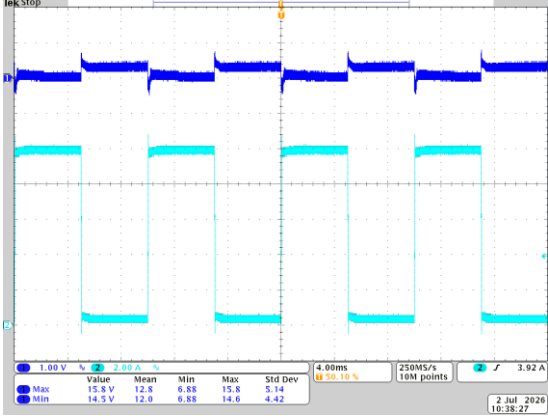
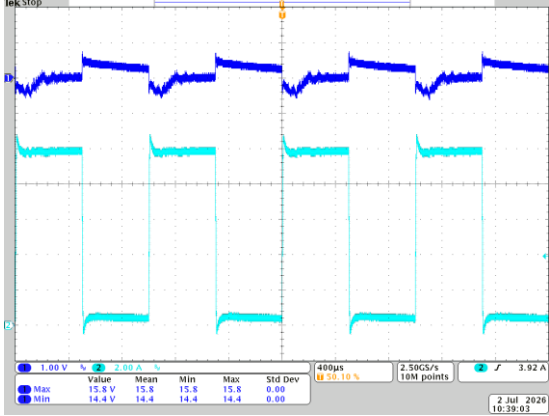
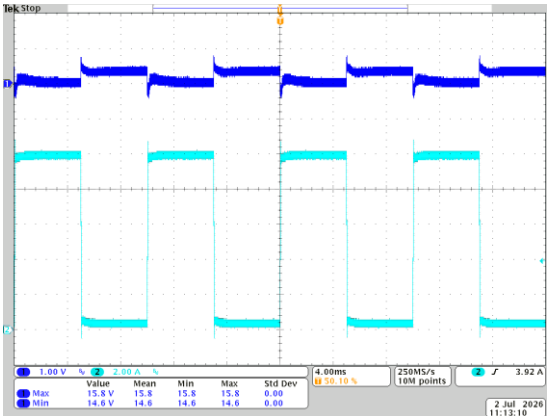
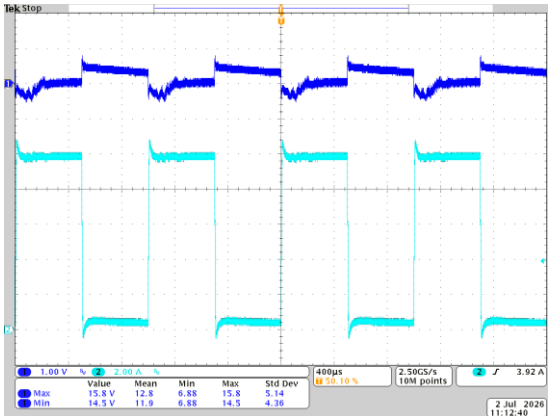
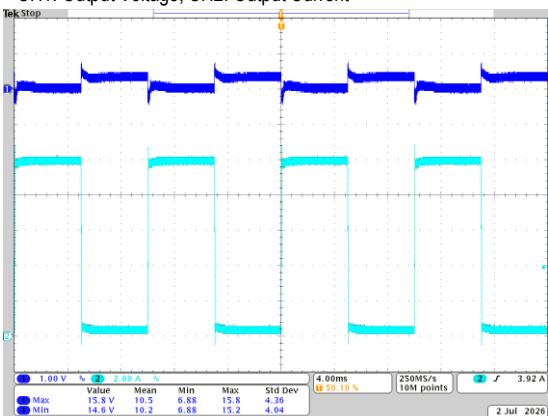
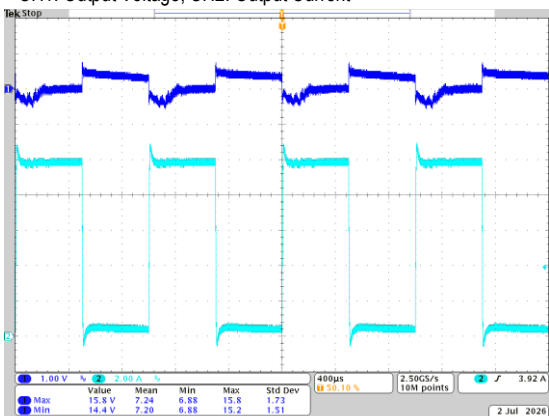
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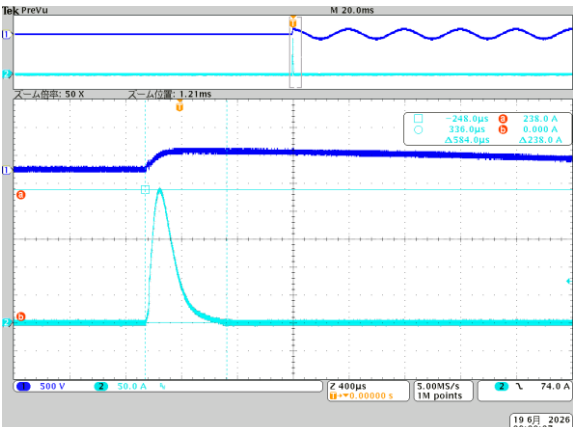
	HOLD UP TIME	> 20ms / 115VAC	I/P: 115VAC O/P: FULL LOAD Ta: 25°C	30.5ms
7	INPUT=115VAC/60HZ @ FULL LOAD CH1: AC Input Voltage, CH3: Output Voltage 			

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DYNAMIC LOAD		No specification	I/P: 90VAC O/P : (1) FULL LOAD 50%DUTY / 100HZ (2) FULL LOAD 50%DUTY / 1KHZ Ta: -30°C, 25°C, 40°C	-
INPUT=90VAC/47HZ @ FULL LOAD 50%DUTY / 100HZ			INPUT=90VAC/47HZ @ FULL LOAD 50%DUTY / 1KHZ	
8	-30°C CH1: Output Voltage, CH2: Output Current		-30°C CH1: Output Voltage, CH2: Output Current	
				
	25°C CH1: Output Voltage, CH2: Output Current		25°C CH1: Output Voltage, CH2: Output Current	
				
	40°C CH1: Output Voltage, CH2: Output Current		40°C CH1: Output Voltage, CH2: Output Current	
				

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT CURRENT	<2.0A/100VAC <0.8A/240VAC	I/P: 100VAC I/P: 240VAC O/P: FULL LOAD Ta: 25°C	1.67A @100VAC 0.742A @240VAC
2	TOUCH CURRENT	< 0.1mA / 264VAC	I/P: 264VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.0876mA N-FG: 0.0873mA
3	LEAKAGE CURRENT	< 0.115mA / 264VAC	I/P: 264VAC O/P: FULL LOAD Ta: 25°C	L-FG: 0.0303mA N-FG: 0.0300mA
4	STANDBY POWER	≤ 0.15W	I/P: 115VAC I/P: 230VAC O/P: NO LOAD Ta: 25°C	115VAC/0.093W 230VAC/0.092W
5	INRUSH CURRENT	< Fuse/Bridge diode I _{2t}	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	238.0A/ 11.027 I _{2t} *t
	INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage, CH2: Input Current 			
6	EFFICIENCY (Typ.)	Typ. 90.0% / FULL LOAD at 230VAC	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/89.48% 230VAC/90.30%
7	POWER FACTOR	> 0.9	I/P: 115VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	115VAC/0.984 230VAC/0.920

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	105%~150% rated current 10.5A<OCP<15.0A	I/P: 90VAC I/P: 264VAC O/P: TESTING Ta : 25°C	90VAC/13.4A 264VAC/13.4A
2	OVER VOLTAGE PROTECTION	140% of Rated Voltage	I/P: 90VAC I/P: 264VAC O/P: NO LOAD Ta: 25°C	90VAC/19.40V 264VAC/19.50V
3	SHORT CIRCUIT PROTECTION	NO DAMAGE (LATCH MODE)	I/P: 90VAC ~ 264VAC O/P: NO LOAD, FULL LOAD Ta: 25°C	PASS
4	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 90VAC ~ 264VAC O/P: FULL LOAD Ta: 40°C	O.T.P. Active 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 6.5A/600V	I/P: 264VAC O/P: (1) Start-up (2) Output Short (3) FULL LOAD continues Ta: 25°C	(1) 409V (2) 402V (3) 411V
2	PWM Power Transistor	Q051 Rated 6.5A/600V	I/P: 264VAC O/P: (1) Start-up (2) Output Short (3) FULL LOAD continues Ta: 25°C	(1) 408V (2) 392V (3) 403V
3	PFC Power Transistor	Q010 Rated 10A/600V	I/P: 264VAC O/P: (1) Start-up (2) Output Short (3) FULL LOAD continues Ta: 25°C	(1) 422V (2) 403V (3) 417V
4	PFC Power Transistor	Q010-1 Rated 10A/600V	I/P: 264VAC O/P: (1) Start-up (2) Output Short (3) FULL LOAD continues Ta: 25°C	(1) 418V (2) 402V (3) 419V

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SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4.0KVAC/min I/P-FG: 1.5KVAC/min O/P-FG: 1.5KVAC/min	I/P-O/P: 4.0KVAC/min I/P-FG: 1.5KVAC/min O/P-FG: 1.5KVAC/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/70%RH	PASS

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 100VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
2	RADIATION	EN55032 CLASS B	I/P: 100VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
3	CONDUCTION	EN55032 CLASS B	I/P: 100VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
4	E. S. D	EN61000-4-2 CRITERIA A AIR: ±15KV Contact: ±8KV	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
5	E. F. T	EN61000-4-4 CRITERIA A INPUT: ±2KV	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
6	SURGE	EN61000-4-5 CRITERIA A L-N: ±2KV L, N-PE: ±4KV	I/P: 220VAC O/P: FULL LOAD Ta: 25°C	PASS
7	VOLTAGE DIPS	IEC61000-4-11 (1) CRITERIA A 100% dip; 0.5 cycle(10ms) 0,45,90,135,180,225,270,115,360 degrees. (2) CRITERIA A 100% dip; 1 cycle(20ms) 0 degree. (3) CRITERIA A 30% dip; 25 cycles(500ms) 0 degree. (4) CRITERIA B 100% dip; 250 cycles(5000ms) 0 degree.	I/P: 100VAC I/P: 240VAC O/P: FULL LOAD Ta: 25°C	PASS



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8	Conducted Immunity	IEC61000-4-6 CRITERIA A 10Vrms	I/P: 120VAC I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
9	Radiated Immunity	IEC61000-4-3 CRITERIA A 10V/m	I/P: 230VAC O/P: FULL LOAD Ta: 25°C	PASS
10	Power Frequency Magnetic Field	IEC61000-4-8 CRITERIA A 30A/m	I/P: 120VAC 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: 90VAC @ 47Hz O/P: FULL LOAD Ta: 40°C	PASS*Table 1
2	CAPACITOR LIFE CYCLE	The electrolytical capacitor life is greater than 26280 hours	I/P: 100VAC/ 60Hz I/P: 240VAC/50Hz O/P: FULL LOAD Ta: 40°C	(1)I/P: 100VAC O/P: FULLLOAD Ta= 40°C LIFETIME=44,866 hours (2)I/P: 240VAC O/P: FULLLOAD Ta= 40°C LIFETIME=70,028 hours
3	MTBF	The power supply reliability, when calculated by SR332 exceeds 2,400,000 hours with all output at 100% of maximum load and at ambient temperature of 25°C		2,567,163 hours @ 100VAC 2,958,944 hours @ 240VAC
4	HUMIDITY	Storage: 25°C / 5 ~ 95% RH / Dwell: 4 hours Working: 25°C/ 10 ~ 95% RH / Dwell: 4 hours 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 I/P: 100~240VAC (Operational) O/P: 100% load (Operational)		PASS
7	OVERLOAD BURN-IN TEST	I/P: 90VAC/ 60Hz O/P: Just before OCP kicks in Ta: 25°C Duration: 1hours		PASS

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

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Table 1. Components temperature @ 40°C 100% Load. (Unit °C)

No.	Location	90VAC	Result
1	C206	85.538	Pass
2	C204	87.972	Pass
3	C054	84.108	Pass
4	C051	84.171	Pass
5	T050-core	86.811	Pass
6	T050-coil	94.55	Pass
7	IC200	96.051	Pass
8	Q200	103.505	Pass
9	Q200_1	102.253	Pass
10	PC300	84.791	Pass
11	IC100	90.731	Pass
12	Q051	90.946	Pass
13	D004	87.856	Pass
14	Q050	95.015	Pass
15	D003	104.293	Pass
16	Q010	95.388	Pass
17	L002	95.318	Pass
18	D050	97.117	Pass
19	L010	98.518	Pass
20	RT101	84.279	Pass
21	UP	67.904	Pass
22	DOWN	67.714	Pass
23	INPUT	57.213	Pass
24	OUTPUT	57.749	Pass
25	BACK	63.488	Pass
26	FORTH	71.277	Pass
27	AMB1	40.987	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Victor Tran	Luke Zhou	Ke Cao