Test Report： OWA-120E-54

120W Single Output Moistureproof Adaptor

■ 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

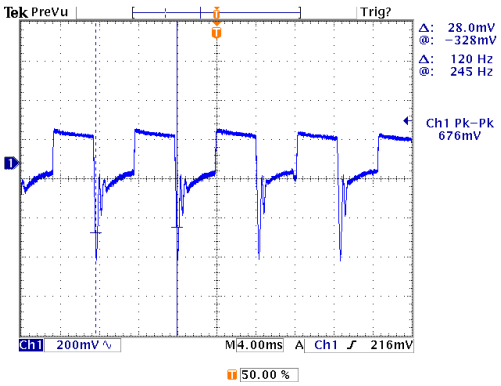
Environment Test

■ DESIGN VERIFY TEST

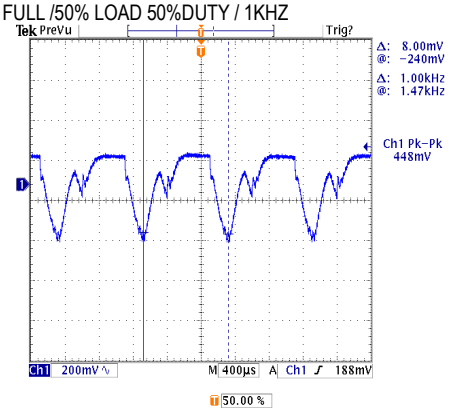
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE TOLERANCE	-1.0%~1.0%	I/P：90 VAC / 264 VAC O/P：FULL/ NO LOAD Ta：25℃	-0.05%~ +0.14%
2	LINE REGULATION	-0.5%~0.5%	I/P： 100VAC~ 264VAC O/P：FULL LOAD Ta：25℃	0%~0 %
3	LOAD REGULATION	-0.5%~ 0.5%	I/P： 230VAC O/P：FULL ~NO LOAD Ta：25℃	-0.05%~0.05 %
4	DYNAMIC LOAD	5400mVp-p	I/P： 230VAC O/P： (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta：25℃	(1) 676mVp-p (2) 448mVp-p

FULL /50% LOAD 50%DUTY / 120HZ

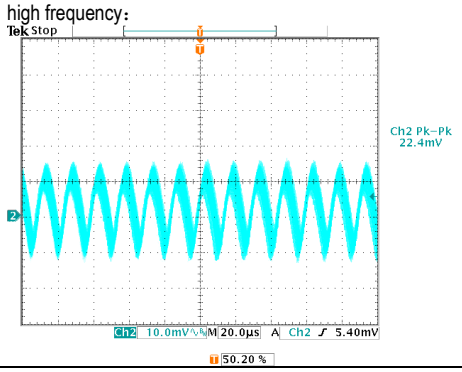


FULL /50% LOAD 50%DUTY / 1KHZ

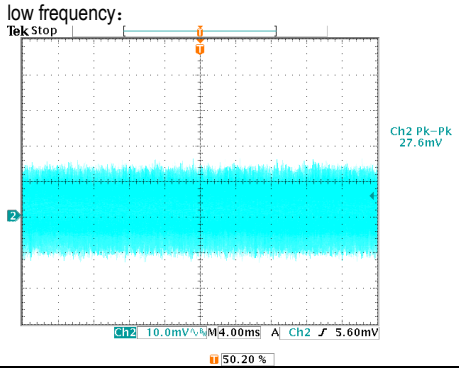


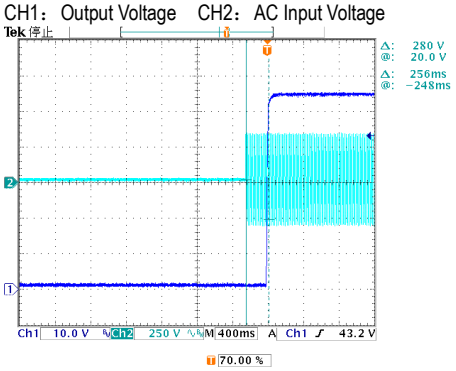
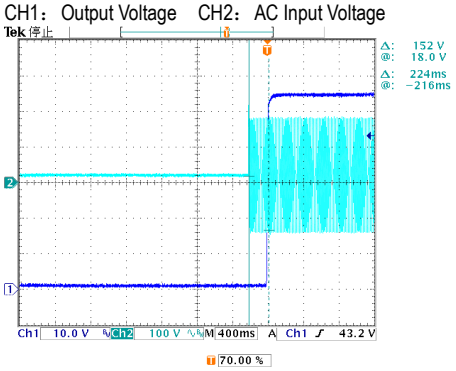
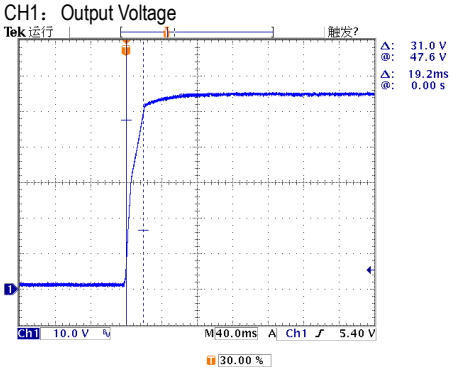
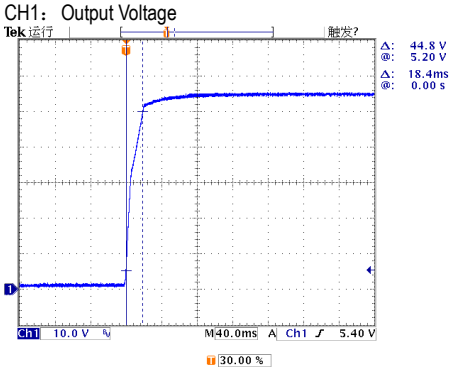
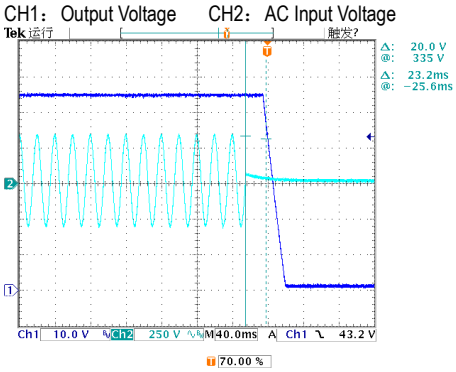
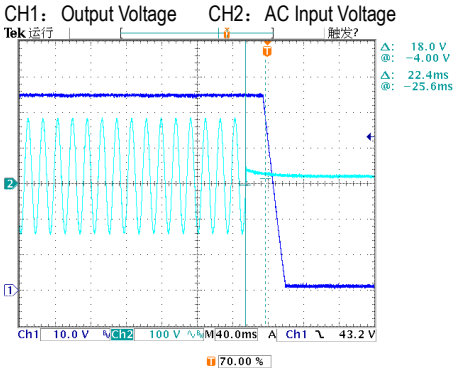
5	OVER/UNDERSHOOT TEST	<±5 %	I/P： 230VAC O/P：FULL LOAD Ta：25℃	<5 %
6	RIPPLE & NOISE (Max)	350mVp-p	I/P： 230VAC O/P：FULL LOAD Ta：25℃	27.6mVp-p

high frequency：

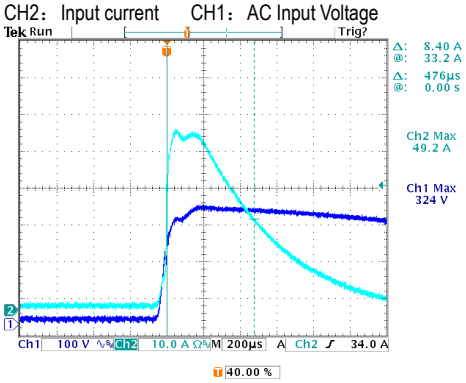


low frequency：



7	SET UP TIME(Max)	230VAC/ 500ms 115VAC/ 500ms	I/P： 230 VAC I/P： 115 VAC O/P：95% LOAD Ta：25℃	230VAC/ 256ms 115VAC/ 224ms
	INPUT=230VAC/50HZ @ 95% LOAD CH1：Output Voltage CH2：AC Input Voltage  		INPUT=115VAC/50HZ @ 95% LOAD CH1：Output Voltage CH2：AC Input Voltage  	
8	RISE TIME (Max)	230VAC/ 80ms 115VAC/ 80ms	I/P： 230 VAC I/P： 115 VAC O/P：95% LOAD Ta：25℃	230VAC/19.2ms 115VAC/18.4ms
	INPUT=230VAC/50HZ @ 95% LOAD CH1：Output Voltage  		INPUT=115VAC/50HZ @ 95% LOAD CH1：Output Voltage  	
9	HOLD UP TIME(Typ)	230VAC/ 16ms 115VAC/ 16ms	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/23.2ms 115VAC/22.4ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1：Output Voltage CH2：AC Input Voltage  		INPUT=115VAC/50HZ @ FULL LOAD CH1：Output Voltage CH2：AC Input Voltage  	

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	87V~264V
			I/P： (1)LOW-LINE-3V=87 V HIGH-LINE+15%=300 V O/P：FULL/MIN LOAD ON： 30 Sec OFF： 30 Sec 10MIN (2)230VAC ON： 0.5 Sec OFF： 0.5 Sec 20MIN (3)230VAC ON：3Sec OFF：3Sec 12HOURS (POWER ON/OFF NO DAMAGE)	TEST：OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P： 90 VAC ~264 VAC O/P：FULL~NO LOAD Ta：25℃	TEST：OK
3	AC CURRENT	1.3A/115VAC 0.65A/230VAC	I/P： 115VAC I/P： 230VAC O/P：FULL LOAD Ta：25℃	I =1.12A/ 115VAC I =0.57A/ 230VAC
4	LEAKAGE CURRENT	< 0.25mA / 240VAC	I/P： 240VAC O/P：NO LOAD Ta：25℃	L-FG： 0.003 mA/240VAC N-FG： 0.003 mA/240VAC
5	NO LOAD POWER CONSUMPTION	< 0.15W	I/P： 230VAC O/P：NO LOAD Ta：25℃	0.120W
6	INRUSH CURRENT(Typ)	60A/230VAC Twidth =520 us measured at 50% Ipeak COLD START	I/P： 230VAC O/P：FULL LOAD Ta：25℃	I=49.2A/ 230VAC Twidth =476us
	INPUT=230VAC/50HZ @ FULL LOAD CH2：Input current CH1：AC Input Voltage  			
7	EFFICIENCY(Typ)	90.5%/230VAC	I/P： 230VAC O/P：FULL LOAD Ta：25℃	90.95%
8	POWER FACTOR	0.97/ 115VAC 0.96/ 230VAC	I/P： 115VAC I/P： 230VAC O/P：FULL LOAD Ta：25℃	PF=0.9974/ 115VAC PF=0.9808/ 230VAC

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105 %~ 115 %	I/P： 230VAC O/P：TESTING Ta：25℃	109.6%/ 230VAC Hiccup mode，recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	59V~66V	I/P： 230VAC O/P：NO LOAD Ta：25℃	63.4V/ 230VAC Shut down o/p voltage，re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P： 230VAC O/P：FULL LOAD	O.T.P. Active Shut down o/p voltage，re-power on to recover
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 264VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE Hiccup mode，recovers automatically after fault condition is removed

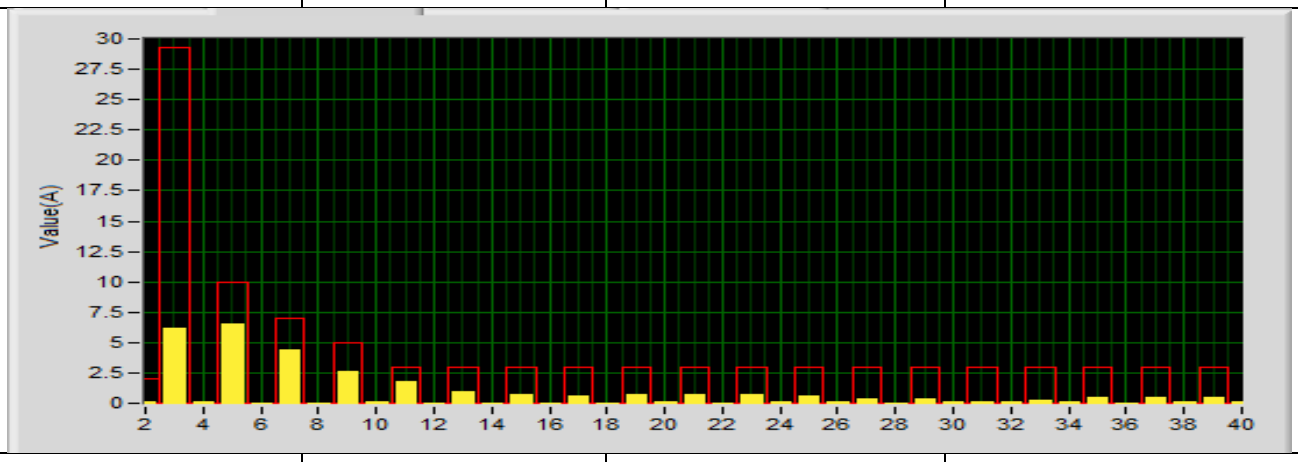
COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) **Peak Voltage**	Q 2 Rated 730V/10A	I/P：High-Line +3V =267V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 660V (2) 564V (3) 650V
2	**Diode Peak Voltage**	Q101 Rated 300V/20A	I/P：High-Line +3V =267V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 230V (2) 171V (3) 225V
3	**Input Capacitor Voltage**	C5 Rated 100u/ 450V	I/P：High-Line +3V =267V O/P：(1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta：25℃	(1) 442V (2) 436V (3) 442V
4	**Control IC Voltage Test**	U1 Rated 28V	I/P：High-Line +3V =267V O/P：(1) Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change Ta：25℃	(1) 17.3V (2) 17.1V (3) 17.1V
5	PFC Transistor (D to S) or (C to E) **Peak Voltage**	Q 1 Rated 600V/15A	I/P：High-Line +3V =267V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	(1) 504V (2) 494V (3) 466V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P： 3.75KVAC/min	I/P-O/P： 4.2KVAC/min Ta：25℃	I/P-O/P：1.722mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P：500VDC>100MΩ	I/P-O/P： 500VDC Ta：25℃	I/P-O/P： ＞9999MΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P：230VAC/50HZ O/P：FULL LOAD Ta:25℃	PASS
				
2	CONDUCTION	EN55022 CLASS B	I/P：230 VAC (50HZ) O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
3	RADIATION	EN55022 CLASS B	I/P：230 VAC (50HZ) O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR：8KV Contact：4KV	I/P：230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT：1KV	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
6	SURGE	EN61000-4-5 INDUSTRY L-N：2KV	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
7	Test by certified Lab ＆ Test Report Prepare			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	TEMPERATURE RISE TEST	MODEL： OWA-120E-36 1. ROOM AMBIENT BURN-IN：2 HRS I/P： 230VAC O/P： FULL LOAD Ta= 27.5℃ 2. HIGH AMBIENT BURN-IN： 2 HRS I/P： 230VAC O/P： FULL LOAD Ta= 52.4℃		
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P： 264VAC/100VAC O/P：FULL LOAD Ta= -45℃ / -30℃	TEST：OK
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45℃ NO DAMAGE	I/P： 272VAC O/P：FULL LOAD Ta=45℃ HUMIDITY= 95% R.H	TEST：OK
4	TEMPERATURE COEFFICIENT	±0.03%/℃(0~50℃)	I/P： 230 VAC O/P：FULL LOAD	±0.007%/℃(0~50℃)
5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature： -45℃~ +90℃ 2. Temperature change rate ：25℃ / MIN 3. Dwell time low and high temperature ： 30 MIN/EACH 4. Total test cycle：5 CYCLE 5. Input/Output condition： STATIC		TEST：OK

NO	Position	ROOM AMBIENT Ta= 27.5 ℃	HIGH AMBIENT Ta=52.4 ℃
1	RTH1	59.8℃	77.2℃
2	RTH2	77.1℃	95.7℃
3	C11	74.9℃	94.0℃
4	D6	78.9℃	98.6℃
5	D10	86.4℃	108.1℃
6	R7	84.8℃	106.5℃
7	Q1	78.8℃	98.0℃
8	Q2	83.3℃	104.4℃
9	C5	73.0℃	92.4℃
10	C45	70.2℃	89.1℃
11	U1	67.6℃	87.1℃
12	T1	74.9℃	95.2℃
13	Q101	71.6℃	92.4℃
14	C105	67.7℃	88.0℃
15	C106	65.7℃	86.3℃
16	C110	60.4℃	80.4℃
17	RTH3	67.3℃	86.2℃
18	TC	61.7℃	81.5℃

6	THERMAL SHOCK TEST	1. Thermal shock Temperature： -45℃~ +50℃ 2. Temperature change rate ： 25℃ / MIN 3. Dwell time low and high temperature ： 30 MIN/EACH 4. Total test cycle：10 CYCLE 5. Input/Output condition： 230VAC/Full Load AC ON/OFF TEST turn on 58 sec，turn off 2 sec；	TEST：OK
7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform： Sine Wave (2) Frequency：10~500Hz (3) Sweep Time：12min/sweep cycle (4) Acceleration：5G (5) Test Time：72min in each axis (X.Y.Z) (6) Ta：25℃	TEST：OK
8	CAPACITOR LIFE CYCLE	OWA-120E-36：SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Ta= 25 ℃ LIFE TIME (2) I/P： 230VAC O/P：FULL LOAD Ta= 45 ℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta= 45 ℃ LIFE TIME (4) I/P： 230VAC O/P：50% LOAD Ta= 45 ℃ LIFE TIME	(1) 192200 HRS (2) 66137 HRS (3) 90254 HRS (4) 183065 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 2902.2K hrs min. Telcordia SR-332 (Bellcore) ; 294.4K hrs min. MIL-HDBK-217F (25℃)	
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life)： 50000 hours @ TC 70℃	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	CARYCHEN/ZHOUBIAO	SKY	LIUWY