

MODEL : PB-360P-48

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
	BOOST CHARGE VOLTAGE	57.6V ( $\pm 0.5V$ )	I/P: 230 VAC I/P: 115 VAC O/P:90% LOAD Ta:25°C	57.5 V/ 230 VAC 57.5 V/ 115 VAC	P
2	FLOAT CHARGE VOLTAGE	54.15V-54.65V	I/P: 230 VAC I/P: 115 VAC O/P: NO LOAD Ta:25°C	54.4 V/ 230 VAC 54.5 V/ 115 VAC	P
3	OUTPUT VOLTAGE ADJUST RANGE	CH1: 52V - 58.6V	I/P: 230 VAC I/P: 115 VAC O/P:NO LOAD Ta:25°C	50.3 V- 59.73 V/ 230 VAC 50.3 V- 59.73 V/ 115 VAC	P
4	MAX. OUTPUT CURRENT	5.3A	I/P : 230 VAC O/P : CHROMA C.V MODE=48V Ta : 25°C	5.2 A/ 230 VAC	P

### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC-264 VAC)	I/P:TESTING O/P: 90% LOAD Ta:25°C	137V-264V	P
			I/P: LOW-LINE-3V= 177 V HIGH-LINE+15%=300 V O/P: 90% LOAD /MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ -63 HZ NO DAMAGE OSC	I/P: 180VAC - 264 VAC O/P: 90% LOAD -MIN LOAD Ta:25°C	TEST: OK	P
3	POWER FACTOR	0.65 / 230 VAC (TYP)	I/P: 230 VAC O/P: 90% LOAD Ta:25°C	PF= 0.76 / 230 VAC	P
4	EFFICIENCY	88 % (TYP)	I/P: 230 VAC O/P: 90% LOAD Ta:25°C	88.1 %	P
5	INPUT CURRENT	230V/ 3 A (TYP) 115V/ 6 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P: 90% LOAD Ta:25°C	I = 2.2 A/ 230 VAC I = 5.5 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 60 A (TYP)  COLD START	I/P: 230 VAC O/P: 90% LOAD Ta:25°C	I = 44 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 3.5 mA/ 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.3 mA N-FG: 1.3 mA	p

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	90 %- 110 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta:25°C	101 %/ 230 VAC 101 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 59V~ 64V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C	63 V/ 230 VAC 63 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	Automatically derate charge current until zero	I/P: 230 VAC O/P: 90% LOAD	O.T.P. Active Automatically derate charge current until zero	P
4	REVERSE POLARITY	BY internal fuse	I/P: 230 VAC Ta:25°C	Fuse open	P

### CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	LED TEST	-----	I/P: 230 VAC O/P: TESTING	≤ 0.3A LED:GREEN ≥ 1A LED:RED	P
2	REMOTE CONTROL (CN5)	OPEN : Normal work Short : Stop charging	I/P: 230 VAC O/P: BAT 190AH Ta:25°C	OPEN : Normal work Short : Stop charging	P

### ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : PB-300P-12 1. HIGH AMBIENT BURN-IN : 15HRS I/P: 230VAC O/P: BAT 190AH CASE= 30.8 °C 2. HIGH AMBIENT BURN-IN : 7HRS I/P: 264VAC O/P: BAT 190AH CASE = 39.7 °C 3. HIGH AMBIENT BURN-IN : 15HRS I/P: 180VAC O/P: BAT 190AH CASE = 42.5 °C 4. HIGH AMBIENT BURN-IN : 7HRS I/P: 132VAC O/P: BAT 190AH CASE = 31.4 °C 5. HIGH AMBIENT BURN-IN : 17HRS I/P: 90VAC O/P: BAT 190AH CASE = 37 °C			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: BAT 190AH CASE= -10 °C	TEST : OK	P
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 25°C NO DAMAGE	I/P: 272 VAC O/P: 90% LOAD Ta= 25°C HUMIDITY= 95 %R.H	TEST : OK	P
4	TEMPERATURE COEFFICIENT	± 0.05 %(0-50°C)	I/P: 230 VAC O/P: BAT 190AH	± 0.02 %(0-50°C)	P

5	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C	TEST : OK	P
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### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 11.43 mA I/P-FG: 9.4 mA O/P-FG: 11.74 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 1.2 GΩ I/P-FG: 0.6 GΩ O/P-FG: 0.5 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	11 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO : E183223			P

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P: 90% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P: 90% LOAD /50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P: 90% LOAD Ta:25°C	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P: 90% LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P: 90% LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:2KV	I/P: 230 VAC/50HZ O/P: 90% LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

### M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
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# 300W Single Output Battery Charger

# PB-300 series

1	CAPACITOR LIFE CYCLE	SUPPOSE C104 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P: 90% LOAD CASE= 25 °C LIFE TIME= 1373958 HRS I/P: 230VAC O/P: 75% LOAD CASE= 50 °C LIFE TIME= 307095 HRS	P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 115.8KHRS	P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 hours @ TA 25°C	P

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q2 Rated 2SK2850 : 900V 6A	I/P:High-Line +3V = 267 V O/P: (1) 90% LOAD Turn on (2) 90% LOAD Ta:25°C	(1) 860 V (2) 720 V	P
2	Diode <b>Peak Voltage</b>	D102 Rated BYC10-600 : 600V 10 A	I/P:High-Line +3V = 267 V O/P: (1) 90% LOAD Turn on (2) 90% LOAD Ta:25°C	(1) 390 V (2) 368 V	P
3	Clamp Diode <b>Peak Voltage</b>	D2 Rated UF5408 : 1KV 3A	I/P:High-Line +3V = 267 V O/P: (1) 90% LOAD Ta:25°C	(1) 704 V	P
4	<b>Input Capacitor Voltage</b>	C5 Rated :680 u / 200V/85°C	I/P:High-Line +3V = 267 V O/P: (1) 90% LOAD Turn on /Off (2) Min load Turn on /Off (3) 90% /Min load Change Ta:25°C	(1) 168 V (2) 188 V (3) 188 V	P
5	<b>Control IC Voltage Test</b>	U1 Rated 3845 : 30V	I/P:High-Line +3V = 267 V O/P: (1) 90% LOAD Turn on /Off (2) Min load Turn on /Off (3) 90% /Min load Change Ta:25°C	(1) 19.75 V (2) 19.22 V (3) 19.75 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/11/30	RD SMAPLE	PASS	VINCENT TSENG	MAX LIN
2007/5/7	PRODUCT SAMPLE W0703C64	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023