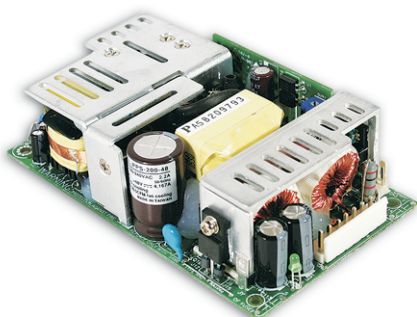




■ Features :

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 90% (typ)
- Protections: Short circuit / Overload / Over voltage / Over temperature
- PWM control and regulated
- High power density 9.78W/inch³
- 5"x3" compact size
- Built-in remote sense function
- ZVS technology to reduce power dissipation
- Free air convection for 150W and 200W with 20.5 CFM forced air
- 3 years warranty

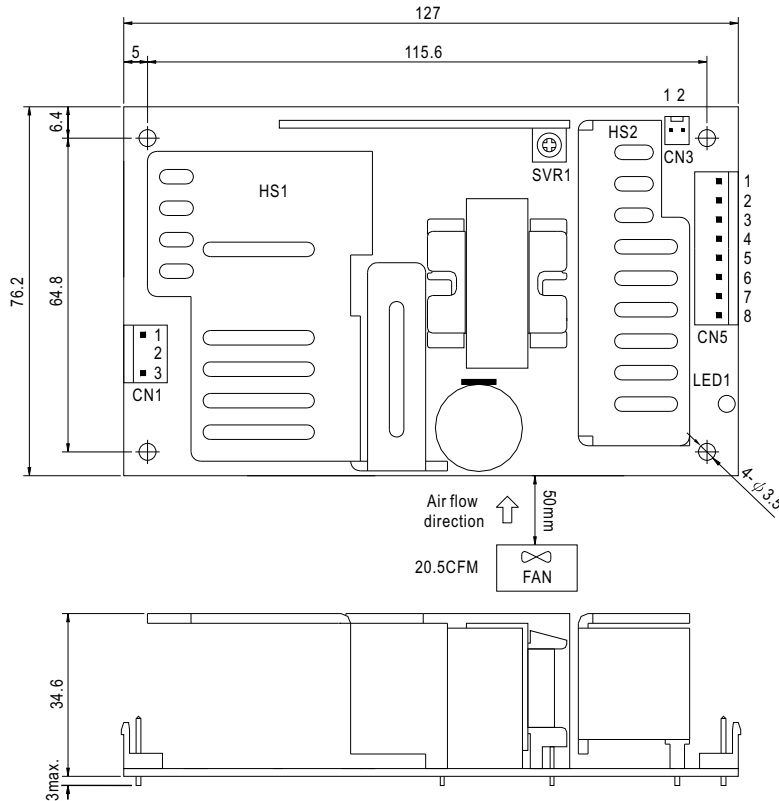


SPECIFICATION

MODEL		PPS-200-5	PPS-200-12	PPS-200-15	PPS-200-24	PPS-200-27	PPS-200-48
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	27V	48V
	RATED CURRENT	36A	16.6A	13.3A	8.3A	7.4A	4.167A
	CURRENT RANGE (convection)	0 ~ 26A	0 ~ 12.5A	0 ~ 10A	0 ~ 6.25A	0 ~ 5.56A	0 ~ 3.13A
	CURRENT RANGE (20.5CFM FAN)	0 ~ 36A	0 ~ 16.6A	0 ~ 13.3A	0 ~ 8.3A	0 ~ 7.4A	0 ~ 4.167A
	RATED POWER (convection)	130W	150W	150W	150W	150W	150W
	RATED POWER (20.5CFM FAN)	180W	199.2W	199.5W	199.2W	199.8W	200W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V	24.3 ~ 30V	43.2 ~ 52.8V
	VOLTAGE TOLERANCE Note.3	±4.0%	±3.0%	±3.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	1200ms, 60ms/230VAC 2500ms, 60ms/115VAC at full load					
	HOLD UP TIME (Typ.)	12ms/230VAC/115VAC at full load					
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF>0.93/230VAC PF>0.98/115VAC at full load					
	EFFICIENCY (Typ.)	86%	89%	89%	89%	89%	90%
	AC CURRENT (Typ.)	2.2A/115VAC 1.2A/230VAC					
	INRUSH CURRENT (Typ.)	COLD START 70A/230VAC					
	LEAKAGE CURRENT	<2mA / 240VAC					
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.6 ~ 7.25V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V	31.05 ~ 36.45V	57.6 ~ 67.2V
	OVER TEMPERATURE	110℃ (TSW1) detect on heatsink of power transistor Protection type : Shut down o/p voltage, recovers automatically after temperature goes down					
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 50℃)					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes					
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved					
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH					
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B					
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3					
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A					
OTHERS	MTBF	108.4Khrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	127*76.2*34.6mm (L*W*H)					
	PACKING	0.37Kg; 36pcs/14.3Kg/0.79CUFT					
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Heat Sink HS1,HS2 can not be shorted. 6. Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.						

Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/L	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/N		

DC Output Connector (CN5) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1~4	+V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5~8	-V		

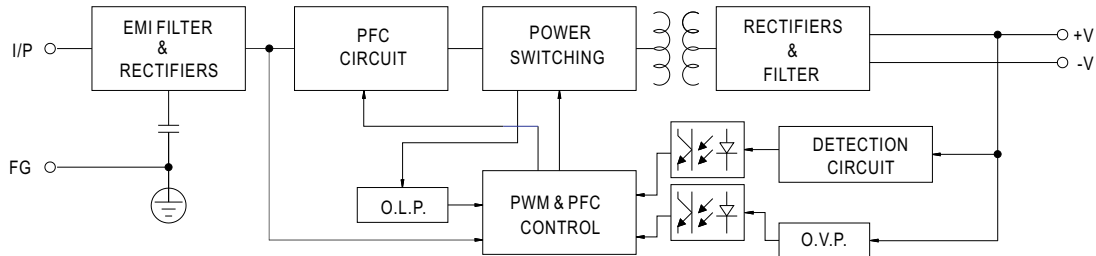
Remote Sense(CN3) : Molex 5045-02 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	RS-	Molex 5051 or equivalent	Molex 4809 or equivalent
2	RS+		

⚠ HS1,HS2 can not be shorted

Block Diagram

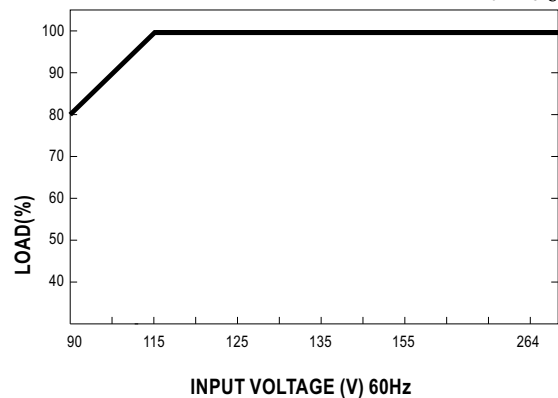
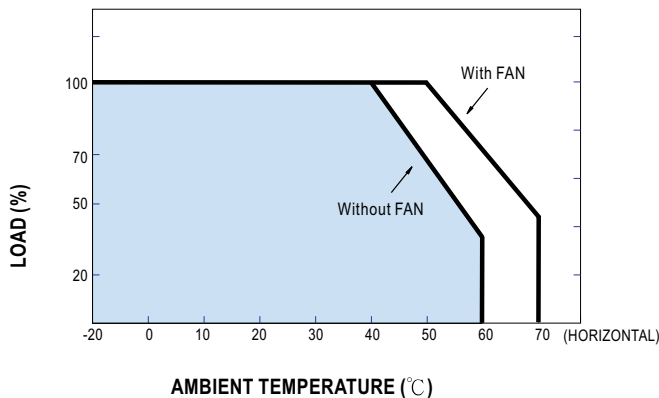
fosc : 100KHz



Derating Curve

Output Derating VS Input Voltage

Ta = 25°C



MODEL : PPS-200-48

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:250 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25℃	V1: 38 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 43.2V~52.8V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	35.75 V~ 57.25 V/ 230 VAC 35.75 V~ 57.25 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25℃	V1: 0.05 %~ -0.05 %	P
4	LINE REGULATION	V1:0.5 %~ -0.5 % (Max)	I/P: 115VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0 %~ 0 %	P
5	LOAD REGULATION	V1: 1 %~ -1 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: 0.04 %~ -0.04 %	P
6	SET UP TIME	230VAC: 1200 ms (Max) 115 VAC: 2500 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 971 ms 115VAC/ 1942 ms	P
7	RISE TIME	230VAC: 60 ms (Max) 115VAC: 60 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 47 ms 115VAC/ 50 ms	P
8	HOLD UP TIME	230VAC: 12 ms (TYP) 115VAC: 12 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 18.7 ms 115VAC/ 18.6 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	952 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~260 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	68 V~260V	P
			I/P: LOW-LINE-3V= 112 V HIGH-LINE+15%=300 V O/P:FULL/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: 90 VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	POWER FACTOR	0.94 / 230 VAC(TYP) 0.98 / 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.947 / 230 VAC PF= 0.99 / 115 VAC	P
4	EFFICIENCY	90% (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	90 %	P
5	INPUT CURRENT	230V/ 1.2 A (TYP) 115V/ 2.2 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 1.05 A/ 230 VAC I = 2.1 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 70 A (TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 59 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.45 mA N-FG: 0.45 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 135 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	120 %/ 230 VAC 120 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1:57.6V~ 67.2 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	59.4 V/ 230 VAC 59.4 V/ 115 VAC Hiccup Mode	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P
4	OVER TEMPERATURE PROTECTION	SPEC: TSW1: 110 ± 5°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																															
1	TEMPERATURE RISE TEST	MODEL : PPS-200-24 WITH FAN 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 230VAC O/P: FULL LOAD Ta= 26.5 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 52.6 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 26.5 °C</th><th>HIGH AMBIENT Ta= 52.6 °C</th></tr><tr><td>1</td><td>LF2</td><td>TR-653</td><td>49.4°C</td><td>71.5°C</td></tr><tr><td>2</td><td>T2 COIL</td><td>TF-1436</td><td>36.2°C</td><td>60.0°C</td></tr><tr><td>3</td><td>L1</td><td>TR-654</td><td>36.5°C</td><td>60.6°C</td></tr><tr><td>4</td><td>BD1</td><td>GBU4J 4A/600V</td><td>39.8°C</td><td>63.8°C</td></tr><tr><td>5</td><td>Q5</td><td>K3683 19A/500V</td><td>38.8°C</td><td>62.8°C</td></tr><tr><td>6</td><td>U4</td><td>L6561</td><td>34.7°C</td><td>58.5°C</td></tr><tr><td>7</td><td>U3</td><td>TL3845</td><td>33.7°C</td><td>57.6°C</td></tr><tr><td>8</td><td>T1 COIL</td><td>TF-1433</td><td>58.8°C</td><td>81.4°C</td></tr><tr><td>9</td><td>L2</td><td>TR-655</td><td>43.4°C</td><td>67.0°C</td></tr><tr><td>10</td><td>Q1</td><td>IRFP460A 20A/500V</td><td>38.4°C</td><td>62.3°C</td></tr><tr><td>11</td><td>C5</td><td>120U/420V NCC 105°C</td><td>31.9°C</td><td>55.1°C</td></tr><tr><td>12</td><td>Q101</td><td>BYQ28X-200 10A/200V</td><td>37.7°C</td><td>61.2°C</td></tr><tr><td>13</td><td>Q104</td><td>IRF3710 100V/57A</td><td>45.0°C</td><td>69.0°C</td></tr><tr><td>14</td><td>TSW1</td><td>ST-105</td><td>35.1°C</td><td>59.7°C</td></tr><tr><td>15</td><td>L102</td><td>TR-663</td><td>48.0°C</td><td>72.3°C</td></tr><tr><td>16</td><td>C107</td><td>680U/35V RUB 105°C ZLH</td><td>37.5°C</td><td>61.2°C</td></tr><tr><td>17</td><td>D1</td><td>F10A60 10A/600V</td><td>35.0°C</td><td>58.7°C</td></tr><tr><td>18</td><td>C11</td><td>224/275V</td><td>35.1°C</td><td>58.7°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 26.5 °C	HIGH AMBIENT Ta= 52.6 °C	1	LF2	TR-653	49.4°C	71.5°C	2	T2 COIL	TF-1436	36.2°C	60.0°C	3	L1	TR-654	36.5°C	60.6°C	4	BD1	GBU4J 4A/600V	39.8°C	63.8°C	5	Q5	K3683 19A/500V	38.8°C	62.8°C	6	U4	L6561	34.7°C	58.5°C	7	U3	TL3845	33.7°C	57.6°C	8	T1 COIL	TF-1433	58.8°C	81.4°C	9	L2	TR-655	43.4°C	67.0°C	10	Q1	IRFP460A 20A/500V	38.4°C	62.3°C	11	C5	120U/420V NCC 105°C	31.9°C	55.1°C	12	Q101	BYQ28X-200 10A/200V	37.7°C	61.2°C	13	Q104	IRF3710 100V/57A	45.0°C	69.0°C	14	TSW1	ST-105	35.1°C	59.7°C	15	L102	TR-663	48.0°C	72.3°C	16	C107	680U/35V RUB 105°C ZLH	37.5°C	61.2°C	17	D1	F10A60 10A/600V	35.0°C	58.7°C	18	C11	224/275V	35.1°C	58.7°C	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 115% LOAD Ta:25°C	TEST : OK	P																																																																																															
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100% LOAD Ta= -20°C	TEST : OK	P																																																																																															
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50°C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																															
5	TEMPERATURE COEFFICIENT	± 0.05 %(0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.02 %(0-50°C)	P																																																																																															
6	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																																																																																															

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: 1.46 mA I/P-FG: 3.52 mA O/P-FG: 0.49 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: 3 GΩ I/P-FG: 30 GΩ O/P-FG: 8 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : R50076119 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:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL 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:FULL 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:FULL 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:FULL 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
1	CAPACITOR LIFE CYCLE	SUPPOSE C107 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 1167547 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 243715 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 108.4KHS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q6 Rated 2SK3683 : 500V 19A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 446 V (2) 446 V (3) 466 V	P
2	Diode Peak Voltage	Q103 Rated SF20LC30 : 300V 20A Q104 Rated BYQ28X-200 : 200V 10A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 170 V (2) 170 V (3) 165 V (1) 141 V (2) 111 V (3) 154 V	P
3	Input Capacitor Voltage	C5 Rated :120u / 420V/ 105℃	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (4)Burn in 1hour Ta:25℃	(1) 395 V (2) 395 V (3) 396 V (4) 396 V	P
4	Control IC Voltage Test	U3 Rated TI3845 : 30 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25℃	(1) 15.1 V (2) 13.1 V (3) 15.3 V	P
5	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated IFFP460A : 500V 20A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 426 V (2) 425 V (3) 434 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/11/22	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/2/6	PRODUCT SAMPLE W0512B51	PASS	VINCENT TSENG	MAX LIN
2006/5/11	PRODUCT SAMPLE W0604A47	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023