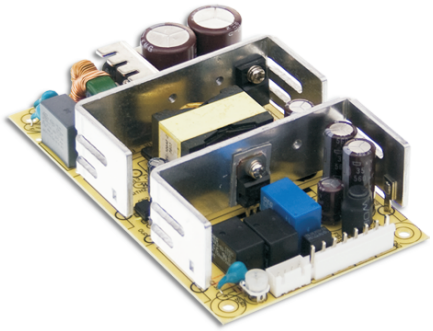


Features :

- Universal AC input / Full range
- 5"x3" compact size
- Protections: Short circuit / Overload / Over voltage
- Battery low protection / Battery polarity protection by fuse
- Relay contact signal output for AC OK and Battery Low
- Cooling by free air convection
- 100% full load burn-in test
- 2 years warranty

SPECIFICATION

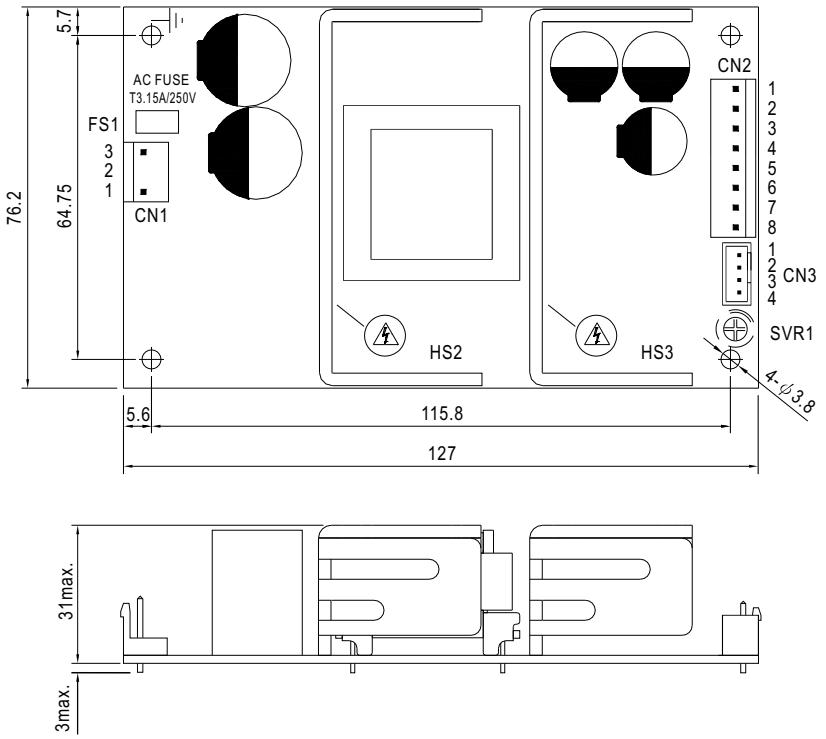
MODEL		PSC-100A		PSC-100B	
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH1	CH2
	DC VOLTAGE	13.8V	13.8V	27.6V	27.6V
	RATED CURRENT	4.75A	2.5A	2.4A	1.25A
	CURRENT RANGE	0 ~ 7A	--------	0 ~ 3.5A	--------
	RATED POWER	100W		100.74W	
	RIPPLE & NOISE (max.) Note.2	100mVp-p	--------	100mVp-p	--------
	VOLTAGE ADJ. RANGE	CH1: 12 ~ 15V		CH1: 24 ~ 29V	
	VOLTAGE TOLERANCE Note.3	±1.0%	--------	±1.0%	--------
	LINE REGULATION	±0.5%	--------	±0.5%	--------
	LOAD REGULATION	±0.5%	--------	±0.5%	--------
	SETUP, RISE TIME Note.5	2400ms, 30ms/230VAC 2400ms, 30ms/115VAC at full load			
	HOLD UP TIME (Typ.)	40ms/230VAC 16ms/115VAC at full load			
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	86%		88%	
	AC CURRENT (Typ.)	2A/115VAC 1.2A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 35A/115VAC 70A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	OVERLOAD	105 ~ 150% rated output power			
		Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	CH1:14.49 ~ 18.63V		CH1:28.98 ~ 37.26V	
		Protection type : Shut down o/p voltage, re-power on to recover			
	BATTERY CUT OFF	10±0.5V		20±1V	
ALARM FUNCTION	AC OK Note.6	Relay contact output, ON : AC OK ; OFF : AC Fail ; Max. rating : 30V / 1A			
	BATTERY LOW	Relay contact output, ON : Battery OK ; OFF : Battery Low ; Max. rating : 30V / 1A			
		Battery low voltage : < 11V		Battery low voltage : < 22V	
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-20 ~ +85℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/℃ (0~50℃) on CH1 output			
	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	417.6K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	127*76.2*31mm (L*W*H)			
	PACKING	0.23Kg; 63pcs/15.5Kg/1.35CUFT			

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. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.
6. Please refer to suggest application (2) 、(4) in page 3.
7. Heat sink HS2,HS3 can not be shorted.
8. Heat sink HS2,HS3 must have safety isolation distance from system case.

Mechanical Specification

Unit:mm



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

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

DC Output Connector (CN2) : JST B8P-VH or equivalent

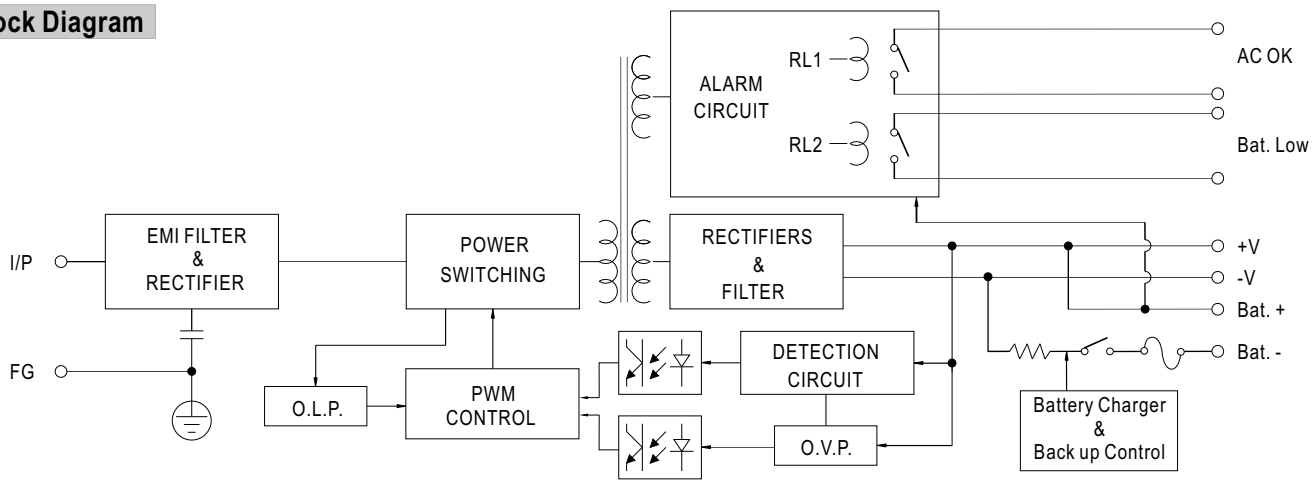
Pin No.	Assignment	Mating Housing	Terminal
1,2	-V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
3,4	+V		
5,6	Bat+		
7,8	Bat-		

Alarm Output Connector(CN3) : JST B4B-XH or equivalent

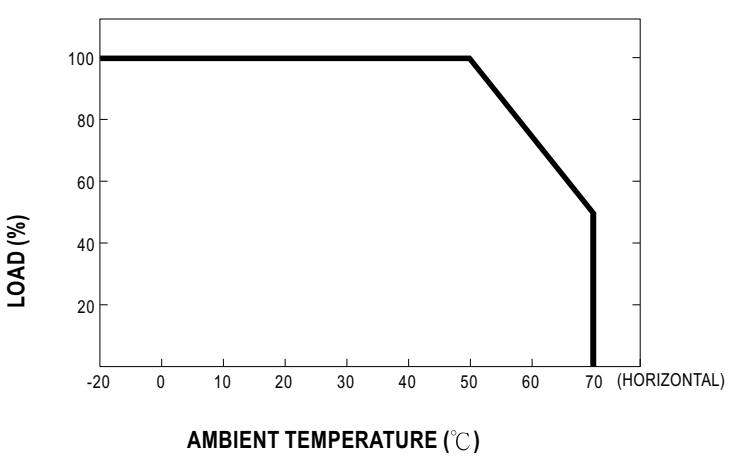
Pin No.	Assignment	Mating Housing	Terminal
1 2	AC OK	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
3 4	Bat. Low		

1.HS2,HS3 can not be shorted.
2.HS2,HS3 must have safety isolation distance from system case.
3.-V and Bat- can not be shorted.

Block Diagram

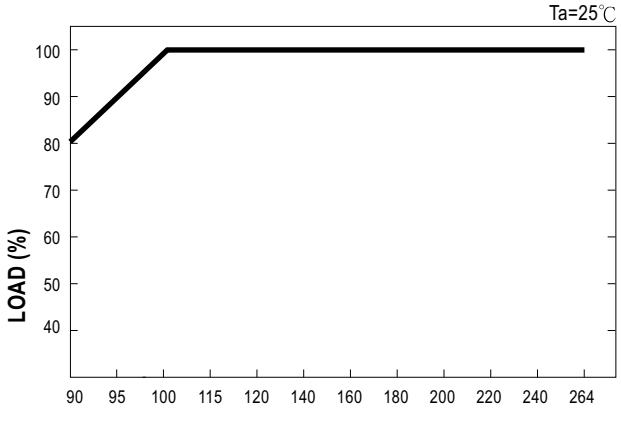


Output Derating



AMBIENT TEMPERATURE (℃)

Output Derating VS Input Voltage



INPUT VOLTAGE (VAC) 60Hz

■ Suggested Application

1.Back up connection for AC interruption

(1) Please refer to the Fig1.1 for suggested connection.

The power supply charge the battery and provide energy to the load in the same time when the AC main is OK.

The battery start to supply power to the load when the AC main fails.

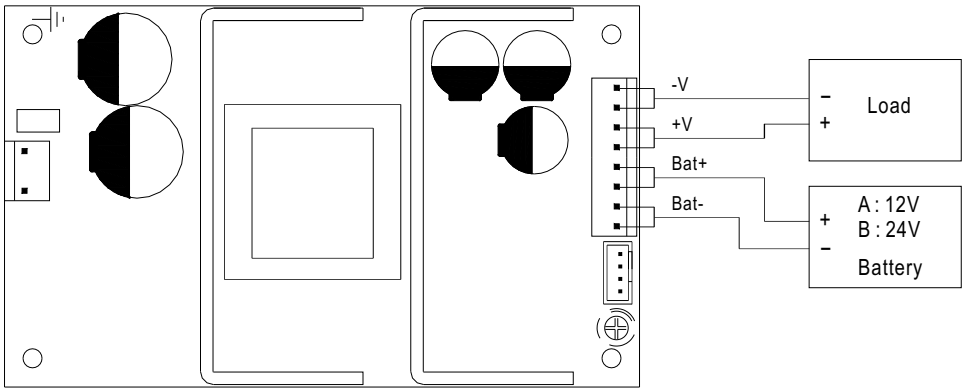


Fig 1.1 Suggested system connection

2.Alarm signal for AC OK and Battery Low

(1) Alarm signal is sent out through " AC OK " & " Battery Low " pins.(relay contact type)

(2) An external voltage source is required for this function. The maximum applied voltage is 30V and the maximum sink current is 1A.

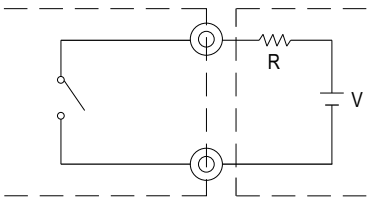
(3) Table2.1 explain the alarm function built-in the power supply

Function	Description	Output of Alarm
AC OK	The signal is "Low" when the power supply turns on	Low or short
	The signal turns to be "High" when the power supply turns OFF	High or open(External applied voltage 1A max.)
Battery Low	The signal is "Low" when the voltage of battery is under A:11V, B:22V	Low or short
	The signal is "High" when the voltage of battery is above A:11V, B:22V	High or open(External applied voltage 1A max.)

Table 2.1 Explanation of Alarm Signal

AC OK (Battery low)

CN3 Pin1(Pin3)



CN3 Pin2(Pin4)

External voltage source (V) and resistor (R)
(The max. Sink is 1A and 30V)

Fig 2.2 Internal circuit of AC OK (Battery Low)

(4) RL1 (AC OK)signal will go into hiccup mode when the overload protection is activating.

MODEL：PSC-100A

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1： 100 mVp-p (Max)	I/P： 230VAC O/P：FULL LOAD Ta：25℃	V1： 13 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1： 12 V~ 15 V	I/P： 230 VAC I/P： 115 VAC O/P：MIN LOAD Ta：25℃	11.456 V~ 15.369 V/ 230 VAC 11.456 V~ 15.369 V/115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1： 1 %~ -1 % (Max)	I/P： 115 VAC / 264 VAC O/P：FULL/ MIN LOAD Ta：25℃	V1： 0.2 %~ -0.2 %	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： 0.5%~ -0.5 % (Max)	I/P： 230 VAC O/P：FULL/MIN LOAD Ta：25℃	V1： 0.09 %~ -0.09 %	P
6	SET UP TIME	230VAC： 2400 ms (Max) 115 VAC： 2400 ms (Max)	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 1817 ms 115VAC/ 1817 ms	P
7	RISE TIME	230VAC： 30 ms (Max) 115VAC： 30 ms (Max)	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 1 ms 115VAC/ 0.6 ms	P
8	HOLD UP TIME	230VAC： 40 ms (TYP) 115VAC： 15 ms (TYP)	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 90 ms 115VAC/ 16 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	TEST： < 5 %	P
10	DYNAMIC LOAD	V1： 1380 mVp-p	I/P： 230 VAC O/P：FULL /Min LOAD 90% DUTY/1KHZ Ta：25℃	374 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~264 VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	56V~264V	P
			I/P： LOW-LINE-3V= 87 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： 90VAC ~ 264 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST： OK	P
4	EFFICIENCY	86% (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	88 %	P
5	INPUT CURRENT	230V/ 1.2 A (TYP) 115V/ 2 A (TYP)	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I = 0.55 A/ 230 VAC I = 0.61 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 70 A (TYP) 115V/ 35 A(TYP) COLD START	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I = 36 A/ 230 VAC I = 18 A/ 115 VAC	P
7	LEAKAGE CURRENT	< 1 mA / 240 VAC	I/P： 264 VAC O/P：Min LOAD Ta：25℃	L-FG： 0.15 mA N-FG： 0.15 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%~ 150 %	I/P： 230 VAC I/P： 115 VAC O/P：TESTING Ta：25℃	140.6%/ 230 VAC 127%/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1： 14.49 V~ 18.63 V	I/P： 230 VAC I/P： 115 VAC O/P：MIN LOAD Ta：25℃	17.4V/ 230 VAC 17.4V/ 115 VAC Hiccup Model	P
3	BATTERY CUT OFF	10V ± 0.5V	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	9.72 V/230VAC	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 264 VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE Hiccup Mode	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	AC OK	Relay contact output, ON : AC OK ; OFF：AC Fail ; Max. Rating：30V / 1A	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	OK	P
2	BATTERY LOW	Relay contact output, ON : Battery OK ; OFF : Battery Low ; Max. Rating : 30V / 1A Battery low voltage : < 11V	I/P： 230 VAC O/P：MIN LOAD Ta：25℃	10.53 V	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL： PSC-100A
1. ROOM AMBIENT BURN-IN：1.5 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 31.2 ℃
2. HIGH AMBIENT BURN-IN： 3 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 53.4 ℃

<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta=31.2 ℃</th><th>HIGH AMBIENT Ta=53.4 ℃</th></tr>
<tr><td>1</td><td>LF2</td><td>TR-733</td><td>59.5℃</td><td>78.2℃</td></tr>
<tr><td>2</td><td>BD1</td><td>US6KB80R-7000</td><td>66.4℃</td><td>84.8℃</td></tr>
<tr><td>3</td><td>C5</td><td>100U/400V KMG</td><td>50.6℃</td><td>68.4℃</td></tr>
<tr><td>4</td><td>ZD2</td><td>TVS P6KE200A</td><td>93.4℃</td><td>108.5℃</td></tr>
<tr><td>5</td><td>T1</td><td>TF-1948</td><td>80.0℃</td><td>98.3℃</td></tr>
<tr><td>6</td><td>D2</td><td>IN4007GP</td><td>88.2℃</td><td>111.5℃</td></tr>
<tr><td>7</td><td>Q1</td><td>SPA11N65C3 11A/650V</td><td>72.0℃</td><td>91.2℃</td></tr>
<tr><td>8</td><td>U1</td><td>TEA1552-S0T108-1</td><td>74.4℃</td><td>91.0℃</td></tr>
<tr><td>9</td><td>C52</td><td>47u/50V L5Kh 6.3*11 YXF</td><td>63.1℃</td><td>80.5℃</td></tr>
<tr><td>10</td><td>C201</td><td>100u/35V L5Kh 6.3*11 KZH</td><td>60.5℃</td><td>77.5℃</td></tr>
<tr><td>11</td><td>L100</td><td>RB-COIL RB009E-R1 1.5uH</td><td>60.3℃</td><td>84.9℃</td></tr>
<tr><td>12</td><td>C101</td><td>560u/35V UL7Kh 10*25 KY</td><td>65.1℃</td><td>82.8℃</td></tr>
<tr><td>13</td><td>Q101</td><td>STP75NF75 80A/75V</td><td>80.4℃</td><td>100.1℃</td></tr>
<tr><td>14</td><td>U101</td><td>TEA1761T S08</td><td>69.6℃</td><td>86.4℃</td></tr>
<tr><td>15</td><td>RY101</td><td>OJE-SS-112LMH</td><td>67.3℃</td><td>85.6℃</td></tr>
<tr><td>16</td><td>RY102</td><td>OUAZ-SS-109L</td><td>50.8℃</td><td>69.3℃</td></tr>
<tr><td>17</td><td>RY103</td><td>OUAZ-SS-112L</td><td>59.9℃</td><td>77.7℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P： 230 VAC
O/P：125 % LOAD
Ta：25.8 ℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 230 VAC
O/P： 100 % LOAD
Ta= -25 ℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50 ℃
NO DAMAGE</td><td>I/P： 272 VAC
O/P：FULL LOAD
Ta= 50 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.03 %(0~50℃)</td><td>I/P： 230 VAC
O/P：FULL LOAD</td><td>± 0.007 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">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℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

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℃	I/P-O/P： 1.518 mA I/P-FG： 3.31 mA O/P-FG： 0.237 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℃/70%RH	I/P-O/P： 24.6 GΩ I/P-FG： 30 GΩ O/P-FG： 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV： Certificate NO ：E183223 UL： File NO ：R50155036			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P： 220/230 /240VAC/50HZ O/P：100/75/50/25%LOAD Ta：25℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P：230 VAC (50HZ)/115V(60HZ) O/P：FULL/50% LOAD Ta：25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P：230 VAC(50HZ) /115V(60HZ) O/P：FULL LOAD Ta：25℃	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℃	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℃	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℃	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	PSC-100A： SUPPOSE C101 IS THE MOST CRITICAL COMPONENT I/P： 230VAC O/P：FULL LOAD Ta= 25 ℃ LIFE TIME=191623.7 HRS I/P： 230VAC O/P：FULL LOAD Ta= 50 ℃ LIFE TIME=46297.3 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE： 417.6 KHRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated SPA11N65C3 11A/650V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2) Output Short Ta：25℃	(1) 636 V (2) 540 V	P
2	Diode Peak Voltage	Q101Rated STP75NF75 80A/75V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2)Output Short Ta：25℃	(1) 61.6 V (2) 47.6 V	P
3	Clamp Diode Peak Voltage	D2 Rated 1A/1KV 1N4007GP	I/P：High-Line +3V = 267 V O/P：(1) Dynamic Load 90%DUTY/ 1KHz Ta：25℃	(1) 464 V	P
4	Input Capacitor Voltage	C 5 Rated 100u/400V 105℃ 18*25 KMG	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) 367.8 V (2) 375.8 V (3) 375.5 V	P
5	Control IC Voltage Test	U1Rated CONTROL TEA1552 9.3V~20V	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) 12.623 V (2) 11.449 V (3) 11.449 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/4/7	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/6/10	PRODUCT SAMPLE W0904E34	PASS	SANFORD SU	VINCENT TSENG
2009/7/5	PRODUCT SAMPLE W0906D48	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023