MODEL：RSP-3000-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1： 150 mVp-p (Max)	I/P： 230VAC O/P：FULL LOAD Ta：25℃	V1： 116 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1： 22 V~ 28 V	I/P： 230 VAC O/P：MIN LOAD Ta：25℃	20.88 V~ 28.59 V/ 230 VAC 20.87 V~ 28.59 V/180 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1： 1 %~ -1 % (Max)	I/P： 180VAC / 264 VAC O/P：FULL/ MIN LOAD Ta：25℃	V1： 0.04 %~ -0.04 %	P
4	LINE REGULATION	V1： 0.5 %~ -0.5 % (Max)	I/P：180VAC ~ 264 VAC O/P：FULL LOAD Ta：25℃	V1： 0.03 %~ -0.03 %	P
5	LOAD REGULATION	V1： 0.5 %~ -0.5 % (Max)	I/P： 230 VAC O/P：FULL ~MIN LOAD Ta：25℃	V1： 0.03 %~ -0.03 %	P
6	SET UP TIME	230VAC： 1000 ms (Max)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 524 ms	P
7	RISE TIME	230VAC： 80 ms (Max)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 53 ms ms	P
8	HOLD UP TIME	230VAC： 10 ms (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 30 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	TEST： < 5 %	P
10	DYNAMIC LOAD	V1： 2400 mVp-p	I/P： 230 VAC O/P：FULL /Min LOAD 90%DUTY/ 1KHZ Ta：25℃	230 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	173V~264V	P
			I/P： LOW-LINE-3V= 177 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： 180 VAC ~ 264 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST： OK	P
3	POWER FACTOR	0.95 / 230 VAC(TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	PF= 0.991 / 230 VAC	P
4	EFFICIENCY	90% (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	90.3 %	P
5	INPUT CURRENT	230V/ 16 A (TYP) 180V/ 20 A (TYP)	I/P： 230 VAC I/P： 180 VAC O/P：FULL LOAD Ta：25℃	I = 14.69 A/ 230 VAC I = 18.75 A/ 180 VAC	P
6	INRUSH CURRENT	230V/ 60 A (TYP) COLD START	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I = 52 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P： 264 VAC O/P：Min LOAD Ta：25℃	L-FG： 1.1 mA N-FG： 1.1 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	100%~112 %	I/P： 230 VAC O/P：TESTING Ta：25℃	104.8 %/ 230 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1：28.8V~ 33.6V	I/P： 230 VAC O/P：MIN LOAD Ta：25℃	31.84 V/ 230 VAC Shut down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC： TSW1： 110 ± 5℃ O.T.P detect on heatsink of power transistor TSW2： 85 ± 5℃ O.T.P detect on heatsink of O/P diode 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
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 264 VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE CN3 PIN9-10 SHORT: Shut down Re-power ON CN3 PIN9-10 OPEN: Current Limit	P

CONTROL FUNCTION TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>AUXILIARY POWER (AUX)</td><td>12V @ 0.1A
(Only for Remote ON/OFF control)</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>11.859V</td><td>P</td></tr>
<tr><td>2</td><td>REMOTE CONTROL</td><td>Table1.1 Fig1.2(a)(b)(c)
Specification of Remote ON/OFF</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>
<table>
<tr><td colspan="2">Connection Method</td><td>Fig1.2(a)</td><td>Fig1.2(b)</td><td>Fig1.2(c)</td></tr>
<tr><td rowspan="2">SW Logic</td><td>Output on</td><td>SW Open</td><td>SW Open</td><td>SW Close</td></tr>
<tr><td>Output off</td><td>SW Close</td><td>SW Close</td><td>SW Open</td></tr>
</table>
</td><td>P</td></tr>
<tr><td>3</td><td>ALARM SIGNAL OUTPUT</td><td>Table2.1 Explanation of alarm
<table>
<tr><th>Function</th><th>Description</th></tr>
<tr><td>P OK</td><td>The signal is "Low" when the power supply is 80% of the rated output voltage-Power OK</td></tr>
<tr><td></td><td>The signal turns to be "High" when the power supply is under 80% of the rated output voltage-Power Fail</td></tr>
</table>
</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>
<table>
<tr><th>Output of alarm (P OK, relay contact)</th><th>Output of alarm (P OK2, TTL Signal)</th></tr>
<tr><td>Low (0.5V max at 500mA)</td><td>Low (0.5V max at 10mA)</td></tr>
<tr><td>High or open (External applied voltage 500mA max.)</td><td>High or open (External applied voltage 10mA max.)</td></tr>
</table>
</td><td>P</td></tr>
<tr><td>4</td><td>OUTPUT VOLTAGE PROGRAMMABLE(PV)</td><td>(1) Adjustment of output voltage is possible between 20~110%(Typ.) of the rated output which is shown in Fig. 3.1
(2) Connecting a resistor externally between PV and-S on CN1 or CN2 that is shown in Fig. 3.2</td><td>I/P： 230 VAC
O/P：NOL LOAD
Ta：25℃</td><td>PV=1V , Vout= 4.821 V
PV=3V , Vout= 14.422 V
PV=5V , Vout= 24.37 V
PV=5.83V,Vout= 28.03 V</td><td>P</td></tr>
<tr><td>5</td><td>CURRENT SHARING</td><td>PSU1-PSU2 < 10%</td><td>I/P： 230 VAC
O/P ： 90%/50% LOAD
Ta：25℃</td><td>O/P：90% LOAD
PSU1： 112.9A
PSU2： 110.9A
PSU3： 114.2A

O/P：50%
PSU1： 61.3A
PSU2： 61.2A
PSU3： 65.5A</td><td>P</td></tr>
<tr><td>6</td><td>REMOTE SENSE</td><td>>0.25V</td><td>I/P： 230 VAC
O/P：FULL LOAD
Ta：25℃</td><td>> 0.25 V</td><td>P</td></tr>
<tr><td>7</td><td>FAN SPEED CONTROL</td><td>-------</td><td>I/P： 230 VAC
O/P ： FULL /NOLOAD
Ta：25℃</td><td>NO LOAD Fan Voltage= 7.370 V
100% LOAD Fan Voltage= 12.522 V</td><td>P</td></tr>
</table>

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL：RSP-3000-24 1. ROOM AMBIENT BURN-IN： 2 HRS I/P： 230VAC O/P： FULL LOAD Ta= 45.4 ℃ 2. HIGH AMBIENT BURN-IN： 2 HRS I/P： 230VAC O/P： FULL LOAD Ta= 51.2 ℃			P

NO	Position	P/N	ROOM AMBIENT Ta= 45.4 ℃	HIGH AMBIENT Ta= 51.2 ℃
1	LF1	TR-807	89.8℃	96.8℃
2	BD1	25A/600V D25XB60	86.5℃	94.2℃
3	T1 3-4	TF-905	51.4℃	57.8℃
4	L1	TF-1804	80.3℃	88.4℃
5	T1 1-2	TF-905	49.0℃	55.5℃
6	D2	STTH3006DPI 30A/600V	72.5℃	77.0℃
7	Q5	TK40J60T 40A/600V	61.3℃	70.1℃
8	C7	470u/420V 105℃ 30*45 HU	64.7℃	70.7℃
9	U900	UCC2818	60.8℃	67.3℃
10	C83	10u/50V UL10Kh 5*11 YXM	67.4℃	80.4℃
11	U1	TNY280	76.0℃	82.3℃
12	C82	220u/25V UL7Kh 8*11.5 KY	72.3℃	74.3℃
13	ZD80	TVS P6KE200A	77.9℃	84.4℃
14	T2	TF-1806A	81.9℃	88.0℃
15	C306	47u/25V UL10Kh YXM	72.9℃	80.3℃
16	RG1	RG L7812CV 1.0A/12V	74.2℃	84.4℃
17	U223	UCC2895DW	63.1℃	70.1℃
18	T6	TF-1813	72.7℃	80.7℃
19	T7	TF-1813	71.3℃	78.9℃
20	Q51	FCH47N60F 47A/600V	82.4℃	87.8℃
21	D980	BYC8-600 8A/600V	66.7℃	73.4℃
22	L2	TF-1805	90.6℃	97.6℃
23	D981	BYC8-600 8A/600V	75.9℃	79.0℃
24	T5	TF-1811	99.9℃	106.2℃
25	D100	60CPQ150 60A/150V	67.0℃	72.1℃
26	D104	60CPQ150 60A/151V	78.8℃	84.1℃
27	L101	TF1808	69.7℃	76.4℃
28	C110	1500u/35V UL10Kh ZLH	70.4℃	78.0℃
29	C114	1500u/35V UL10Kh ZLH	75.0℃	81.4℃
30	C116	1500u/35V UL10Kh ZLH	73.2℃	79.9℃
31	C118	1500u/35V UL10Kh ZLH	71.8℃	78.2℃
32	C253	22uF/16V 20% 6032(C)	68.6℃	75.3℃
33	C257	22uF/16V 20% 6033(C)	68.5℃	75.6℃
34	C510	47u/25V UL10Kh 5*11 YXM	73.3℃	81.5℃
35	C512	47u/25V UL10Kh 5*12 YXM	73.6℃	82.2℃
36	Q530	STP60NF06L 60A/60V	78.1℃	85.0℃
37	C701	330u/25V UL8Kh ZLH	49.4℃	55.5℃
38	Q702	TIP42C -5A/100V	50.8℃	57.1℃
39	TSW2	ST-22 85℃	79.7℃	86.0℃
40	U530	PIC16F684	67.0℃	73.4℃
41	TSW1	ST-22 110℃	85.3℃	90.5℃

2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P： 230 VAC O/P： 104 % LOAD Ta：25℃	TEST：OK	P

3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P：230 VAC O/P：100% LOAD Ta= -25℃	TEST：OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 ℃ NO DAMAGE	I/P： 272 VAC O/P：FULL LOAD Ta= 50 ℃ HUMIDITY= 95 %R.H	TEST：OK	P
5	TEMPERATURE COEFFICIENT	± 0.05 %(0~50℃)	I/P： 230 VAC O/P：FULL LOAD	± 0.003 %(0~50℃)	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℃		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： 2 KVAC/min O/P-FG： 0.5 KVAC/min	I/P-O/P： 3.6 KVAC/min I/P-FG： 2.4 KVAC/min O/P-FG： 0.6 KVAC/min Ta：25℃	I/P-O/P： 13.96 mA I/P-FG： 10.33 mA O/P-FG： 7.81 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： 1.33 GΩ I/P-FG： 1.54 GΩ O/P-FG： 2.21 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta：25℃ / 70%RH	20 mΩ	P
4	APPROVAL	TUV： Certificate NO ： UL： File NO ：			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2,-3 CLASS A	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P： 230 VAC (50HZ) O/P：FULL/50% LOAD Ta：25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS A	I/P： 230 VAC (50HZ) 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	RSP-3000-24：SUPPOSE C116 IS THE MOST CRITICAL COMPONENT I/P： 230VAC O/P：FULL LOAD Ta= 25 ℃ LIFE TIME= 448730 HRS I/P： 230VAC O/P：FULL LOAD Ta= 50 ℃ LIFE TIME= 74527 HRS			P
2	MTBF	Conducted by Parts Stress Analysis Prediction 223.8K hrs min. Telcordia SR-332 (Bellcore) ; 75.1K hrs min. MIL-HDBK-217F (25℃)			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 50,000 hours @ TA 50℃			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q50 Rated FCH47N60F 47A/600V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2) Output Short Ta：25℃	(1) 494 V (2) 484 V	P
2	Diode Peak Voltage	D100 Rated 60CPQ150 60A/150V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2)Output Short Ta：25℃	(1) 93.2 V (2) 95.2 V	P
3	Input Capacitor Voltage	C5 Rated 470u/420V 105℃ 30*45 HU	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) 393 V (2) 392.8 V (3) 392.8 V	P
4	Control IC Voltage Test	U223 Rated UCC2895DW：11.8V~17V	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) 12.888 V (2) 12.886 V (3) 12.886 V	P
5	Power Transistor (D to S) or (C to E) Peak Voltage	Q5 Rated TK40J60T 40A/600V	I/P：High-Line +3V = 267 V O/P：(1)Full Load Turn on (2) Output Short Ta：25℃	(1) 506 V (2) 430 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008/12/3	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2009/3/11	PRODUCT SAMPLE W0812E52	PASS	SANFORD SU	VINCENT TSENG
2009/6/10	PRODUCT SAMPLE W0904A38	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023