

MODEL : RSP-1000-48

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: 24 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 43 V~ 55 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	39.99 V~ 56.21 V/ 230 VAC 39.99 V~ 56.21 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %~ -1 % (Max)	I/P: 100VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25℃	V1: 0.03 %~ -0.03 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P:100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0.02 %~ -0.02 %	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: 300 ms (Max) 115 VAC: 300 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 54 ms 115VAC/ 80 ms	P
7	RISE TIME	230VAC: 50 ms (Max) 115VAC: 50 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 19 ms 115VAC/ 18 ms	P
8	HOLD UP TIME	230VAC: 16 ms (TYP) 115VAC: 16 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 21.3 ms 115VAC/ 20.5 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℃	843 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°C	83V~264V	P
			I/P: LOW-LINE-3V= 87V 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	0.95 / 230 VAC(TYP) 0.98 / 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	PF= 0.971 / 230 VAC PF= 0.997 / 115 VAC	P
4	EFFICIENCY	90 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	90.1%	P
5	INPUT CURRENT	230V/ 6 A (TYP) 115V/ 12 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 5.1 A/ 230 VAC I = 10.3 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A (TYP) 115V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 36 A/ 230 VAC I = 18 A/ 115 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.98 mA N-FG: 0.98 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	114 %/ 230 VAC 114 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 56.6V~ 66.2V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	59 V/ 230 VAC 59 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1: 75 ± 5°C O.T.P. TSW2: 85 ± 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
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Constant Current Limiting	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	FAN LOCK TEST	FAN LOCK :POWER OFF FAN UNLOCK :POWER ON	I/P: 230 VAC O/P:FULL LOAD	FAN LOCK :POWER OFF FAN UNLOCK :POWER ON	P
2	FAN SPEED CONTROL	Fan Voltage : NO LOAD: 7.7V ~9.4V 100% LOAD: 11.2V~ 12.2V	I/P: 230 VAC O/P:TESTING Ta:25°C	Fan Voltage: NO LOAD: 7.82 V 100% LOAD: 11.52 V	P
3	REMOTE ON/OFF	ON/OFF~ -S SHORT : POWER ON ON/OFF~ -S OPEN : POWER OFF that is shown in Fig2.1(SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	ON/OFF& -S SHORT : POWER ON ON/OFF& -S OPEN : POWER OFF	P
4	DC OK Signal	Sink current 10mA DC_OK – GND : 0~1V output ON DC_OK – GND : 3.3~5.6V output OFF that is shown in Fig3.1(SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	Output ON : 0 V Output OFF : 5 V	P
5	REMOTE SENSE	>0.5V that is shown in Fig4.1(SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	> 0.5V	P
6	OUTPUT VOLTAGE PROGRAMMABLE(PV)	Adjustment of output voltage is possible between 40 %~110 % of rated output (1)Using external voltage source between Vci ~ -s that is shown in Fig5.1(SPEC) (2)Connecting a resistor externally that in shown in Fig5.2& Fig5.3(SPEC)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	(1) External Voltage 40% Voltage= 2 V 100% Voltage= 5 V (2) External Resistor (A) Fig5.2 40% Voltage=380 Ω 100% Voltage= ∞ Ω (OPEN) (B) Fig5.3 100% Voltage= ∞ Ω (OPEN) 110% Voltage= 6.3 KΩ	P
7	CURRENT SHARING	PSU1-PSU2 < 10% that is shown in Fig6.1(SPEC)	I/P: 230 VAC O/P:FULL/50% LOAD Ta:25°C	O/P:100% PSU1: 1187W PSU2: 1106W PSU3: 1102W O/P:50% PSU1: 594W PSU2: 553W PSU3: 551W	P
8	AUX ILIRY POWER (AUX)	5V @ 0.5A (+5%,-8%)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	5.06 V	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																															
1	TEMPERATURE RISE TEST	MODEL : RSP-1000-24 1. ROOM AMBIENT BURN-IN : 1HRS I/P: 230VAC O/P: FULL LOAD Ta= 29.8℃ 2. HIGH AMBIENT BURN-IN : 2HRS I/P: 230VAC O/P: FULL LOAD Ta= 54.2℃ <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 29.8℃</th><th>HIGH AMBIENT Ta= 54.2℃</th></tr><tr><td>1</td><td>D2</td><td>CSD010060A 10A/600V</td><td>42.0℃</td><td>66.4℃</td></tr><tr><td>2</td><td>TSW1</td><td>ST-75</td><td>36.9℃</td><td>60.4℃</td></tr><tr><td>3</td><td>U1</td><td>IR1150S IR</td><td>33.8℃</td><td>57.2℃</td></tr><tr><td>4</td><td>Q1</td><td>IRFP37N50A 36A/500V IR</td><td>42.5℃</td><td>66.2℃</td></tr><tr><td>5</td><td>BD1</td><td>D25XB60 25A/600V SHI</td><td>48.7℃</td><td>72.3℃</td></tr><tr><td>6</td><td>L2</td><td>TF-1457 LS</td><td>50.4℃</td><td>73.6℃</td></tr><tr><td>7</td><td>LF1</td><td>TR-690</td><td>41.1℃</td><td>65.1℃</td></tr><tr><td>8</td><td>C7</td><td>220U/450V HU 105℃</td><td>34.9℃</td><td>58.5℃</td></tr><tr><td>9</td><td>D901</td><td>BYM26E 2.3A/1KV</td><td>42.3℃</td><td>66.6℃</td></tr><tr><td>10</td><td>T2 COIL</td><td>TF-1458 LS</td><td>40.7℃</td><td>67.5℃</td></tr><tr><td>11</td><td>Q906</td><td>2SK2082 9A/900V FUJI</td><td>52.6℃</td><td>78.8℃</td></tr><tr><td>12</td><td>L100</td><td>TF-1455 LS</td><td>51.6℃</td><td>77.2℃</td></tr><tr><td>13</td><td>D101</td><td>ESAD83-006 60V/30A FUJI</td><td>56.7℃</td><td>81.3℃</td></tr><tr><td>14</td><td>U2</td><td>UCC28220 TI</td><td>39.0℃</td><td>62.8℃</td></tr><tr><td>15</td><td>TSW2</td><td>ST-85</td><td>52.9℃</td><td>77.3℃</td></tr><tr><td>16</td><td>C110</td><td>1000U/35V NCC 105℃ KY</td><td>45.4℃</td><td>70.5℃</td></tr><tr><td>17</td><td>C75</td><td>220U/25V NCC 105℃ KY</td><td>40.5℃</td><td>64.7℃</td></tr><tr><td>18</td><td>T1 COIL</td><td>TF-1452 LS</td><td>44.2℃</td><td>69.3℃</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 29.8℃	HIGH AMBIENT Ta= 54.2℃	1	D2	CSD010060A 10A/600V	42.0℃	66.4℃	2	TSW1	ST-75	36.9℃	60.4℃	3	U1	IR1150S IR	33.8℃	57.2℃	4	Q1	IRFP37N50A 36A/500V IR	42.5℃	66.2℃	5	BD1	D25XB60 25A/600V SHI	48.7℃	72.3℃	6	L2	TF-1457 LS	50.4℃	73.6℃	7	LF1	TR-690	41.1℃	65.1℃	8	C7	220U/450V HU 105℃	34.9℃	58.5℃	9	D901	BYM26E 2.3A/1KV	42.3℃	66.6℃	10	T2 COIL	TF-1458 LS	40.7℃	67.5℃	11	Q906	2SK2082 9A/900V FUJI	52.6℃	78.8℃	12	L100	TF-1455 LS	51.6℃	77.2℃	13	D101	ESAD83-006 60V/30A FUJI	56.7℃	81.3℃	14	U2	UCC28220 TI	39.0℃	62.8℃	15	TSW2	ST-85	52.9℃	77.3℃	16	C110	1000U/35V NCC 105℃ KY	45.4℃	70.5℃	17	C75	220U/25V NCC 105℃ KY	40.5℃	64.7℃	18	T1 COIL	TF-1452 LS	44.2℃	69.3℃	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 110% 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= -20℃	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	± 0.03 %(0~50℃)	I/P: 230 VAC O/P:FULL LOAD	± 0.005 %(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: 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: 9.78 mA I/P-FG: 7.82 mA O/P-FG: 7.46 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: 12 GΩ I/P-FG: 12 GΩ O/P-FG: 11 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	17 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50094068 UL: File NO : R50094068			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 A	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 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 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	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	RSP-1000-24 : SUPPOSE C110 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 1025344 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 172662 HRS			P
2	MTBF	Conducted by Parts Stress Analysis Prediction 313.1K hrs min. Telcordia SR-332 (Bellcore) ; 116.75K hrs min. MIL-HDBK-217F (25°C)			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 50,000 hours @ TA 50°C			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q900 Rated 2SK2082 : 900 V 9A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25℃	(1) 835 V (2) 800 V	P
2	Diode Peak Voltage	D102 Rated ESAD92-02 : 200V 20A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 196 V (2) 109 V	P
3	Clamp Diode Peak Voltage	D900 Rated BYM26E : 1KV 2.3 A	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 820 V	P
4	Input Capacitor Voltage	C5 Rated : 220u / 450V/ 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 Ta:25℃	(1) 381 V (2) 390 V (3) 390 V	P
5	Control IC Voltage Test	U2 Rated UCC28220D : 15 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) 14 V (2) 14.2 V (3) 14 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/8/4	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/11/20	PRODUCT SAMPLE W0609A18	PASS	VINCENT TSENG	MAX LIN
2007/1/5	PRODUCT SAMPLE W0612A26	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023