



# Test Report: RSP-750-15

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750W Single Output Power Supply

## ■ DESIGN VERIFY TEST

Output Function Test  
Input Function Test  
Protection Function Test  
Control Function Test  
Component Stress Test

## ■ SAFETY & E.M.C. TEST

Safety Test  
E.M.C. Test

## ■ RELIABILITY TEST

ENVIRONMENT TEST

## DESIGN VERIFY TEST

### 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°C	V1 : 43 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 13.5 V ~ 16.5 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	12.786 V~ 17.314 V/ 230 VAC 12.786 V~ 17.314 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1 : 1%~-1% (Max)	I/P : 100VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 0.08 %~-0.08 %	P
4	LINE REGULATION	V1 : 0.5%~-0.5% (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.08 %~-0.08 %	P
5	LOAD REGULATION	V1 : 0.5%~-0.5% (Max)	I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C	V1 : 0.04 %~-0.04 %	P
6	SET UP TIME	230VAC : 1000 ms (Max) 115VAC : 1000 ms (Max)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 162 ms 115VAC/ 340 ms	P
7	RISE TIME	230VAC : 50 ms (Max) 115VAC : 50 ms (Max)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 32 ms 115VAC/ 31 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°C	230VAC/ 39 ms 115VAC/ 29 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : <5 %	P
10	DYNAMIC LOAD	V1 : 1500 mVp-p	I/P : 230 VAC (1).O/P : FULL /Min LOAD 90%DUTY/ 1KHZ (2).O/P : FULL /Min LOAD 90%DUTY/ 3KHZ (3).O/P : FULL /Min LOAD 90%DUTY/ 5KHZ (4).O/P : FULL /Min LOAD 50%DUTY/ 120HZ Ta : 25°C	(1)500 mVp-p (2)328 mVp-p (3)260 mVp-p (4)588 mVp-p	P

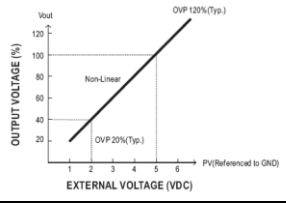
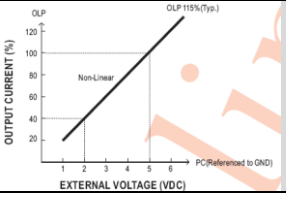
## INPUT FUNCTION TEST

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  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 )	74~264V  TEST : OK	P
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : VAC ~ 264 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.97 / 230 VAC(TYP) 0.98 / 115 VAC(TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.989 / 230 VAC PF= 0.999 / 115 VAC	P
4	EFFICIENCY	89% (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	89.33 %	P
5	INPUT CURRENT	230V/ 3.9 A (TYP) 115V/ 8.9 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I= 3.72 A/ 230 VAC I= 7.56 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= 19 A/ 115 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.86 mA N-FG : 0.74 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	113.8 % / 230 VAC 112.6 % / 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 17V ~ 20.5 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	18.544 / 230 VAC 18.596 / 115 VAC Shut down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC : TSW1 : 80 ± 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 DAM GE CONSTANT CURRENT LIMITING	P

## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																		
1	REMOTE ON/OFF CONTROL	Power on : short between on/off (pin13) & 12V-AUX(pi n14) on CN50 Power off : open between on/off (pin13) & 12-AUX(pi n14) on CN50	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : OK	P																		
2	DC OK SIGNAL	The TTL signal out, PSU turn on = 0 ~ 1V PSU turn off = 3.3 ~ 5.6V	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PSU turn on = 0 V PSU turn off = 5.01 V	P																		
3	OUTPUT VOLTAGE PROGRAMMABLE(PV)		I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	<table border="1"> <thead> <tr> <th>ADJ V</th> <th>2V</th> <th>3V</th> <th>4V</th> <th>5V</th> <th>5.5V</th> </tr> </thead> <tbody> <tr> <td>SPEC</td> <td>40%</td> <td>60%</td> <td>80%</td> <td>100%</td> <td>110%</td> </tr> <tr> <td>TEST</td> <td>40.0%</td> <td>60.3%</td> <td>80.5%</td> <td>100.8</td> <td>110.6</td> </tr> </tbody> </table>	ADJ V	2V	3V	4V	5V	5.5V	SPEC	40%	60%	80%	100%	110%	TEST	40.0%	60.3%	80.5%	100.8	110.6	P
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5	REMOTE SENSE	>0.5V	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	> 0.5	P																		
6	FAN SPEED	FAN Voltage : 0% LOAD 7~9V 100%LOAD 11.5~12.5V	I/P : 230 VAC O/P : 0%~100%LOAD Ta : 25°C	0% LOAD FAN Voltage : 7.876V 100%LOAD FAN Voltage : 12.128V	P																		
7	AUXILIARY POWER	12V@ 0.1 A(±10%)	I/P : 230 VAC O/P : 0%~100%LOAD Ta : 25°C	0% LOAD 12.764 V 100%LOAD 12.326 V	P																		

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) Peak Voltage	Q905 Rated : STP7N95K3 7A/950V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 824 V (2) 812 V (3) 808 V	P
2	Diode Peak Voltage	D101 Rated : PFR30L45CT 30A/45V  Q201 Rated : M6060C 60A/60V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue  O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 29.6 V (2) 24.2 V (3) 28.4 V  (1) 57.6 V (2) 56 V (3) 56.8 V	P
3	Input Capacitor Voltage	C5 Rated : 330u/400V 105°C 30*30 HU SURGE VOLTAGE:450V	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°C	(1) 398 V (2) 382 V (3) 402 V	P
4	Control IC Voltage Test	U901 Rated : UCC28220D 8V~14V	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°C	(1) 12.3 V (2) 12.1 V (3) 12 V	P
5	Power Transistor ( D to S) or (C to E) Peak Voltage	Q 2 Rated : FCP22N60N 22A/600V	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 420 V (2) 406 V (3) 408 V	P

## ■ SAFETY & E.M.C. TEST

### 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°C	I/P-O/P : 9.17 mA I/P-FG : 8.77 mA O/P-FG : 7.07 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 / 70%RH	I/P-O/P : 21 GΩ I/P-FG : 14.9 GΩ O/P-FG : 15.8 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	10 mΩ	P

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS D	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 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				



5	TEMPERATURE COEFFICIENT	$\pm 0.03\%/^{\circ}\text{C}$ (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	$\pm 0\%/^{\circ}\text{C}$ (0~50°C)	P
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		OK	P
7	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 230VAC/Full Load AC ON/OFF TEST turn on 58sec ; turn off 2sec		OK	P
8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 2G (5) Test Time : 60min in each axis (X.Y.Z) (6) Ta : 25°C		TEST : OK	P
9	CAPACITOR LIFE CYCLE	RSP-750-5:SUPPOSE C101 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME		(1) 310177HRS (2) 62120HRS (3) 97472HRS (4) 136903HRS	P
10	MTBF	Conducted by Parts Stress Analysis Prediction 336.9K hrs min. Telcordia SR-332 (Bellcore) ; 109.1K hrs min. MIL-HDBK-217F (25°C)			P
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 50,000 hours @ TA 50°C			P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2012/5/16	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2012/7/11	PRODUCT SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2012/8/7	PRODUCT SAMPLE W1207C22	PASS	SANFORD SU	VINCENT TSENG

2009/08/04 A50-F023