



Test Report: RSP-750-24

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 : 38.4 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 20V ~ 26.4 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	18.779 V ~ 27.526 V / 230 VAC 18.778 V ~ 27.526 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 : 0.05 % ~ -0.05 %	P
4	LINE REGULATION	V1 : 0.5% ~ -0.5% (Max)	I/P : 100VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0 % ~ 0 %	P
5	LOAD REGULATION	V1 : 0.5% ~ -0.5% (Max)	I/P : 230 VAC O/P : FULL ~ MIN LOAD Ta : 25°C	V1 : 0.05 % ~ -0.05 %	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 / 160 ms 115VAC / 350 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 / 28 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 : 2400 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)370 mVp-p (2)314 mVp-p (3)288 mVp-p (4)572 mVp-p	P

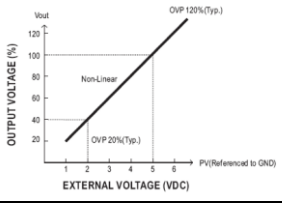
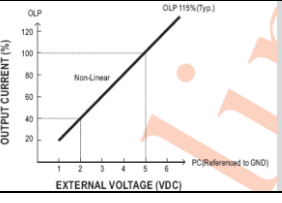
INPUT FUNCTION TEST

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)	75V~264V TEST : OK	P
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : 100 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= 0.990 / 230 VAC PF= 0.999 / 115 VAC	P
4	EFFICIENCY	90.5% (TYP)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	90.5 %	P
5	INPUT CURRENT	230V/ 3.9 A (TYP) 115V/ 8.2 A (TYP)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 3.66 A / 230 VAC I = 7.47 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 = 38 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 : 0.82 mA N-FG : 0.72 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	113.7/230 VAC 112.5/115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1 : 27.6V ~ 32.4 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	29.594 V/ 230 VAC 29.639 V/ 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 DAMAGE 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(pin14) on CN50 Power off : open between on/off (pin13) & 12-AUX(pin14) 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>40.28%</td> <td>60.2%</td> <td>80.52%</td> <td>100.7</td> <td>110.8</td> </tr> </tbody> </table>	ADJ V	2V	3V	4V	5V	5.5V	SPEC	40%	60%	80%	100%	110%	TEST	40.28%	60.2%	80.52%	100.7	110.8	P
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4	OUTPUT CURRENT PROGRAMMABLE(PC)		I/P : 230 VAC O/P : 0%~110% 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>36.7%</td> <td>57.1%</td> <td>77.6%</td> <td>99.5</td> <td>109.9%</td> </tr> </tbody> </table>	ADJ V	2V	3V	4V	5V	5.5V	SPEC	40%	60%	80%	100%	110%	TEST	36.7%	57.1%	77.6%	99.5	109.9%	P
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SPEC	40%	60%	80%	100%	110%																		
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5	REMOTE SENSE	>0.5V	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	> 0.5 V	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 : 8.021V 100%LOAD FAN Voltage : 12.104 V	P																		
7	AUXILIARY POWER	12V@ 0.1 A(±10%)	I/P : 230 VAC O/P : 0%~100%LOAD Ta : 25°C	0% LOAD 12.712 V 100%LOAD 12.271 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) 820 V (2) 800 V (3) 800 V	P
2	Diode Peak Voltage	D101 Rated : M6060C 60A/60V Q201 Rated : V30100S 30A/100V	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) 50.8 V (2) 40 V (3) 48.8 V (1) 89.2 V (2) 87.6 V (3) 88.8 V	P
3	Input Capacitor Voltage	C5 Rated : 330u/400V 105°C 30*30 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°C	(1) 390 V (2) 388 V (3) 394 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) 414 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 : 2KVAC/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 : 9.05 mA I/P-FG : 8.74 mA O/P-FG : 6.76 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 : 15.5 GΩ I/P-FG : 12.2 GΩ O/P-FG : 13.2 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				

RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT			
1	TEMPERATURE RISE TEST	MODEL : RSP-750-24			P			
		1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta=33.6 °C						
		2. HIGH AMBIENT BURN-IN : 6 HRS I/P : 230VAC O/P : FULL LOAD Ta=48.2 °C						
			NO	Position		PART NUMBER	ROOM AMBIENT Ta=33.6 °C	HIGH AMBIENT Ta=48.2 °C
			1	LF1		TR690-R1	42.1°C	58.2°C
			2	C2		105/275VAC 20% P=22.5 R46	41.7°C	57.5°C
			3	BD1		30A/800V SILICON US30KB80R	54.0°C	69.4°C
			4	L2		TF2432	48.4°C	64.1°C
			5	Q2		FCP22N60N 22A/600V	48.0°C	64.3°C
			6	C11		225/450V 10% P=22 MMX	40.0°C	56.9°C
			7	C5		330u/400V 105°C 30*30 HU	37.2°C	52.8°C
			8	T1		TF2419	44.6°C	58.9°C
			9	T2		TF2420	51.9°C	67.0°C
			10	Q901		STP7N95K3 7A/950V	47.4°C	62.2°C
			11	Q906		STP7N95K3 7A/950V	54.7°C	68.6°C
			12	U901		UCC28220D SOIC-16	42.4°C	57.4°C
			13	Q100		V30100S 30A/100V	49.6°C	63.1°C
			14	Q200		V30100S 30A/100V	57.7°C	71.5°C
			15	D101		M6060C 60A/60V	58.2°C	72.3°C
			16	D900		BYV26EGP 1A/1KV DO-204AC	44.1°C	58.3°C
			17	D70		ST02D-170 AX078 T-52mm	46.3°C	61.5°C
			18	C75		220u/25V UL7Kh 8*11.5 KY	41.5°C	56.8°C
			19	T3		TF2431	43.1°C	58.0°C
			20	C320		100u/25V L5Kh 6.3*11 KY	43.3°C	58.2°C
			21	C301		1500u/16V UL10Kh 10*20 ZLH	42.1°C	57.0°C
			22	C161		470u/25V UL7Kh 8*20 KY	42.1°C	56.8°C
			23	L100		TF2428	51.2°C	66.0°C
	24	C110	1000u/35V UL10Kh 12.5*25 KY	47.1°C	61.7°C			
	25	TSW1	BW-DCP-R0 80°C 105mm HH (H110)	41.4°C	57.2°C			
	26	TSW2	BW-DCP-R0 85°C 60mm HH (H110)	53.3°C	67.4°C			
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 119 % LOAD Ta : 25°C	TEST : OK	P			
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC O/P : 100 % LOAD Ta= -35 °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	± 0.03 %/°C (0~50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0 %/°C (0~50°C)	P			

6	STORAGE TEMPERATURE TEST	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<p>1 Carton & 1 Set</p> <ol style="list-style-type: none"> (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	<p>RSP-750-24:SUPPOSE C110 IS THE MOST CRITICAL COMPONENT</p> <ol style="list-style-type: none"> (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 	<ol style="list-style-type: none"> (1) 1205160HRS (2) 213000HRS (3) 277200HRS (4) 320640HRS 	P
10	MTBF	<p>Conducted by Parts Stress Analysis Prediction</p> <p>336.9K hrs min. Telcordia SR-332 (Bellcore) ; 109.1K hrs min. MIL-HDBK-217F (25°C)</p>		P
11	DMTBF/Accelerated Life Test	<p>Demonstration Mean Time Between Failure : Above 50,000 hours @ TA 50°C</p>		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