

MODEL : RS-15-24

### OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:200 mVp-p (Max )	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 80 mVp-p	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1:22 V-27.6V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	20.61 V- 29.75 V/ 230 VAC 20.61 V- 29.75 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 %- -1% (Max)	I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.3 %- -0.3 %	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 100VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.11 %- -0.11 %	P
5	LOAD REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.29 %- -0.29 %	P
6	SET UP TIME	230VAC: 1000 ms (Max) 115 VAC: 1000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 16 ms 115VAC/ 15 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°C	230VAC/ 15 ms 115VAC/ 15 ms	P
8	HOLD UP TIME	230VAC: 70 ms (TYP) 115VAC: 15 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 94 ms 115VAC/ 20.6 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 O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	201 mVp-p	P

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	85VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	53V~264V	P
			I/P: LOW-LINE-3V= 82 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: 85 VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	82 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	83.2 %	P
4	INPUT CURRENT	230V/ 0.25 A (TYP) 115V/ 0.35 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.19 A/ 230 VAC I = 0.29 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 65 A (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 58 A/ 230 VAC	P
		COLD START			
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.06 mA N-FG: 0.06 mA	P

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	Above 105%	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	174 %/ 230 VAC 142 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 28.4V~ 32.4V	O/P:DC SOURCE Ta:25°C	31 V/ 50mA Shut off o/p voltage ,clamping by zener diode	P
3	OVER TEMPERATURE PROTECTION	SPEC: U1 Tj140°C typically detect on main control IC 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 Hiccup Mode	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : RS-15-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 28.8°C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P: 230VAC O/P: FULL LOAD Ta= 48.2°C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 120% LOAD Ta:25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100% LOAD Ta= -20°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 %(0-50°C)	I/P: 230 VAC O/P: FULL LOAD	± 0.005 %(0-50°C)	P
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency: 10-500Hz (3) Sweep Time: 10min/sweep cycle (4) Acceleration: 5G (5) Test Time: 1 hour in each axis (X.Y.Z) (6) Ta: 25°C		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: 1.73 mA I/P-FG: 0.85 mA O/P-FG: 0.52 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: 7 GΩ I/P-FG: 1.8 GΩ O/P-FG: 9 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C / 70%RH	7 mΩ	P
4	APPROVAL	TUV: Certificate NO : R 50111751 UL: File NO : E183223			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 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 LIGHT 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 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	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°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	RS-15-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25°C LIFE TIME= 198740 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50°C LIFE TIME= 39794 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 1608.8K HRS			P

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	U1 Rated TNY279PN : 700V 1.2 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Output Short Ta:25°C	(1) 660 V (2) 656 V	P
2	Diode Peak <b>Voltage</b>	D100 Rated FCF10A40 10A/400V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25°C	(1) 190 V (2) 181 V	P
3	Clamp Diode Peak <b>Voltage</b>	D1 Rated FR107 1A/1KV	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 628 V	P
4	<b>Input Capacitor Voltage</b>	C5 Rated 33u/400V 105°C/	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) 380 V (2) 384 V (3) 384 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/6/1	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/7/6	PRODUCT SAMPLE W0706C14	PASS	VINCENT TSENG	MAX LIN
2007/8/30	PRODUCT SAMPLE W0708C17	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023