MODEL：RS-15-15

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1:120 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25℃	V1: 52 mVp-p	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1:13.5 V~16.5V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	12.48 V~ 18.95 V/ 230 VAC 12.48 V~ 18.95 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℃	V1: 0.15 %~ -0.15 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 100VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0.04 %~ -0.04 %	P
5	LOAD REGULATION	V1: 0.5 %~-0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: 0.12 %~ -0.12 %	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℃	230VAC/ 9 ms 115VAC/ 9 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℃	230VAC/ 8 ms 115VAC/ 8 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℃	230VAC/ 92 ms 115VAC/ 19.9 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 1500 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	122 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	85VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25℃	56V~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℃	TEST: OK	P
3	EFFICIENCY	81 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	81.37 %	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℃	I = 0.21 A/ 230 VAC I = 0.3 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 65 A (TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	I = 55 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 264 VAC O/P:Min LOAD Ta:25℃	L-FG: 0.08 mA N-FG: 0.08 mA	P
7	No load power consumption	<0.5W	I/P: 230VAC O/P:NO LOAD Ta:25℃	0.3W	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	Above 105%	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25℃	168 %/ 230 VAC 140 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 17.25V~ 20.25V	O/P:DC SOURSE Ta:25℃	18.5 V/ 60mA Shut off o/p voltage ,clamping by zener diode	P
3	OVER TEMPERATURE PROTECTION	SPEC: U1 Tj140℃ 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℃	NO DAMAGE Hiccup Mode	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：RS-15-24
1. ROOM AMBIENT BURN-IN：2 HRS
I/P: 230VAC O/P: FULL LOAD Ta= 28.8℃
2. HIGH AMBIENT BURN-IN：3 HRS
I/P: 230VAC O/P: FULL LOAD Ta= 48.2℃

<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 28.8 ℃</th><th>HIGH AMBIENT Ta= 48.2 ℃</th></tr>
<tr><td>1</td><td>U1</td><td>TNY279PN</td><td>79.7℃</td><td>97.2℃</td></tr>
<tr><td>2</td><td>D1</td><td>FR107 1A/1KV</td><td>70.9℃</td><td>88.0℃</td></tr>
<tr><td>3</td><td>ZD1</td><td>P6KE250A</td><td>67.2℃</td><td>84.2℃</td></tr>
<tr><td>4</td><td>C5</td><td>33U/400V 105℃ KMG</td><td>52.4℃</td><td>70.0℃</td></tr>
<tr><td>5</td><td>BD1</td><td>KBP208G 2A/800V</td><td>59.4℃</td><td>76.9℃</td></tr>
<tr><td>6</td><td>LF1</td><td>LF-510</td><td>56.8℃</td><td>75.2℃</td></tr>
<tr><td>7</td><td>T1 COIL</td><td>TF-1644</td><td>74.2℃</td><td>91.3℃</td></tr>
<tr><td>8</td><td>C105</td><td>220U/35V 105℃ YXG</td><td>57.9℃</td><td>75.5℃</td></tr>
<tr><td>9</td><td>D100</td><td>FCF10A40 10A/400V</td><td>72.9℃</td><td>89.6℃</td></tr>
<tr><td>10</td><td>PCB</td><td>TI 與 C105 間</td><td>64.2℃</td><td>81.4℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P: 230 VAC
O/P: 120% LOAD
Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P: 230 VAC
O/P: 100% LOAD
Ta= -20℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50℃
NO DAMAGE</td><td>I/P: 272 VAC
O/P:FULL LOAD
Ta= 50℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.03 %(0~50℃)</td><td>I/P: 230 VAC
O/P:FULL LOAD</td><td>± 0.005 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">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℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

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℃	I/P-O/P: 1.7 mA I/P-FG: 0.82 mA O/P-FG: 0.5 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: 5 GΩ I/P-FG: 1.5 GΩ O/P-FG: 5 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃ / 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℃	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 B	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	RS-15-24 : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25℃ LIFE TIME= 198740 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50℃ LIFE TIME= 39794 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 1608.8 KHRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure : Above 30,000 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**	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℃	(1) 664 V (2) 628 V	P
2	Diode Peak **Voltage**	D100 Rated BYQ28X-200 10A/200V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short Ta:25℃	(1) 113 V (2) 101 V	P
3	Clamp Diode Peak **Voltage**	D1 Rated FR107 1A/1KV	I/P:High-Line +3V = 267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 640 V	P
4	**Input Capacitor Voltage**	C5 Rated 33u/400V 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) 382 V (2) 382 V (3) 382 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