

MODEL : RS-150-3.3
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 27 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 3.2 V~ 3.5 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	3.02V~ 3.58 V/ 230VAC 3.02V~ 3.58 V/ 115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -3 %~ 3 % (Max)	I/P: 176 VAC / 264 VAC O/P:FULL/ 0 % LOAD Ta:25°C	V1: 0.4 %~ -0.4 %	P
4	LINE REGULATION	V1:-0.5 %~ 0.5 % (Max)	I/P: 176 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 %	P
5	LOAD REGULATION	V1: -2 %~ 2 % (Max)	I/P:230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.2 %~ -0.4 %	P
6	SET UP TIME	230 VAC/800 ms (Max) 115 VAC/1200 ms (Max)	I/P:230 VAC I/P:115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 601 ms 115VAC/ 446 ms	P
7	RISE TIME	230 VAC/20 ms (Max) 115 VAC/30 ms (Max)	I/P:230 VAC I/P:115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 1 ms 115 VAC/ 1 ms	P
8	HOLD UP TIME	230 VAC/ 20 ms (Min) 115 VAC/ 10 ms (Min)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 45 ms 115VAC/ 17 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: 660 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	208 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	176VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	109 V~ 264 V	P
			I/P: LOW-LINE-3V= 173 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	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 176 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	75 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	74.4 %	P
4	INPUT CURRENT	230 V/ 2 A (Max) 115 V/ 3 A (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 1.2 A/ 230 VAC I = 2.1 A/ 115 VAC	P
5	INRUSH CURRENT	230 V/ 50 A (Max) COLD START	I/P:230 VAC O/P:FULL LOAD Ta:25°C	I = 34 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P:254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.46 mA N-FG: 0.5 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 %~ 150 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta:25℃	118 %/ 230 VAC 118 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 3.8 V~ 4.45 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25℃	3.98 V/ 230 VAC 3.98 V/ 115 VAC Hiccup Model	P
3	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

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : RS-150-5 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 24.7 °C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 50.9 °C <table><thead><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta=24.7 °C</th><th>HIGH AMBIENT Ta= 50.9 °C</th></tr></thead><tbody><tr><td>1</td><td>LF1</td><td>TF-096B LS</td><td>47.0°C</td><td>72.1°C</td></tr><tr><td>2</td><td>BD1</td><td>KBJ608G 6A/800V LT</td><td>70.5°C</td><td>94.5°C</td></tr><tr><td>3</td><td>C5</td><td>330U/200V RUB 105°C</td><td>65.9°C</td><td>86.9°C</td></tr><tr><td>4</td><td>R2</td><td>150K/2W R/MO</td><td>105.6°C</td><td>123.0°C</td></tr><tr><td>5</td><td>T1 CORE</td><td>TF-1055 LS</td><td>77.1°C</td><td>99.3°C</td></tr><tr><td>6</td><td>T1 COIL</td><td>TF-1055 LS</td><td>89.1°C</td><td>110.1°C</td></tr><tr><td>7</td><td>D61</td><td>D83004 30A/40V FUJI</td><td>94.4°C</td><td>116.8°C</td></tr><tr><td>8</td><td>ZD2</td><td>15V/1W</td><td>81.0°C</td><td>96.4°C</td></tr><tr><td>9</td><td>ZD1</td><td>P6KE300A PAN</td><td>87.2°C</td><td>99.3°C</td></tr><tr><td>10</td><td>D4</td><td>HER208 2A/1KV REC</td><td>77.9°C</td><td>98.6°C</td></tr><tr><td>11</td><td>Q1</td><td>2SK2082 9A/800V FUJI</td><td>69.3°C</td><td>94.2°C</td></tr><tr><td>12</td><td>D60</td><td>D83004 30A/40V FUJI</td><td>95.3°C</td><td>118.1°C</td></tr><tr><td>13</td><td>C10</td><td>100U/35V RUB 105°C YXF</td><td>72.3°C</td><td>94.7°C</td></tr><tr><td>14</td><td>C64</td><td>2200U/16V RUB 105°C</td><td>80.9°C</td><td>101.2°C</td></tr><tr><td>15</td><td>L60</td><td>TR-408</td><td>96.8°C</td><td>119.4°C</td></tr></tbody></table>			NO	Position	P/N	ROOM AMBIENT Ta=24.7 °C	HIGH AMBIENT Ta= 50.9 °C	1	LF1	TF-096B LS	47.0°C	72.1°C	2	BD1	KBJ608G 6A/800V LT	70.5°C	94.5°C	3	C5	330U/200V RUB 105°C	65.9°C	86.9°C	4	R2	150K/2W R/MO	105.6°C	123.0°C	5	T1 CORE	TF-1055 LS	77.1°C	99.3°C	6	T1 COIL	TF-1055 LS	89.1°C	110.1°C	7	D61	D83004 30A/40V FUJI	94.4°C	116.8°C	8	ZD2	15V/1W	81.0°C	96.4°C	9	ZD1	P6KE300A PAN	87.2°C	99.3°C	10	D4	HER208 2A/1KV REC	77.9°C	98.6°C	11	Q1	2SK2082 9A/800V FUJI	69.3°C	94.2°C	12	D60	D83004 30A/40V FUJI	95.3°C	118.1°C	13	C10	100U/35V RUB 105°C YXF	72.3°C	94.7°C	14	C64	2200U/16V RUB 105°C	80.9°C	101.2°C	15	L60	TR-408	96.8°C	119.4°C	P
NO	Position	P/N	ROOM AMBIENT Ta=24.7 °C	HIGH AMBIENT Ta= 50.9 °C																																																																																	
1	LF1	TF-096B LS	47.0°C	72.1°C																																																																																	
2	BD1	KBJ608G 6A/800V LT	70.5°C	94.5°C																																																																																	
3	C5	330U/200V RUB 105°C	65.9°C	86.9°C																																																																																	
4	R2	150K/2W R/MO	105.6°C	123.0°C																																																																																	
5	T1 CORE	TF-1055 LS	77.1°C	99.3°C																																																																																	
6	T1 COIL	TF-1055 LS	89.1°C	110.1°C																																																																																	
7	D61	D83004 30A/40V FUJI	94.4°C	116.8°C																																																																																	
8	ZD2	15V/1W	81.0°C	96.4°C																																																																																	
9	ZD1	P6KE300A PAN	87.2°C	99.3°C																																																																																	
10	D4	HER208 2A/1KV REC	77.9°C	98.6°C																																																																																	
11	Q1	2SK2082 9A/800V FUJI	69.3°C	94.2°C																																																																																	
12	D60	D83004 30A/40V FUJI	95.3°C	118.1°C																																																																																	
13	C10	100U/35V RUB 105°C YXF	72.3°C	94.7°C																																																																																	
14	C64	2200U/16V RUB 105°C	80.9°C	101.2°C																																																																																	
15	L60	TR-408	96.8°C	119.4°C																																																																																	
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 117%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= -25 °C	TEST : OK	P																																																																																
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 40°C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 40°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(0~50°C)	P																																																																																
6	VIBRATION TEST	1 Set Operating at I/P: 230 VAC NO LOAD (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: 4.2 mA I/P-FG: 3.44 mA O/P-FG: 2.8 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: 10GΩ I/P-FG: 7 GΩ O/P-FG: 8 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	8 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50046942 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 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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C64 IS THE MOST CRITICAL COMPONENT I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 38043 HRS I/P: 230 VAC O/P:FULL LOAD Ta= 40 °C LIFE TIME= 20226 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 244K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 2SK2082 : 800V/ 9 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 544 V (2) 684 V (3) 704 V	P
2	Diode Peak Voltage	D60 Rated D83-004 : 40 V/ 30 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 18.1 V (2) 17.9 V (3) 18.2 V	P
3	Clamp Diode Peak Voltage	D1 Rated HER208 :1K V / 2 A	I/P:High-Line +3V =267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 666 V (2) 666 V	P
4	Input Capacitor Voltage	C5 Rated : 330u /200 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°C	(1) 191 V (2) 190 V (3) 189 V	P
5	Control IC Voltage Test	U1 Rated 1203 : 16 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°C	(1) 15.3 V (4) 15.3 V (5) 15.3 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/3/19	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2004/7/8	PRODUCT SAMPLE A404B34	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023