MODEL：RQ-85D

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 80 mVp-p (Max) V2:120 mVp-p (Max) V3: 150 mVp-p (Max) V4: 80 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	V1: 14 mVp-p (Max) V2: 16 mVp-p (Max) V3: 99 mVp-p (Max) V4: 5 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75V ~ 5.5V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	4.67V~ 5.57 V/ 230VAC 4.67V~ 5.57 V/ 115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -2 %~ 2 % (Max) V2:-3 %~ +7 % (Max) V3: -8 %~ 8 % (Max) V4:-5 %~ 5 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN 40 % LOAD Ta:25℃	V1: 0.2 %~ -0.2 % V2: 1.5 %~ -1.5 % V3: 2 %~ -2 % V4: 0.2 %~ -0.2 %	P
4	LINE REGULATION	V1:-0.5 %~ 0.5 % (Max) V2:-1 %~1 % (Max) V3: -1 %~ 1 % (Max) V4:-1 %~ 1 % (Max)	I/P: 115 VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0 %~ 0 % V2: 0.05 %~ -0.05 % V3: 0.1 %~ -0.1 % V4: 0 %~ 0 %	P
5	LOAD REGULATION	V1: -1 %~ 1 % (Max) V2:-3 %~3 % (Max) V3: -5 %~ 5 % (Max) V4:-2 %~ 2 % (Max)	I/P:230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: 0.2 %~ -0.2 % V2: 0.7 %~ -0.7 % V3: 1.5 %~ -1.5 % V4: 0.2 %~ -0.2 %	P
6	CROSS REGULATION	V1: -1 %~ 1 % (Max) V2:-3 %~ 3 % (Max) V3: -5 %~ 5 % (Max) V4:-2 %~ 2 % (Max)	I/P:230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25℃	V1: 0.2 %~ -0.2 % V2: 1.5 %~ -1.5 % V3: 2 %~ -2 % V4: 0 %~ 0 %	P
7	SET UP TIME	230 VAC/500 ms (Max) 115 VAC/1200 ms (Max)	I/P:230 VAC I/P:115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 172 ms 115VAC/ 561 ms	P
8	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℃	230VAC/ 9 ms 115VAC/ 9 ms	P
9	HOLD UP TIME	230 VAC/ 50 ms (TYP) 115 VAC/ 10 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 127 ms 115VAC/ 26 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: <5 %	P
11	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	84 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	88VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25℃	58 V~ 264 V	P
			I/P: LOW-LINE-3V= 85 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: 88 VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25℃	TEST: OK	P
3	EFFICIENCY	78 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	78.8 %	P
4	INPUT CURRENT	230 V/ 1.5 A (TYP) 115 V/ 2.5 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	I = 1.1 A/ 230 VAC I = 1.7 A/115 VAC	P
5	INRUSH CURRENT	230 V/ 40 A(TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	I = 33A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25℃	L-FG: 0.5 mA N-FG: 0.5 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 %~ 150 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25℃	119%/230VAC 118%/115VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 5.75 V~ 6.75 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	5.87V/ 230 VAC 5.87V/ 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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</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：RQ-85D
1. ROOM AMBIENT BURN-IN：60 HRS
I/P: 230 VAC O/P: FULL LOAD Ta= 31.4 ℃
2. HIGH AMBIENT BURN-IN：2 HRS
I/P: 230 VAC O/P: FULL LOAD Ta= 35.3 ℃

<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 31.4 ℃</th><th>HIGH AMBIENT Ta= 35.3 ℃</th></tr>
<tr><td>1</td><td>LF1</td><td>LF-058</td><td>76.0℃</td><td>76.7℃</td></tr>
<tr><td>2</td><td>BD1</td><td>D3SB80 4A/800V SHI</td><td>77.2℃</td><td>77.7℃</td></tr>
<tr><td>3</td><td>ZD1</td><td>P6KE300A</td><td>84.9℃</td><td>85.6℃</td></tr>
<tr><td>4</td><td>C5</td><td>150U/400V HU4 105℃</td><td>66.6℃</td><td>67.9℃</td></tr>
<tr><td>5</td><td>D1</td><td>HER208 2A/1KV REC</td><td>83.9℃</td><td>84.4℃</td></tr>
<tr><td>6</td><td>U1</td><td>1203 ON</td><td>81.5℃</td><td>82.7℃</td></tr>
<tr><td>7</td><td>Q1</td><td>2SK2082 9A/800V FUJI</td><td>82.2℃</td><td>82.3℃</td></tr>
<tr><td>8</td><td>C10</td><td>100U/35V RUB 105℃ YXF</td><td>77.5℃</td><td>78.6℃</td></tr>
<tr><td>9</td><td>T1 COIL</td><td>TF-1053 LS</td><td>91.4℃</td><td>91.6℃</td></tr>
<tr><td>10</td><td>D55</td><td>FMX-12S 10A/200V</td><td>93.9℃</td><td>95.3℃</td></tr>
<tr><td>11</td><td>D60</td><td>MBR3060PT 25A/60V GI</td><td>92.2℃</td><td>93.2℃</td></tr>
<tr><td>12</td><td>L60</td><td>TR399</td><td>94.1℃</td><td>95.3℃</td></tr>
<tr><td>13</td><td>D50</td><td>FMX-12S 10A/200V</td><td>89.3℃</td><td>90.9℃</td></tr>
<tr><td>14</td><td>C62</td><td>2200U/16V NCC 105℃ KY</td><td>74.5℃</td><td>75.0℃</td></tr>
<tr><td>15</td><td>C56</td><td>1000U/35V NCC 105℃ KY</td><td>69.2℃</td><td>70.1℃</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: 119 % 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= -25 ℃</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 35 ℃
NO DAMAGE</td><td>I/P: 272 VAC
O/P:FULL LOAD
Ta= 35 ℃
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>± 0.01 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">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℃</td><td>TEST： OK</td><td>P</td></tr>
</table>

SAFETY TEST

NO	TEST ITEM	SPECICATION	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: 4.8 mA I/P-FG: 4.3 mA O/P-FG: 2.65 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℃	I/P-O/P: 2G Ω I/P-FG: 3G Ω O/P-FG: 1G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25℃	6 mΩ	P
4	APPROVAL	TUV: Cerificate NO ：R50045826 UL: File NO ：E183223			P

E.M.C TEST

NO	TEST ITEM	SPECICATION	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	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 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 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	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℃	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 C 62 IS THE MOST CRITICAL COMPONENT I/P: 230 VAC O/P:FULL LOAD Ta=25 ℃ LIFE TIME= 158405 HRS I/P: 230 VAC O/P:FULL LOAD Ta=35 ℃ LIFE TIME= 100245 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 206.8K 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**	Q 1 Rated 2SK2082 : 800 V 9 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 410 V (2) 532 V (3) 640 V	P
2	Diode Peak **Voltage**	D 60 Rated MBR3060PT : 60 V 30 A D 55 Rated BYQ28X-200 : 200V 10 A D52 Rated BYQ28X-200: 200V 10 A D 52 Rated HER303 : 200 V 3 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short (1)Full Load Turn on (2) Full Load (3)Output Short (1)Full Load Turn on (2) Full Load (3)Output Short (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 51 V (2) 47.8 V (3) 55.8 V (1) 96.4 V (2) 72 V (3) 96.4 V (1) 195 V (2) 178 V (3) 195 V (1)152 V (2)147 V (3)152 V	P
3	Clamp Diode Peak **Voltage**	D 1 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℃	(1) 520 V (2) 536 V	P
4	**Input Capacitor Voltage**	C 5 Rated : 150 u / 400 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Min load (3)Full Load /Min load Change Ta:25℃	(1) 394 V (2) 378 V (3) 378 V	P
5	**Control IC Voltage Test**	U 1 Rated 1203 : 16 V	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Min load (3)Full Load /Min load Change (4) Output Short Ta:25℃	(1) 12.9 V (2) 12.8 V (3) 10.9 V (4) 13.1 V	P

ATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2003/12/30	RD SMAPLE	PASS	VINCENT TSENG	MAX LIN
2004/7/22	PRODUCT SAMPLE A404B36	PASS	VINCENT TSENG	MAX LIN
2004/8/19	PRODUCT SAMPLE A408A15	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023