

MODEL : RQ-50D

**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: 180 mVp-p (Max) V4: 80 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 17 mVp-p (Max) V2: 13 mVp-p (Max) V3: 16 mVp-p (Max) V4: 14 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75V~ 5.5 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	4.45V~ 5.89 V/ 230VAC 4.45V~ 5.89 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -2 %~ 2 % (Max) V2: -6 %~ 6 % (Max) V3: -5 %~ 7 % (Max) V4: -2 %~ 2 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN 40 % LOAD Ta:25°C	V1: 0.25 %~ -0.25 % V2: 3 %~ -3 % V3: 3.7 %~ -3.7 % V4: 0.05 %~ -0.05 %	P
4	LINE REGULATION	V1: -0.5%~ -0.5 % (Max) V2: -1.5%~ 1.5 % (Max) V3: -2 % ~ 2 % (Max) V4: -0.5%~ 0.5 % (Max)	I/P: 115 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0 % V2: 1.3 %~ -0.2 % V3: 0.9 %~ -0.1 % V4: 0.05 %~ -0.05 %	P
5	LOAD REGULATION	V1: -0.5 %~ 0.5 % (Max) V2: -3 %~ 3 % (Max) V3: -3 %~ 3 % (Max) V4: -1 %~ 1 % (Max)	I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.15 %~ -0.15 % V2: 1.2 %~ -1.2 % V3: 0.9 %~ -0.9 % V4: 0.05 %~ -0.05 %	P
6	CROSS REGULATION	V1: -0.5 %~ 0.5 % (Max) V2: -3 %~ 3 % (Max) V3: -3 %~ 3 % (Max) V4: -1 %~ 1 % (Max)	I/P: 230 VAC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 0.15 %~ -0.15 % V2: 2.6 %~ -2.6 % V3: 2.3 %~ -2.3 % V4: 0.05 %~ -0.05 %	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°C	230 VAC/ 192 ms 115 VAC/ 659 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°C	230 VAC/ 12 ms 115 VAC/ 13 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°C	230 VAC/ 70 ms 115 VAC/ 13.7 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
11	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	74 mVp-p	P

**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	88VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	62 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°C	TEST: OK	P
3	EFFICIENCY	79 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	80 %	P
4	INPUT CURRENT	230 V/ 0.8 A(TYP) 115 V/ 1.3 A(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.65 A/ 230 VAC I = 1.1 A/ 115 VAC	P
5	INRUSH CURRENT	230 V/ 36 A (TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	I = 28 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA/ 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.3 mA N-FG: 0.3 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°C	137 %/ 230 VAC 133 %/ 115 VAC 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°C	6.1V/ 230 VAC 6.1 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°C	NO DAMAGE Hiccup Mode	P

**ENVIRONMENT TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : RQ-50C 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 230 VAC O/P: FULL LOAD Ta=30.9 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 44.1 °C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 128% LOAD Ta:25°C	TEST : OK	P
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230VAC 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 45 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 45 °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: 4.25 mA I/P-FG: 3.41 mA O/P-FG: 2.62 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: 4G Ω I/P-FG: 4G Ω O/P-FG: 2G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	6 mΩ	P
4	APPROVAL	TUV: Certificate NO : R50046939 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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C 56 IS THE MOST CRITICAL COMPONENT	I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 85015 HRS I/P: 230 VAC O/P:FULL LOAD Ta= 45 °C LIFE TIME= 25586 HRS		P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 162.9K 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>	Q 1 Rated 2SK2628: 600 V 6 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) 426 V (2) 518 V (3) 578 V	P
2	Diode Peak <b>Voltage</b>	D 55 Rated MBR1545 :45 V 15 A  D 50 Rated BYQ20X-200 : 200 V 10 A  D 56 Rated HER305 : 400V 3 A  D 58 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°C	(1) 34.4 V (2) 39.4 V (3) 35 V  (1) 46.8 V (2) 53.2 V (3) 54.2 V  (1) 153 V (2) 179 V (3) 250 V  (1) 85 V (2) 96 V (3) 159 V	P
3	Clamp Diode Peak <b>Voltage</b>	D 1 Rated EGP20J: 600 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) 512 V (2) 518 V	P
4	<b>Input Capacitor Voltage</b>	C 5 Rated RUBYCON : 100 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°C	(1) 396 V (2) 398 V (3) 382 V	P
5	<b>Control IC Voltage Test</b>	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 Ta:25°C	(1) 13.3 V (2) 13.3 V (3) 10.7 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2004/3/2	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2004/6/17	PRODUCT SAMPLE A403C24	PASS	VINCENT TSENG	MAX LIN
2004/11/3	PRODUCT SAMPLE W0410B13	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023