

MODEL : RT-50D

OUTPUT FUNCTION TEST

| NO | TEST ITEM                   | SPECICATION   | TEST CONDITION   | RESULT  | VERDICT |
|----|-----------------------------|---|--|---|---------|
| 1  | RIPPLE & NOISE              | V1: 80 mVp-p (Max)<br>V2: 150 mVp-p (Max)<br>V3: 120 mVp-p (Max)      | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C   | V1: 18 mVp-p (Max)<br>V2: 26 mVp-p (Max)<br>V3: 7 mVp-p (Max)   | P       |
| 2  | OUTPUT VOLTAGE ADJUST RANGE | CH1: 4.75 V-5.5 V   | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:MIN LOAD<br>Ta:25°C                            | 4.55V~ 5.8 V/230VAC<br>4.55V~ 5.8 V/115VAC                      | P       |
| 3  | OUTPUT VOLTAGE TOLERANCE    | V1: -2%~ +2 % (Max)<br>V2: -4%~ +8 % (Max)<br>V3: -6%~ +6 % (Max)     | I/P: 115 VAC / 264 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                 | V1: 0.38%~ 0 %<br>V2: 3.15%~ -1.84 %<br>V3: 3.75%~ -3.7 %       | P       |
| 4  | LINE REGULATION             | V1: -0.5%~ +0.5 % (Max)<br>V2: -2%~ +2 % (Max)<br>V3: -2%~ +2 % (Max) | I/P: 115 VAC ~ 264 VAC<br>O/P:FULL LOAD<br>Ta:25°C                                 | V1: -0.12%~ 0 %<br>V2: -0.08%~ -0.63 %<br>V3: -0.05%~ -0.68 %   | P       |
| 5  | LOAD REGULATION             | V1: -1%~ +1 % (Max)<br>V2: -3%~ +3 % (Max)<br>V3: -4%~ +4 % (Max)     | I/P: 230 VAC<br>O/P:FULL -MIN LOAD<br>Ta:25°C                                      | V1: -0.24%~ -0.24 %<br>V2: 0.29%~ -0.66 %<br>V3: 0.42%~ -0.74 % | P       |
| 6  | CROSS REGULATION            | V1: -1%~ +1 % (Max)<br>V2: -3%~ +3 % (Max)<br>V3: -4%~ +4 % (Max)     | I/P: 230 VAC<br>O/P: Testing O/P 60%LOAD<br>Other O/P 40%LOAD<br>Change<br>Ta:25°C | V1: -0.12%~ 0 %<br>V2: 1.26%~ -1.08 %<br>V3: 1.48%~ -1.54 %     | P       |
| 7  | SET UP TIME                 | 230 VAC/ 500 ms (Max)<br>115 VAC/ 1200 ms (Max)                       | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 57 ms<br>115 VAC/ 57 ms                                | P       |
| 8  | RISE TIME                   | 230VAC/ 20ms (Max)<br>115VAC/ 30 ms (Max)                             | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 13 ms<br>115 VAC/ 13 ms                                | P       |
| 9  | HOLD UP TIME                | 230 VAC/ 50 ms (TYP)<br>115 VAC/ 10 ms(TYP)                           | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C                           | 230 VAC/ 72 ms<br>115 VAC/ 13 ms                                | P       |
| 10 | OVER/UNDERSHOOT TEST        | < ±5%   | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C   | TEST: <5 %  | P       |
| 11 | DYNAMIC LOAD                | V1: 1000 mVp-p  | I/P: 230 VAC<br>O/P:FULL /Min LOAD<br>90%DUTY/1KHZ<br>Ta:25°C                      | 85 mVp-p  | P       |

**INPUT FUNCTION TEST**

| NO | TEST ITEM             | SPECICATION                              | TEST CONDITION  | RESULT                                     | VERDICT |
|----|-----------------------|--|---|--|---------|
| 1  | INPUT VOLTAGE RANGE   | 88VAC~264 VAC                            | I/P:TESTING<br>O/P:FULL LOAD<br>Ta:25°C   | 70 V~ 264 V                                | P       |
|    |                       |  | I/P:<br>LOW-LINE-3V=85 V<br>HIGH-LINE+15%=300 V<br>O/P:FULL/MIN LOAD<br>ON: 30 Sec . OFF: 30 Sec 10MIN<br>( AC POWER ON/OFF NO DAMAGE ) | TEST: OK                                   |         |
| 2  | INPUT FREQUENCY RANGE | 47 HZ ~63 HZ<br>NO DAMAGE OSC            | I/P: 88 VAC ~ 264 VAC<br>O/P:FULL-MIN LOAD<br>Ta:25°C   | TEST: OK                                   | P       |
| 3  | EFFICIENCY            | 80 % (TYP)                               | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C  | 80.25 %                                    | P       |
| 4  | INPUT CURRENT         | 230 V/ 0.8 A (TYP)<br>115 V/ 1.3 A (TYP) | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:FULL LOAD<br>Ta:25°C  | I = 0.58 A/ 230 VAC<br>I = 0.93 A/ 115 VAC | P       |
| 5  | INRUSH CURRENT        | 230 V/36 A (TYP)<br>COLD START           | I/P: 230 VAC<br>O/P:FULL LOAD<br>Ta:25°C  | I = 24 A/ 230 VAC                          | P       |
| 6  | LEAKAGE CURRENT       | < 2 mA / 240 VAC                         | I/P: 254 VAC<br>O/P:Min LOAD<br>Ta:25°C   | L-FG: 0.4 mA<br>N-FG: 0.4 mA               | P       |

**PROTECTION FUNCTION TEST**

| NO | TEST ITEM               | SPECICATION                            | TEST CONDITION  | RESULT   | VERDICT |
|----|-------------------------|--|---|--|---------|
| 1  | OVER LOAD PROTECTION    | 110 %- 150 %                           | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:TESTING<br>Ta:25°C  | 1118 %/230VAC<br>115 %/115VAC<br>Hiccup Mode       | P       |
| 2  | OVER VOLTAGE PROTECTION | CH1: 5.75 V~ 6.75 V                    | I/P: 230 VAC<br>I/P: 115 VAC<br>O/P:MIN LOAD<br>Ta:25°C | 6.45 V/ 230 VAC<br>6.45 V/ 115 VAC<br>Hiccup Model | P       |
| 3  | SHORT PROTECTION        | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 264 VAC<br>O/P: FULL LOAD<br>Ta:25°C               | NO DAMAGE<br>Hiccup Mode                           | P       |



**SAFETY TEST**

| NO | TEST ITEM            | SPECIFICATION   | TEST CONDITION   | RESULT  | VERDICT |
|----|----------------------|---|--|---|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 3.0 KVAC/min<br>I/P-FG: 1.5 KVAC/min<br>O/P-FG: 0.5 KVAC/min | I/P-O/P: 3.6 KVAC/min<br>I/P-FG: 1.8 KVAC/min<br>O/P-FG: 0.6 KVAC/min<br>Ta:25°C | I/P-O/P: 3.51 mA<br>I/P-FG: 2.67 mA<br>O/P-FG: 2.29 mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ<br>I/P-FG: 500VDC>100MΩ<br>O/P-FG:500VDC>100MΩ   | I/P-O/P: 500 VDC<br>I/P-FG: 500 VDC<br>O/P-FG: 500 VDC<br>Ta:25°C                | I/P-O/P: 19 G Ω<br>I/P-FG: 15 G Ω<br>O/P-FG: 16G Ω<br>NO DAMAGE     | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                | 40 A / 2min<br>Ta:25°C   | 8 mΩ  | P       |
| 4  | APPROVAL             | TUV: Certificate NO : R50046939<br>UL: File NO : E183223              |  |   | P       |

**E.M.C TEST**

| NO | TEST ITEM                                   | SPECIFICATION                                      | TEST CONDITION                                      | RESULT                        | VERDICT |
|----|---|--|---|-------------------------------|---------|
| 1  | HARMONIC                                    | EN61000-3-2<br>CLASS A                             | I/P: 230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | PASS                          | P       |
| 2  | CONDUCTION                                  | EN55022<br>CLASS B                                 | I/P: 230 VAC (50HZ)<br>O/P:FULL/50% LOAD<br>Ta:25°C | PASS<br>Test by certified Lab | P       |
| 3  | RADIATION                                   | EN55022<br>CLASS B                                 | I/P: 230 VAC (50HZ)<br>O/P:FULL LOAD<br>Ta:25°C     | PASS<br>Test by certified Lab | P       |
| 4  | E.S.D                                       | EN61000-4-2<br>INDUSTRY<br>AIR:8KV / Contact:4KV   | I/P: 230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | CRITERIA A                    | P       |
| 5  | E.F.T                                       | EN61000-4-4<br>INDUSTRY<br>INPUT: 2KV              | I/P: 230 VAC/50HZ<br>O/P:FULL LOAD<br>Ta:25°C       | CRITERIA A                    | P       |
| 6  | SURGE                                       | IEC61000-4-5<br>INDUSTRY<br>L-N :2KV<br>L,N-PE:4KV | I/P: 230 VAC/50HZ<br>O/P:FULL LOAD<br>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<br>LIFE CYCLE | SUPPOSE C 56 IS THE MOST CRITICAL COMPONENT<br>I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 75208 HRS<br>I/P: 230VAC O/P:FULL LOAD Ta= 40 °C LIFE TIME= 30126 HRS |                |        | P       |
| 2  | MTBF                    | MIL-HDBK-217F NOTICES2 PARTS COUNT<br>TOTAL FAILURE RATE: 169.2K HRS  |                |        | P       |

**COMPONENT STRESS TEST**

| NO | TEST ITEM  | SPECICATION   | TEST CONDITION   | RESULT   | VERDICT |
|----|--|---|--|--|---------|
| 1  | Power Transistor<br>(D to S) or (C to E) <b>Peak Voltage</b> | Q 1 Rated<br>K2628 : 600 V 6 A  | I/P:High-Line +3V = 267 V<br>O/P: (1)Full Load Turn on<br>(2) Full Load<br>(3)Output Short<br>Ta:25°C                                | (1) 420 V<br>(2) 542 V<br>(3) 550 V  | P       |
| 2  | Diode Peak <b>Voltage</b>                                    | D55 Rated<br>MBR1545CT : 45 V 15 A<br><br>D50 Rated<br>BYQ28X-200 : 200V 10A<br><br>D56 Rated<br>HER303 : 200V 3A | I/P:High-Line +3V = 267 V<br>O/P: (1)Full Load Turn on<br>(2) Full Load<br>(3)Output Short<br>Ta:25°C                                | (1) 29.4 V<br>(2) 33.4 V<br>(3) 30 V<br><br>(1) 114 V<br>(2) 128 V<br>(3) 126 V<br><br>(1) 72.4 V<br>(2) 78 V<br>(3) 105 V | P       |
| 3  | Clamp Diode Peak <b>Voltage</b>                              | D1 Rated<br>EGP20J : 600 V 2A   | I/P:High-Line +3V = 267 V<br>O/P: (1)Full Load<br>(2) Dynamic Load<br>90%Duty/1KHz<br>Ta:25°C  | (1) 518 V<br>(2) 524 V   | P       |
| 4  | Input Capacitor <b>Voltage</b>                               | C 5 Rated<br>: 150 u / 400 V/ 105°C   | I/P:High-Line +3V = 267 V<br>O/P: (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load Change<br>Ta:25°C | (1) 398 V<br>(2) 386V<br>(3) 374V  | P       |
| 5  | Control IC <b>Voltage Test</b>                               | U 1 Rated<br>1203 : 16 V  | I/P:High-Line +3V =267 V<br>O/P: (1)Full Load Turn on /Off<br>(2) Min load Turn on /Off<br>(3)Full Load /Min load Change<br>Ta:25°C  | (1) 13 V<br>(4) 13V<br>(5) 10.6V   | P       |

| DATE       | SAMPLE                     | TEST RESULT | TESTER        | APPROVAL |
|------------|----------------------------|-------------|---------------|----------|
| 2004/3/2   | RD SAMPLE                  | PASS        | VINCENT TSENG | MAX LIN  |
| 2004/10/14 | PRODUCT SAMPLE<br>W0409B16 | PASS        | VINCENT TSENG | MAX LIN  |

2003/12/12 A50-F023