



MODEL : SD-200B-24

## OUTPUT FUNCTION TEST

| NO | TEST ITEM                      | SPECIFICATION           | TEST CONDITION   | RESULT              | VERDICT |
|----|--------------------------------|-------------------------|--|---------------------|---------|
| 1  | RIPPLE & NOISE                 | V1: 150 mVp-p (Max)     | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C                      | V1: 7 mVp-p (Max)   | P       |
| 2  | OUTPUT VOLTAGE<br>ADJUST RANGE | CH1: 23V- 30 V          | I/P: 24 VDC<br>O/P:MIN LOAD<br>Ta:25°C                       | 22.24 V- 33.11 V    | P       |
| 3  | OUTPUT VOLTAGE<br>TOLERANCE    | V1: 1 %- -1 % (Max)     | I/P:24VDC / 36 VDC<br>O/P:FULL/ MIN LOAD<br>Ta:25°C          | V1: 0.1 %- -0.1 %   | P       |
| 4  | LINE REGULATION                | V1: 0.5 %- -0.5 % (Max) | I/P:24 VDC / 36 VDC<br>O/P:FULL LOAD<br>Ta:25°C              | V1: 0 %- 0 %        | P       |
| 5  | LOAD REGULATION                | V1: 1 %- -1 % (Max)     | I/P: 24 VDC<br>O/P:FULL -MIN LOAD<br>Ta:25°C                 | V1: 0.03 %- -0.03 % | P       |
| 6  | SET UP TIME                    | 300 ms (Max)            | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C                      | 43 ms               | P       |
| 7  | RISE TIME                      | 50 ms (Max)             | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C                      | 17 ms               | P       |
| 8  | OVER/UNDERSHOOT TEST           | < ±5%                   | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C                      | TEST: <5 %          | P       |
| 9  | DYNAMIC LOAD                   | V1: 2400 mVp-p          | I/P: 24 VDC<br>O/P:FULL /Min LOAD<br>90%DUTY/1KHZ<br>Ta:25°C | 119 mVp-p           | P       |

### INPUT FUNCTION TEST

| NO | TEST ITEM           | SPECICATION   | TEST CONDITION   | RESULT     | VERDICT |
|----|---------------------|---------------|--|------------|---------|
| 1  | INPUT VOLTAGE RANGE | 19VDC- 36 VDC | I/P: TESTING<br>O/P: FULL LOAD<br>Ta: 25°C   | 16 V- 36 V | P       |
|    |                     |               | I/P:<br>LOW-LINE-0.2V= 18.8 V<br>HIGH-LINE+5%= 37.8 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  | EFFICIENCY          | 85 % (TYP)    | I/P: 24 VDC<br>O/P: FULL LOAD<br>Ta: 25°C  | 85.7 %     | P       |
| 3  | INPUT CURRENT       | 10.4 A (TYP)  | I/P: 24 VDC<br>O/P: FULL LOAD<br>Ta: 25°C  | I = 10 A   | P       |

### PROTECTION FUNCTION TEST

| NO | TEST ITEM                   | SPECICATION                            | TEST CONDITION                            | RESULT  | VERDICT |
|----|-----------------------------|--|---|---|---------|
| 1  | OVER LOAD PROTECTION        | 105 %- 135 %                           | I/P: 24 VDC<br>O/P: TESTING<br>Ta: 25°C   | 122 %<br>Shunt down Re-power ON   | P       |
| 2  | OVER VOLTAGE PROTECTION     | CH1: 31.5 V- 37.5V                     | I/P: 24 VDC<br>O/P: MIN LOAD<br>Ta: 25°C  | 36 V<br>Shunt down Re- power ON   | P       |
| 3  | OVER TEMPERATURE PROTECTION | SPEC:<br>95 ± 5 °C O.T.P.<br>NO DAMAGE | I/P: 24 VDC<br>O/P: FULL LOAD             | O.T.P. Active<br>Shut down o/p voltage , recovers<br>automatically after temperature<br>goes down | P       |
| 4  | SHORT PROTECTION            | SHORT EVERY OUTPUT<br>1 HOUR NO DAMAGE | I/P: 24 VDC<br>O/P: FULL LOAD<br>Ta: 25°C | NO DAMAGE<br>Shunt down Re-power ON   | P       |





## SAFETY TEST

| NO | TEST ITEM            | SPECIFICATION   | TEST CONDITION   | RESULT  | VERDICT |
|----|----------------------|---|--|---|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P: 1.5 KVAC/min<br>I/P-FG: 1.5 KVAC/min<br>O/P-FG: 0.5 KVAC/min | I/P-O/P: 1.8 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: 4.26 mA<br>I/P-FG: 4.48 mA<br>O/P-FG: 6.26 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: 7 G Ω<br>I/P-FG: 7G Ω<br>O/P-FG: 4 G Ω<br>NO DAMAGE        | P       |
| 3  | GROUNDING CONTINUITY | FG(PE) TO CHASSIS<br>OR TRACE < 100 mΩ                                | 40 A / 2min<br>Ta:25°C   | 11 mΩ   | P       |
| 4  | APPROVAL             | TUV: Certificate NO :<br>UL: File NO :                                |  |   | N/A     |

## E.M.C TEST

| NO | TEST ITEM                                   | SPECIFICATION                                    | TEST CONDITION                          | RESULT                        | VERDICT |
|----|---|--|---|-------------------------------|---------|
| 1  | RADIATION                                   | EN55022<br>CLASS B                               | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C | PASS<br>Test by certified Lab | P       |
| 2  | E.S.D                                       | EN61000-4-2<br>INDUSTRY<br>AIR:8KV / Contact:4KV | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C | CRITERIA A                    | P       |
| 3  | E.F.T                                       | EN61000-4-4<br>INDUSTRY<br>INPUT: 2KV            | I/P: 24 VDC<br>O/P:FULL LOAD<br>Ta:25°C | CRITERIA A                    | P       |
| 4  | 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 C111 IS THE MOST CRITICAL COMPONENT<br>I/P: 24 VDC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 215197 HRS<br>I/P: 24 VDC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 46456 HRS |                |        | P       |
| 2  | MTBF                    | MIL-HDBK-217F NOTICES2 PARTS COUNT<br>TOTAL FAILURE RATE: 218.2K 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>PSMM009 100W : 100V 100A | I/P:High-Line +3V =39 VDC<br>O/P: (1)Full Load Turn on<br>(2) Full Load<br>(3)Output Short<br>Ta:25°C                                 | (1) 48 V<br>(2) 86.4 V<br>(3) 38.8 V   | P       |
| 2  | Diode <b>Peak Voltage</b>                                     | D 100 Rated<br>S20LC20U : 200 V 20 A  | I/P:High-Line +3V = 39 VDC<br>O/P: (1)Full Load Turn on<br>(2) Full Load<br>(3)Output Short<br>Ta:25°C                                | (1) 168 V<br>(2) 191 V<br>(3) 0 V      | P       |
| 3  | <b>Input Capacitor Voltage</b>                                | C 5 Rated<br>: 3300 u / 50 V / 105°C  | I/P:High-Line +3V = 39 VDC<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) 39.6 V<br>(2) 39.6 V<br>(3) 39.6 V | P       |
| 4  | <b>Control IC Voltage Test</b>                                | U 1 Rated<br>SG3525 : 35 V            | I/P:High-Line +3V = 39 VDC<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) 11.2 V<br>(2) 11.2 V<br>(3) 11.2 V | P       |

| DATE       | SAMPLE                     | TEST RESULT | TESTER        | APPROVAL |
|------------|----------------------------|-------------|---------------|----------|
| 2004/6/7   | RD SMAPLE                  | PASS        | VINCENT TSENG | MAX LIN  |
| 2004/8/20  | PRODUCT SMAPLE<br>A407A22  | PASS        | VINCENT TSENG | MAX LIN  |
| 2004/9/13  | PRODUCT SMAPLE<br>W0408C30 | PASS        | VINCENT TSENG | MAX LIN  |
| 2004/11/25 | PRODUCT SMAPLE<br>W0411A24 | PASS        | VINCENT TSENG | MAX LIN  |

2003/12/12 A50-F023