



MODEL : SE-1500-24

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|--------------------------|--|--|---------|
| 1 | RIPPLE & NOISE | V1 : 150 mVp-p (Max) | I/P : 230VAC O/P : FULL LOAD Ta : 25°C | V1 : 42 mVp-p (Max) | P |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1 : 21.6V~ 26.4V | I/P : 230 VAC I/P : 200VAC O/P : MIN LOAD Ta : 25°C | 19.5 V~ 27.47 V / 230 VAC 19.5 V~ 27.47 V / 200 VAC | P |
| 3 | OUTPUT VOLTAGE TOLERANCE | V1 : 1%~ -1 % (Max) | I/P : 200 VAC / 264 VAC O/P : FULL / MIN LOAD Ta : 25°C | V1 : 0.04 %~ -0.04 % | P |
| 4 | LINE REGULATION | V1 : 0.5 %~ -0.5 % (Max) | I/P : 200VAC ~ 264 VAC O/P : FULL LOAD Ta : 25°C | V1 : 0.03 %~ -0.03 % | P |
| 5 | LOAD REGULATION | V1 : 0.5 %~ -0.5 % (Max) | I/P : 230 VAC O/P : FULL ~MIN LOAD Ta : 25°C | V1 : 0.03 %~ -0.03 % | P |
| 6 | SET UP TIME | 230VAC : 150 ms (Max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 62 ms | P |
| 7 | RISE TIME | 230VAC : 12 ms (Max) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 4.8 ms | P |
| 8 | HOLD UP TIME | 230VAC : 26 ms (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 230VAC/ 29 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 : 2400 mVp-p | I/P : 230 VAC O/P : FULL /Min LOAD 90%DUTY/1KHZ Ta : 25°C | 348 mVp-p | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|------------------------------|--|----------------------------|---------|
| 1 | INPUT VOLTAGE RANGE | 180VAC~264 VAC | I/P : TESTING O/P : FULL LOAD Ta : 25°C | 173 V~264V | P |
| | | | I/P : LOW-LINE-3V= 177 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 | 47HZ ~63 HZ NO DAMAGE OSC | I/P : 200VAC ~ 264 VAC O/P : FULL~MIN LOAD Ta : 25°C | TEST : OK | P |
| 3 | EFFICIENCY | 87 % (TYP) | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 89.3 % | P |
| 4 | INPUT CURRENT | 230V/ 17.5 A | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | I = 11.59 A/ 230 VAC | P |
| 5 | INRUSH CURRENT | 230V/ 60 A COLD START | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | I = 50 A/ 230 VAC | P |
| 6 | LEAKAGE CURRENT | < 3.5 mA / 240 VAC | I/P : 264 VAC O/P : Min LOAD Ta : 25°C | L-FG : 1 mA N-FG : 1 mA | P |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|---|---|---|---------|
| 1 | OVER LOAD PROTECTION | 105 %~ 125 % | I/P : 230 VAC I/P : 200 VAC O/P : TESTING Ta : 25°C | 115%/ 230 VAC 114%/ 200 VAC Shut down Re-power ON | P |
| 2 | OVER VOLTAGE PROTECTION | CH1 : 27.6V~ 32.4 V | I/P : 230 VAC I/P : 200 VAC O/P : MIN LOAD Ta : 25°C | 29.72V/ 230 VAC 29.72V/ 200 VAC Shut down Re- power ON | P |
| 3 | OVER TEMPERATURE PROTECTION | SPEC : TSW1 : 80°C±5°C O.T.P. NO DAMAGE | I/P : 230 VAC O/P : FULL LOAD | O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down | P |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P : 264 VAC O/P : FULL LOAD Ta : 25°C | NO DAMAGE Shut down Re-power ON | P |

CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------|--|---|---|---------|
| 1 | FAN LOCK TEST | POWER SUPPLY SHUT DOWN | I/P : 230 VAC O/P : FULL LOAD | OK | P |
| 3 | REMOTE CONTROL | Rc+ / Rc- 0V~ 0.8V POWER ON 4V~10V POWER OFF | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | 0V ~ 1.8 V POWER ON 1.9V~ 10 V POWER OFF | P |
| 4 | DC OK SIGNAL | POWER ON : 3.3V~5.6V POWER OFF : 0V~1V | I/P : 230 VAC O/P : FULL LOAD/NO LOAD Ta : 25°C | POWER ON : 5.231 V POWER OFF : 0 V | P |
| 5 | REMOTE SENSE | >0.25V | I/P : 230 VAC O/P : FULL LOAD Ta : 25°C | ➤ 0.25 V | P |

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|---|----------------|---|-----------|---|
| 6 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 2G (5) Test Time : 1 hour in each axis (X.Y.Z) (6) Ta : 25°C | TEST : OK | P |
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M.T.B.F & LIFE CYCLE CALCULATION

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|--|----------------|--------|---------|
| 1 | CAPACITOR LIFE CYCLE | SE-1500-24 : SUPPOSE C119 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME= 8511819 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME= 1346732 HRS | | | P |
| 2 | MTBF | Conducted by Parts Stress Analysis Prediction 999.9K hrs min. Telcordia SR-332 (Bellcore) ; 134.5K hrs min. MIL-HDBK-217F (25°C) | | | P |
| 3 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure : Above 20,000 hours @ TA 50°C | | | 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 : 7.74 mA I/P-FG : 6.07 mA O/P-FG : 8.15 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 : 8.49 GΩ I/P-FG : 8.94 GΩ O/P-FG : 13.7 GΩ NO DAMAGE | P |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40 A / 2min Ta : 25°C | 16 mΩ | P |
| 4 | APPROVAL | TUV : Certificate NO : UL : File NO : E183223 | | | P |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|------------|--------------------|---|-------------------------------|---------|
| 1 | CONDUCTION | EN55022 CLASS B | I/P : 230 VAC (50HZ)/115V(60HZ) O/P : FULL/50% LOAD Ta : 25°C | PASS Test by certified Lab | P |
| 2 | RADIATION | EN55022 CLASS B | I/P : 230 VAC (50HZ)/115V(60HZ) O/P : FULL LOAD Ta : 25°C | PASS Test by certified Lab | P |



COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|---------------------------------------|---|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q900 Rated IRGP20B60PDPbF 20A/600V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C | (1) 412 V (2) 378 V (3) 418 V | P |
| 2 | Diode Peak Voltage | D100 Rated ESAD92-02R 20A/200V | I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2) Full Load (3)Output Short Ta : 25°C | (1) 120 V (2) 118 V (3) 129 V | P |
| 3 | Input Capacitor Voltage | C5 Rated 560u/400V 85°C SMQ | 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) 352.7 V (2) 380.4 V (3) 381.2 V | P |
| 4 | Control IC Voltage Test | U150 Rated SG3525AN : 8V~ 40 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) 12.712 V (2) 12.718 V (3) 12.718 V | P |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|------------|----------------------------|-------------|------------|---------------|
| 2008/12/22 | RD SAMPLE | PASS | SANFORD SU | VINCENT TSENG |
| 2009/3/11 | PRODUCT SAMPLE W0901A26 | PASS | SANFORD SU | VINCENT TSENG |
| 2009/5/5 | PRODUCT SAMPLE W0903C24 | PASS | SANFORD SU | VINCENT TSENG |

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