



MODEL: SP-750-27

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|---|---|--|---------|
| 1 | RIPPLE & NOISE | V1:120 mVp-p (Max) | I/P: 230VAC O/P:FULL LOAD Ta:25°C | V1: 13 mVp-p (Max) | P |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1: 24V - 30 V | I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C | 22.4 V~ 32.6 V/ 230 VAC 22.4 V~ 32.6 V/ 115 VAC | P |
| 3 | OUTPUT VOLTAGE TOLERANCE | V1: 1 %~ -1 % (Max) | I/P: 100 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C | V1: 0.05 %~ -0.05 % | P |
| 4 | LINE REGULATION | V1: 0.2%~ -0.2 % (Max) | I/P: 100 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C | V1: 0 %~ 0 % | P |
| 5 | LOAD REGULATION | V1: 0.5 %~ -0.5 % (Max) | I/P: 230 VAC O/P:FULL -MIN LOAD Ta:25°C | V1: 0.05 %~ -0.05 % | P |
| 6 | SET UP TIME | 230VAC: 1500 ms (Max) 115 VAC: 1500 ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230VAC/ 172 ms 115VAC/ 172 ms | P |
| 7 | RISE TIME | 230VAC: 50 ms (Max) 115VAC: 50 ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230VAC/ 31 ms 115VAC/ 31 ms | P |
| 8 | HOLD UP TIME | 230VAC: 16 ms (TYP) 115VAC: 16 ms (TYP) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230VAC/ 22 ms 115VAC/ 22 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: 2700 mVp-p | I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C | 458 mVp-p | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|---|--|--|---------|
| 1 | INPUT VOLTAGE RANGE | 90VAC~264 VAC | I/P:TESTING O/P:FULL LOAD Ta:25°C | 73 V~264V | P |
| | | | I/P: LOW-LINE-3V= 87 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: 90 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C | TEST: OK | P |
| 3 | POWER FACTOR | 0.96 / 230 VAC (TYP) 0.99 / 115 VAC(TYP) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | PF= 0.99 / 230 VAC PF= 0.99 / 115 VAC | P |
| 4 | EFFICIENCY | 89% (TYP) | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | 89.5% | P |
| 5 | INPUT CURRENT | 230V/ 4.2 A(TYP) 115V/ 8.8 A (TYP) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | I = 3.8 A/ 230 VAC I = 7.8 A/ 115 VAC | P |
| 6 | INRUSH CURRENT | 230V/ 45 A(TYP) 115V/ 27 A (TYP) COLD START | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | I = 37 A/ 230 VAC I = 18 A/ 115 VAC | P |
| 7 | LEAKAGE CURRENT | < 2 mA / 240 VAC | I/P: 254 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: 115 VAC O/P: TESTING Ta:25°C | 115%/ 230 VAC 117%/ 115 VAC Constant Current Limiting ,unit will Hiccup after 3 sec | P |
| 2 | OVER VOLTAGE PROTECTION | CH1: 31 V- 36.5 V | I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C | 34.9V/ 230 VAC 34.9V/ 115 VAC Shunt down Re- power ON | P |
| 3 | OVER TEMPERATURE PROTECTION | SPEC: TSW1 85 ± 5°C O.T.P. TSW2 85 ± 5°C O.T.P. NO DAMAGE | I/P: 264 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 Constant Current Limiting ,unit will Hiccup after 3 sec | P |

CONTROL FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--------------------|---|---|---|---------|
| 1 | FAN ON/OFF CONTROL | ----- | I/P: 230 VAC O/P: FULL LOAD | FAN LOCK POWER OFF FAN NON-LOCK POWER ON | P |
| 2 | FAN SPEED CONTROL | ----- | I/P: 230 VAC O/P: FULL LOAD Ta:25°C | Fan Voltage= 12.8 V | P |
| 3 | REMOTE CONTROL | Rc+ / Rc- SHORT POWER ON OPEN POWER OFF | I/P: 230 VAC O/P: FULL LOAD Ta:25°C | Rc+ / Rc- SHORT POWER ON OPEN POWER OFF | P |
| 4 | POWER GOOD SIGNAL | DELAY 50ms ~ 500ms | I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta:25°C | 118 ms/ 230 VAC 118 ms/ 115 VAC | P |
| 5 | POWER FAIL SIGNAL | >1ms | I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta:25°C | 11ms/ 230 VAC 11ms/ 115 VAC | P |

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|-------------------|---------|
| 1 | TEMPERATURE RISE TEST | MODEL : SP-750-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 30.2 °C 2. HIGH AMBIENT BURN-IN : 3 HRS I/P: 230VAC O/P: FULL LOAD Ta= 57 °C | | | P |
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| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P: 230 VAC O/P: 107 % LOAD Ta:25°C | TEST : OK | P |
| 3 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P: 230 VAC O/P: 100 % LOAD Ta= -20 °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 | ± 0.05 % (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: 230VAC NO LOAD (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 |

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: 5.87 mA I/P-FG: 5.2 mA O/P-FG: 3.93 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: 8G Ω I/P-FG: 5G Ω O/P-FG: 8G Ω NO DAMAGE | P |
| 3 | GROUNDING CONTINUITY | FG(PE) TO CHASSIS OR TRACE < 100 mΩ | 40 A / 2min Ta:25°C | 18 mΩ | P |
| 4 | APPROVAL | TUV: Certificate NO : R50049701 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 108 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 948839 HRS I/P: 230VAC O/P:FULL LOAD Ta= 45 °C LIFE TIME= 202197 HRS | | | P |
| 2 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 105K HRS | | | P |



COMPONENT STRESS TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--|-------------------------------------|--|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q5 Rated FOA20N60C3 : 650 V 20 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) 594 V (2) 464 V (3) 580 V | P |
| 2 | Diode Peak Voltage | D103 Rated D9202 : 200 V 20 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) 137 V (2) 133 V (3) 135 V | P |
| 3 | Input Capacitor Voltage | C5 Rated : 330 u / 450V/ 105°C | 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) 416 V (2) 422 V (3) 430 V | P |
| 4 | Control IC Voltage Test | U1 Rated 3845 : 30 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) 14.4 V (2) 14.3 V (3) 14.2 V | P |
| 5 | Power Transistor (D to S) or (C to E) Peak Voltage | U5 Rated TOP242P : 700V | I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C | (1) 556 V (2) 542 V (3) 540 V | P |
| 6 | Control IC Voltage Test | U5 Rated TOP242P : 9V | 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) 5.85 V (2) 5.86 V (3) 5.86 V | P |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|-----------|------------------------------|-------------|---------------|----------|
| 2004/7/26 | RD SAMPLE | PASS | VINCENT TSENG | MAX LIN |
| 2004/10/7 | PRODUCT SAMPLE A408B38 | PASS | VINCENT TSENG | MAX LIN |
| 2006/4/26 | PRODUCT SAMPLE RA5B308515 | PASS | VINCENT TSENG | MAX LIN |

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