



MODEL : PLN-20-48

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|--------------------------------|---|---|--|---------|
| 1 | RIPPLE & NOISE | V1: 3.8 Vp-p (Max) | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | V1: 0.90 Vp-p (Max) | PASS |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1: 0.315A ~ 0.42A | I/P: 230 VAC I/P:115VAC O/P:MIN LOAD Ta:25°C | 0.198A~0.416A/230VAC 0.209A~0.419A/115VAC | PASS |
| 3 | OUTPUT VOLTAGE TOLERANCE | V1: -10 %~+10 % (Max) | I/P: 100VAC / 277 VAC O/P:FULL/ 0% LOAD Ta:25°C | V1: -2.527%~ +1.367 % | PASS |
| 4 | LINE REGULATION | V1: -3 %~ +3 % (Max) | I/P: 100 VAC ~ 277VAC O/P:FULL LOAD Ta:25°C | V1: -0.013 %~ +0.025 % | PASS |
| 5 | LOAD REGULATION | V1: -10 %~ +10 % (Max) | I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C | V1: -0.065 %~ 0 % | PASS |
| 6 | SET UP TIME | 230VAC/ 500 ms (Max) 115VAC/ 2000 ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C | 230 VAC/ 309.396 ms 115 VAC/ 359.493 ms | PASS |
| 7 | OVER/UNDERSHOOT TEST | < ±10 % | I/P: 230 VAC O/P:FULL LOAD Ta:25°C | TEST: +7.98 % -1.26 % | PASS |
| 8 | DYNAMIC LOAD | V1: 4800 mVp-p | I/P: 230 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta:25°C | (1) 1000 mVp-p (2) 1600 mVp-p | PASS |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|--|--|--|---------|
| 1 | INPUT VOLTAGE RANGE | 90 VAC~ 277 VAC | I/P: TESTING O/P: FULL LOAD Ta: 25°C | 90 V~ 277 V | PASS |
| | | | 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 ~277 VAC O/P: FULL-MIN LOAD Ta: 25°C | TEST: OK | PASS |
| 3 | POWER FACTOR | PF ≥ 0.9 at 75%~100% load 115VAC/230VAC | I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C | PF= 0.937 / 230VAC 100% PF= 0.987 / 115VAC 100% PF= 0.905 / 230VAC 75% PF= 0.989 / 115VAC 75% | PASS |
| 4 | EFFICIENCY | 83.5 % (Typ) | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | 85.3 % | PASS |
| 5 | INPUT CURRENT | 230 V/ 0.2 A (Typ) 115 V/ 0.4 A (Typ) | I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C | I = 0.106 A / 230VAC I = 0.203 A / 115VAC | PASS |
| 6 | INRUSH CURRENT | 230 V/ 35 A (Typ) COLD START | I/P: 230 VAC O/P: FULL LOAD Ta: 25°C | I = 14.8 A / 230VAC | PASS |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|---|--|---|---------|
| 1 | OVER LOAD PROTECTION | 95%~ 110 % RATED OUTPUT POWER | I/P: 277 VAC I/P: 230 VAC I/P: 100 VAC O/P: TESTING Ta: 25°C | 104.7 %/277VAC 104.7 %/ 230VAC 104.7 %/ 100 VAC Hiccup Mode | PASS |
| 2 | OVER VOLTAGE PROTECTION | CH1: 54 V~ 60 V | I/P: 230 VAC O/P: MIN LOAD Ta: 25°C | 58.1 V/ 230VAC Shut off o/p voltage, clamping by zener diode | PASS |
| 3 | OVER TEMPERATURE PROTECTION | SPEC: TSW1= 110 °C±10 °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 | PASS |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P: 277 VAC O/P: FULL LOAD Ta: 25°C | NO DAMAGE Hiccup Mode | PASS |

ENVIRONMENT TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|-------------------|---------|
| 1 | TEMPERATURE RISE TEST | MODEL : PLN-20-48 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 32.1 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 48.4 °C | | | PASS |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P: 230 VAC O/P: 108 % LOAD Ta:25°C | TEST : OK | PASS |
| 3 | LOW TEMPERATURE TURN ON TEST | TURN ON AFTER 2 HOUR | I/P: 230 VAC O/P: 100 % LOAD Ta= -30 °C | TEST : OK | PASS |
| 4 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE | I/P: 277 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H | TEST : OK | PASS |
| 5 | TEMPERATURE COEFFICIENT | ±0.06 %(0~50°C) | I/P: 230 VAC O/P:FULL LOAD | ± 0.019 %(0~50°C) | PASS |
| 6 | VIBRATION TEST | 1 Carton & 1 Set Operating at I/P: VAC 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 | PASS |

M.T.B.F & LIFE CYCLE CALCULATION

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | VERDICT |
|----|-------------------------|--|---|--------|---------|
| 1 | CAPACITOR LIFE CYCLE | PLN-20-48: SUPPOSE C 105 I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C | IS THE MOST CRITICAL COMPONENT LIFE TIME= 455066.7 HRS LIFE TIME= 95726.4 HRS | | PASS |
| 2 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 643.6K HRS | | | PASS |

SAFETY TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|----------------------|------------------------------------|--|----------------------------------|---------|
| 1 | WITHSTAND VOLTAGE | I/P-O/P: 3.75 KVAC/min EN 60950 | I/P-O/P: 4.2 KVAC/min Ta:25°C | I/P-O/P: 1.025 mA NO DAMAGE | PASS |
| 2 | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ | I/P-O/P: 500 VDC Ta:25°C | I/P-O/P: >9999 MΩ NO DAMAGE | PASS |
| 3 | LEAKAGE CURRENT | < 0.5 mA / 240VAC EN 60950 | I/P: 277 VAC O/P:NO LOAD Ta:25°C | L-FG: 0.005 mA N-FG: 0.010 mA | PASS |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|-------------------------------|---------|
| 1 | HARMONIC | EN61000-3-2 CLASS C | I/P: 230/240/220 VAC/50HZ O/P:100%/75%/50%/25% LOAD Ta:25°C | PASS | PASS |
| 2 | CONDUCTION | EN55022 CLASS B | I/P:230 VAC (50HZ) /115V(60HZ) O/P:FULL/50% LOAD Ta:25°C | PASS Test by certified Lab | PASS |
| 3 | RADIATION | EN55022 CLASS B | I/P: 230 VAC (50HZ)/115V(60HZ) O/P:FULL LOAD Ta:25°C | PASS Test by certified Lab | PASS |
| 4 | E.S.D | EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 5 | E.F.T | EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 6 | SURGE | IEC61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:2KV | I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C | CRITERIA A | PASS |
| 7 | Test by certified Lab & Test Report Prepare | | | | |



COMPONENT STRESS TEST

| NO | TEST ITEM | SPECICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|--|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q 1 Rated 2SK3532 : 900 V 6 A | I/P:High-Line +3V = 280 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C | (1) 582 V (2) 675 V (3) 572 V (4) 586 V | PASS |
| 2 | Diode Peak Voltage | D 100 Rated FCF10A40 : 400 V 10 A | I/P:High-Line +3V = 280 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C | (1) 298 V (2) 372 V (3) 286 V (4) 288 V | PASS |
| 3 | Clamp Diode Peak Voltage | D 1 Rated BYV26EGP : 1000 V 2 A | I/P:High-Line +3V = 280 V O/P: (1)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (2)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C | (1) 500 V (2) 502 V | PASS |
| 4 | Control IC Voltage Test | U 1 Rated L6561D : 18 V U 100 Rated AP4310 : 40 V | I/P:High-Line +3V =280 V O/P: (1) Output Short (2)O.L.P (3)O.V.P (4)NO LOAD VR 下限 LOW LINE Ta:25°C | U1 U100 (1) 12.0 V (1) 4.9 V (2) 12.0 V (2) 4.0 V (3) 13.2 V (3) 8.3 V (4) 15.1 V (4) 14.1 V | PASS |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|-----------|-------------------------------|-------------|--------|----------|
| 2009/7/14 | RD SAMPLE | PASS | SKY | LIUWY |
| 2010/2/4 | PRODUCT SAMPLE (W0911C084) | PASS | SKY | LIUWY |

2007/11/26 A50-G058