

MODEL : PLN-30-9

OUTPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------------|--|--|--|---------|
| 1 | RIPPLE & NOISE | V1: 2.6 Vp-p (Max) | I/P: 230VAC O/P: 100% LOAD Ta:25°C | V1: 2.02 Vp-p (Max) | P |
| 2 | OUTPUT VOLTAGE ADJUST RANGE | CH1: 8.55 V~ 9.9 V | I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta:25°C | 7.88V~ 10.22 V / 230 VAC 7.88V~ 10.22 V / 115 VAC | P |
| 3 | OUTPUT CURRENT ADJUST RANGE | CH1: 2.475 A~3.399 A | I/P: 230 VAC I/P: 115 VAC Ta:25°C | 2.14 A~ 3.98 A / 230 VAC 2.14 A~ 3.98 A / 115 VAC | P |
| 4 | OUTPUT VOLTAGE TOLERANCE | V1: 10 %~ -5% (Max) | I/P: 100 VAC / 295 VAC O/P: 100% LOAD / MIN LOAD Ta:25°C | V1: 0.8 %~ -0.8 % | P |
| 5 | LINE REGULATION | V1: 3 %~ -3 % (Max) | I/P: 100VAC ~ 295 VAC O/P: 100% LOAD Ta:25°C | V1: 0.7 %~ -0.7 % | P |
| 6 | LOAD REGULATION | V1: 5%~ -5 % (Max) | I/P: 230 VAC O/P: 100% LOAD ~MIN LOAD Ta:25°C | V1: 0.6 %~ -0.6 % | P |
| 7 | SET UP TIME | 230VAC: 500 ms (Max) 115 VAC: 3000 ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P: 100% LOAD Ta:25°C | 230VAC/ 360 ms 115VAC/ 1416 ms | P |
| 8 | RISE TIME | 230VAC: 150 ms (Max) 115VAC: 150 ms (Max) | I/P: 230 VAC I/P: 115 VAC O/P: 100% LOAD Ta:25°C | 230VAC/ 13 ms 115VAC/ 20 ms | P |
| 9 | OVER/UNDERSHOOT TEST | < ±10% | I/P: 230 VAC O/P: 100% LOAD Ta:25°C | TEST: <10 % | P |

INPUT FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---------------------------|---|--|--|---------|
| 1 | INPUT VOLTAGE RANGE | 90VAC~295 VAC | I/P:TESTING O/P: 100% LOAD Ta:25°C | 80 V~295V | P |
| | | | I/P: LOW-LINE-3V= 87V HIGH-LINE+10V=305 V O/P: 100% LOAD /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 | I/P: 90 VAC ~ 295 VAC O/P: 100% LOAD ~MIN LOAD Ta:25°C | TEST: OK | P |
| 3 | POWER FACTOR | 0.90 / 230 VAC(TYP) 0.95 / 115 VAC(TYP) 0.90 / 277VAC(TYP) | I/P: 230 VAC I/P: 115 VAC I/P: 277 VAC O/P: 100% LOAD Ta:25°C | PF= 0.919 / 230 VAC PF= 0.987 / 115 VAC PF= 0.905 /277VAC | P |
| 4 | EFFICIENCY | 80% (TYP) | I/P: 230 VAC O/P: 100% LOAD Ta:25°C | 82.3 % | P |
| 5 | INPUT CURRENT | 230V/ 0.2 A (TYP) 115V/ 0.4 A (TYP) 277V/ 0.15 A (TYP) | I/P: 230 VAC I/P: 115 VAC I/P: 277 VAC O/P: 100% LOAD Ta:25°C | I = 0.171 A/ 230 VAC I = 0.318 A/ 115 VAC I = 0.139 A/ 277 VAC | P |
| 6 | INRUSH CURRENT | 230V/ 35 A (TYP) COLD START | I/P: 230 VAC O/P: 100% LOAD Ta:25°C | I = 26 A/ 230 VAC | P |
| 7 | LEAKAGE CURRENT | < 0.5 mA / 240 VAC | I/P: 240 VAC O/P:Min LOAD Ta:25°C | L-FG: 0.01 mA N-FG: 0.01 mA | P |
| 8 | TOTAL HARMONIC DISTORTION | THD< 20% when output loading \geq 75% at 115VAC/230VAC input output loading \geq 80% at 277VAC input | I/P : 230VAC I/P : 115VAC O/P : 75% LOAD Ta : 25°C | THD : 17.58 % THD : 13.56 % | P |
| | | | I/P : 277VAC O/P : 80% LOAD Ta : 25°C | THD : 15.15 % | P |

PROTECTION FUNCTION TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|-------------------------|-----------------|---|---|---------|
| 1 | OVER LOAD PROTECTION | 100 %~ 110 % | I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C | 105 %/ 230 VAC 105 %/ 115 VAC Constant Current Limiting | P |
| 2 | OVER VOLTAGE PROTECTION | CH1: 10 V~ 14 V | I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C | 12.8V/ 230 VAC 12.8 V/ 115 VAC Shut down Re- power ON | P |

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| 3 | OVER TEMPERATURE PROTECTION | SPEC: TSW1: 95 ± 10°C O.T.P NO DAMAGE | I/P: 230 VAC O/P: 100% LOAD | O.T.P. Active Shut down Re-power ON | P |
| 4 | SHORT PROTECTION | SHORT EVERY OUTPUT 1 HOUR NO DAMAGE | I/P: 295 VAC O/P: 100% LOAD Ta:25°C | NO DAMAGE Hiccup Mode | P |

ENVIRONMENT TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|---|-------------------|---------|
| 1 | TEMPERATURE RISE TEST | MODEL : PLN-30-9 1. ROOM AMBIENT BURN-IN : 17 HRS I/P: 230VAC O/P: 100% LOAD Ta= 24.7°C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P: 230VAC O/P: 100% LOAD Ta= 40.8 °C | | | P |
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| 2 | OVER LOAD BURN-IN TEST | NO DAMAGE 1 HOUR (MIN) | I/P: 230 VAC O/P: 115 % 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= -30 °C | TEST : OK | P |
| 4 | HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST | AFTER 12 HOURS IN CHAMBER ON CONTROL 40°C NO DAMAGE | I/P: 295 VAC O/P: 100% LOAD Ta= 40°C HUMIDITY= 95 %R.H | TEST : OK | P |
| 5 | TEMPERATURE COEFFICIENT | ± 0.06 % (0~50°C) | I/P: 230 VAC O/P:100% LOAD | ± 0.03 % (0~50°C) | P |
| 6 | VIBRATION TEST | 1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Time:72min (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: 3.75KVAC/min | I/P-O/P: 4.2KVAC/min Ta:25°C | I/P-O/P: 2.14 mA NO DAMAGE | P |
| 2 | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ | I/P-O/P: 500 VDC Ta:25°C /70% RH | I/P-O/P: 30 GΩ NO DAMAGE | P |
| 3 | APPROVAL | TUV: Certificate NO : R50164054 UL: File NO : E186843 | | | P |

E.M.C TEST

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|--|--|-------------------------------|---------|
| 1 | HARMONIC | EN61000-3-2 CLASS A CLASS C | I/P: 230 VAC/50HZ O/P: 100% LOAD/70%LOAD Ta:25°C | PASS | P |
| 2 | CONDUCTION | EN55015 CLASS B | I/P: 230 VAC (50HZ) O/P: 100% LOAD /50% LOAD Ta:25°C | PASS Test by certified Lab | P |
| 3 | RADIATION | EN55015 CLASS B | I/P: 230 VAC (50HZ) O/P: 100% LOAD Ta:25°C | PASS Test by certified Lab | P |
| 4 | E.S.D | EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV | I/P: 230 VAC/50HZ O/P: 100% LOAD Ta:25°C | CRITERIA A | P |
| 5 | E.F.T | EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV | I/P: 230 VAC/50HZ O/P: 100% LOAD Ta:25°C | CRITERIA A | P |
| 6 | SURGE | IEC61000-4-5 LIGHT INDUSTRY L-N :1KV | I/P: 230 VAC/50HZ O/P: 100% 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 | PLN-30-9 : SUPPOSE C 106 IS THE MOST CRITICAL COMPONENT I/P : 230VAC O/P : 100% LOAD Ta= 25 °C LIFE TIME= 53282 HRS I/P : 230VAC O/P : 100% LOAD Ta= 40 °C LIFE TIME= 28012 HRS I/P : 230VAC O/P : 75% LOAD Ta= 40 °C LIFE TIME= 52924 HRS I/P : 230VAC O/P : 50% LOAD Ta= 40 °C LIFE TIME= 116577 HRS | | | P |
| 2 | MTBF | MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 621.4K HRS | | | P |
| 3 | DMTBF/Accelerated Life Test | Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 80°C ; 50,000 hours @ Tcase 65°C | | | P |

COMPONENT STRESS TEST



30W Single Output Switching Power Supply

PLN-30 series

| NO | TEST ITEM | SPECIFICATION | TEST CONDITION | RESULT | VERDICT |
|----|---|-------------------------------------|---|---|---------|
| 1 | Power Transistor (D to S) or (C to E) Peak Voltage | Q1 Rated STP9NK70ZFP : 700V 7.5A | I/P:High-Line +3V = 298 V O/P: (1) 100% LOAD Turn on (2) Output Short Ta:25°C | (1) 648 V (2) 464 V | P |
| 2 | Diode Peak Voltage | D100 Rated FME220A : 100V 20A | I/P:High-Line +3V = 298 V O/P: (1) 100% LOAD Turn on (2)Output Short Ta:25°C | (1) 55 V (2) 50 V | P |
| 3 | Clamp Diode Peak Voltage | D2 Rated IN4007 : 1000V 1A | I/P:High-Line +3V = 298 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C | (1) 520 V | P |
| 4 | Control IC Voltage Test | U1 Rated TDA4863G : 22V | I/P:High-Line +3V = 298 V O/P: (1) 100% LOAD Turn on /Off (2) Min load Turn on /Off (3) 100% /Min load Change Ta:25°C | (1) 14.55 V (2) 14.52 V (3) 14.52 V | P |

| DATE | SAMPLE | TEST RESULT | TESTER | APPROVAL |
|----------|----------------------------|-------------|---------------|----------|
| 2007/2/1 | RD SAMPLE | PASS | VINCENT TSENG | MAX LIN |
| 2007/6/4 | PRODUCT SAMPLE W0703A44 | PASS | VINCENT TSENG | MAX LIN |
| 2007/7/6 | PRODUCT SAMPLE W0706D35 | PASS | VINCENT TSENG | MAX LIN |
| 2007/8/7 | PRODUCT SAMPLE W0707E31 | PASS | VINCENT TSENG | MAX LIN |

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