



MODEL : PLN-20-24

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 3.0 Vp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 0.85 Vp-p (Max)	PASS
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 0.6A ~ 0.8A	I/P: 230 VAC I/P:115VAC O/P:MIN LOAD Ta:25°C	0.572A~0.842A/230VAC 0.581A~0.847A/115VAC	PASS
3	OUTPUT VOLTAGE TOLERANCE	V1: -10 %~+10 % (Max)	I/P: 100VAC / 277 VAC O/P:FULL/ 0% LOAD Ta:25°C	V1: -5.68%~ +3.46 %	PASS
4	LINE REGULATION	V1: -3 %~ +3 % (Max)	I/P: 100 VAC ~ 277VAC O/P:FULL LOAD Ta:25°C	V1: -0.625 %~ +0.075 %	PASS
5	LOAD REGULATION	V1: -10 %~ +10 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.154 %~ +0.105 %	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/ 401.542 ms 115 VAC/ 543.445 ms	PASS
7	OVER/UNDERSHOOT TEST	< ±10 %	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: +7.69 % -1.67 %	PASS
8	DYNAMIC LOAD	V1: 3000 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) 900 mVp-p (2) 1450 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= 0.927 / 230VAC 100% PF= 0.984 / 115VAC 100% PF= 0.901 / 230VAC 75% PF= 0.986 / 115VAC 75%	PASS
4	EFFICIENCY	82 % (Typ)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	84.8 %	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 = 0.103 A / 230VAC I = 0.200 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 = 15.5 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	107.5 %/277VAC 107.4 %/ 230VAC 106.7 %/ 100 VAC  Hiccup Mode	PASS
2	OVER VOLTAGE PROTECTION	CH1: 27 V~ 34 V	I/P: 230 VAC O/P: MIN LOAD Ta: 25°C	30.4 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-20-36 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 28.5 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 49.4 °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	± 0.022 %(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-20-36: 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= 481176 HRS LIFE TIME= 94341 HRS		PASS
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 643.6K HRS			PASS

## SAFETY TEST

NO	TEST ITEM	SPECICATION	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: 1.002 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: 0.007 mA N-FG: 0.014 mA	PASS

## E.M.C TEST

NO	TEST ITEM	SPECICATION	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) 602 V (2) 655 V (3) 580 V (4) 594 V	PASS
2	Diode Peak Voltage	D 100 Rated FMX-12SL : 200 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) 147 V (2) 120 V (3) 144 V (4) 147 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) 520 V (2) 500 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) 12.1 V (1) 5.0 V (2) 12.1 V (2) 4.3 V (3) 12.2 V (3) 7.7 V (4) 15.0 V (4) 12.1 V	PASS

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009/7/14	RD SAMPLE	PASS	SKY	LIUWY
2010/2/4	PRODUCT SAMPLE (W0911C082)	PASS	SKY	LIUWY

2007/11/26 A50-G058