

MODEL : PLN-30-15

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 : 2.04 Vp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 14.25 V~ 16.5 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	13.02 V~ 17.65 V / 230 VAC 13.02 V~ 17.65 V / 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1 : 1.5 A~2.06A	I/P : 230 VAC I/P : 115 VAC Ta : 25°C	1.26 A~ 2.37 A / 230 VAC 1.26 A~ 2.37 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 : 0.7 %~ -0.7 %	P
5	LINE REGULATION	V1 : 3 %~ -3 % (Max)	I/P : 100VAC ~ 295 VAC O/P : 100% LOAD Ta : 25°C	V1 : 0.12 %~ -0.12 %	P
6	LOAD REGULATION	V1 : 5%~ -5 % (Max)	I/P : 230 VAC O/P : 100% LOAD ~MIN LOAD Ta : 25°C	V1 : 0.25 %~ -0.25 %	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/ 435 ms 115VAC/ 284 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/ 36 ms 115VAC/ 25 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~298 VAC	I/P : TESTING O/P : 100% LOAD Ta : 25°C	76 V~298V	P
			I/P : LOW-LINE-3V= 87V HIGH-LINE+10V= 305V 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 ~ 298 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	83.5% (TYP)	I/P : 230 VAC O/P : 100% LOAD Ta : 25°C	85.9 %	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 = 0.17 A/ 230 VAC I = 0.31 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 = 32 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.5 mA / 240 VAC	I/P : 240VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.001 mA N-FG : 0.001 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 : 17.57 % THD : 8.76 %	P
			I/P : 277VAC O/P : 80% LOAD Ta : 25°C	THD : 19.35 %	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 : 17 V~ 22 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	20.7 V/ 230 VAC 20.7 V/ 115 VAC Shunt down Re- power ON	P

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 Shunt down Re-power ON	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 298 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 <table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 24.7°C</th> <th>HIGH AMBIENT Ta= 40.8°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>Q1</td><td>P9NK70ZFP 7.5A/700A</td><td>72.3°C</td><td>83.9°C</td></tr> <tr><td>2</td><td>D2</td><td>1N4007 1A/1KV</td><td>85.6°C</td><td>96.6°C</td></tr> <tr><td>3</td><td>LF1</td><td>TR-572</td><td>52.8°C</td><td>64.5°C</td></tr> <tr><td>4</td><td>U1</td><td>TDA4863</td><td>60.9°C</td><td>71.5°C</td></tr> <tr><td>5</td><td>BD1</td><td>UD2KB80</td><td>63.6°C</td><td>74.9°C</td></tr> <tr><td>6</td><td>C48</td><td>47U/35V 105°C ZLH</td><td>66.8°C</td><td>77.8°C</td></tr> <tr><td>7</td><td>C7</td><td>474/450V 105°C</td><td>63.3°C</td><td>74.5°C</td></tr> <tr><td>8</td><td>T1 COIL</td><td>TF-1594</td><td>89.1°C</td><td>99.3°C</td></tr> <tr><td>9</td><td>TSW1</td><td>NTC200K 5%</td><td>69.8°C</td><td>81.6°C</td></tr> <tr><td>10</td><td>L1</td><td>TR-751</td><td>60.3°C</td><td>71.9°C</td></tr> <tr><td>11</td><td>C106</td><td>1500U/16V 105°C ZLH</td><td>83.1°C</td><td>93.5°C</td></tr> <tr><td>12</td><td>D100</td><td>FME-220A 20A/100V</td><td>90.7°C</td><td>100.5°C</td></tr> <tr><td>13</td><td>LF100</td><td>TR-574</td><td>59.6°C</td><td>70.7°C</td></tr> <tr><td>14</td><td>CASE</td><td>UP CASE</td><td>51.9°C</td><td>65.3°C</td></tr> </tbody> </table>	NO	Position	P/N	ROOM AMBIENT Ta= 24.7°C	HIGH AMBIENT Ta= 40.8°C	1	Q1	P9NK70ZFP 7.5A/700A	72.3°C	83.9°C	2	D2	1N4007 1A/1KV	85.6°C	96.6°C	3	LF1	TR-572	52.8°C	64.5°C	4	U1	TDA4863	60.9°C	71.5°C	5	BD1	UD2KB80	63.6°C	74.9°C	6	C48	47U/35V 105°C ZLH	66.8°C	77.8°C	7	C7	474/450V 105°C	63.3°C	74.5°C	8	T1 COIL	TF-1594	89.1°C	99.3°C	9	TSW1	NTC200K 5%	69.8°C	81.6°C	10	L1	TR-751	60.3°C	71.9°C	11	C106	1500U/16V 105°C ZLH	83.1°C	93.5°C	12	D100	FME-220A 20A/100V	90.7°C	100.5°C	13	LF100	TR-574	59.6°C	70.7°C	14	CASE	UP CASE	51.9°C	65.3°C			P
NO	Position	P/N	ROOM AMBIENT Ta= 24.7°C	HIGH AMBIENT Ta= 40.8°C																																																																												
1	Q1	P9NK70ZFP 7.5A/700A	72.3°C	83.9°C																																																																												
2	D2	1N4007 1A/1KV	85.6°C	96.6°C																																																																												
3	LF1	TR-572	52.8°C	64.5°C																																																																												
4	U1	TDA4863	60.9°C	71.5°C																																																																												
5	BD1	UD2KB80	63.6°C	74.9°C																																																																												
6	C48	47U/35V 105°C ZLH	66.8°C	77.8°C																																																																												
7	C7	474/450V 105°C	63.3°C	74.5°C																																																																												
8	T1 COIL	TF-1594	89.1°C	99.3°C																																																																												
9	TSW1	NTC200K 5%	69.8°C	81.6°C																																																																												
10	L1	TR-751	60.3°C	71.9°C																																																																												
11	C106	1500U/16V 105°C ZLH	83.1°C	93.5°C																																																																												
12	D100	FME-220A 20A/100V	90.7°C	100.5°C																																																																												
13	LF100	TR-574	59.6°C	70.7°C																																																																												
14	CASE	UP CASE	51.9°C	65.3°C																																																																												
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 : 2.16 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 : 25 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

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) 600 V (2) 444 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) 82 V (2) 67 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) 392 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) 14.5 V (2) 14.5 V (3) 14.5 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/2/1	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/5/9	PRODUCT SAMPLE W0703A44	PASS	VINCENT TSENG	MAX LIN
2007/6/4	PRODUCT SAMPLE W0705C46	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023