MODEL：PLN-100-20

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 230VAC O/P: 95% LOAD Ta:25℃	V1: 20 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 17 V~20 V	I/P: 230 VAC I/P: 115 VAC Ta:25℃	16.23V~ 20.41 V/ 230 VAC 16.23V~ 20.41 V/ 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1: 4.8 A~3.6 A	I/P: 230 VAC I/P: 115 VAC Ta:25℃	3.23 A~ 5.44 A/ 230 VAC 3.19 A~ 5.56 A/ 115 VAC	P
4	OUTPUT VOLTAGE TOLERANCE	V1: 3 %~ -3 % (Max)	I/P: 100 VAC / 295 VAC O/P: 95% LOAD / MIN LOAD Ta:25℃	V1: 1.2 %~ -1.2 %	P
5	LINE REGULATION	V1: 1 %~ -1 % (Max)	I/P: 100VAC ~ 295 VAC O/P: 95% LOAD Ta:25℃	V1: 0.03 %~ -0.03 %	P
6	LOAD REGULATION	V1: 2 %~ -2 % (Max)	I/P: 230 VAC O/P: 95% LOAD ~MIN LOAD Ta:25℃	V1: 0.3 %~ -0.3 %	P
7	SET UP TIME	230VAC: 500 ms (Max) 115 VAC: 1200 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P: 95% LOAD Ta:25℃	230VAC/ 360.439 ms 115VAC/ 355.303 ms	P
8	RISE TIME	230VAC: 80 ms (Max) 115VAC: 80 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P: 95% LOAD Ta:25℃	230VAC/ 8 ms 115VAC/ 8 ms	P
9	HOLD UP TIME	230VAC: 60 ms (TYP) 115VAC: 16 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: 95% LOAD Ta:25℃	230VAC/ 115. ms 115VAC/ 36 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P: 95% LOAD Ta:25℃	TEST: <5 %	P
11	DYNAMIC LOAD	V1: 2000 mVp-p	I/P: 230 VAC O/P: 95% LOAD /Min LOAD 90%DUTY/1KHZ Ta:25℃	738 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~295 VAC	I/P:TESTING O/P: 95% LOAD Ta:25℃	52 V~295V	P
			I/P ： LOW-LINE-3V= 87V (PLEASE CHECK DERATING CURVE) HIGH-LINE+10V=305 V O/P ： 95% 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: 95% LOAD ~MIN LOAD Ta:25℃	TEST: OK	P
3	POWER FACTOR	0.95 / 230 VAC(TYP) 0.95 / 115 VAC(TYP) 0.92 / 277 VAC(TYP)	I/P ： 230 VAC I/P ： 115 VAC I/P ： 277 VAC O/P ： 95% LOAD Ta ： 25℃	PF= 0.97 / 230 VAC PF= 0.991 / 115 VAC PF= 0.93 /277VAC	P
4	EFFICIENCY	88.5% (TYP)	I/P: 230 VAC O/P: 95% LOAD Ta:25℃	89.1 %	P
5	INPUT CURRENT	230V/ 0.55 A (TYP) 115V/ 1.1 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: 95% LOAD Ta:25℃	I = 0.49 A/ 230 VAC I = 0.91 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A (TYP) COLD START	I/P: 230 VAC O/P: 95% LOAD Ta:25℃	I = 33 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25℃	L-FG: 0.35 mA N-FG: 0.35 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 %~ 102 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25℃	96.4 %/ 230 VAC 98.5 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 22V~ 27 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	25.2 V/ 230 VAC 25.2 V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	Shut down Re-power ON	I/P: 230 VAC O/P: 95% LOAD	O.T.P. Active Shut down Re-power ON	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: 95% LOAD Ta:25℃	NO DAMAGE Hiccup Mode or Constant Current Limiting	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：PLN-100-12
1. ROOM AMBIENT BURN-IN：2 HRS
I/P: 230VAC O/P: 95% LOAD Ta= 30.1 ℃
2. HIGH AMBIENT BURN-IN：62 HRS
I/P: 230VAC O/P: 95% LOAD Ta= 45.4 ℃

<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 30.1 ℃</th><th>HIGH AMBIENT Ta= 45.4 ℃</th></tr>
<tr><td>1</td><td>BD1</td><td>US4KB80 4A/800V SHI</td><td>69.6℃</td><td>82.2℃</td></tr>
<tr><td>2</td><td>LF2</td><td>TR-689</td><td>61.2℃</td><td>73.6℃</td></tr>
<tr><td>3</td><td>L2 COIL</td><td>TF-1356 LS</td><td>76.4℃</td><td>87.9℃</td></tr>
<tr><td>4</td><td>L1 COIL</td><td>TR-623</td><td>73.7℃</td><td>85.6℃</td></tr>
<tr><td>5</td><td>Q2</td><td>2SK3683 19A/500V FUJI</td><td>77.8℃</td><td>90.1℃</td></tr>
<tr><td>6</td><td>D1</td><td>MUR460 4A/600V VIS</td><td>84.4℃</td><td>96.9℃</td></tr>
<tr><td>7</td><td>C5</td><td>150U/400V NCC 105℃ KMG</td><td>78.8℃</td><td>90.9℃</td></tr>
<tr><td>8</td><td>C42</td><td>47U/63V RUB 105℃ YXF</td><td>79.4℃</td><td>91.1℃</td></tr>
<tr><td>9</td><td>Q1</td><td>SPA11N65C3 11A/820V INF</td><td>81.6℃</td><td>93.9℃</td></tr>
<tr><td>10</td><td>T1 COIL</td><td>TF-1489 LS</td><td>88.2℃</td><td>100.3℃</td></tr>
<tr><td>11</td><td>U2</td><td>TEA1552/N1 PH</td><td>84.7℃</td><td>96.4℃</td></tr>
<tr><td>12</td><td>U1</td><td>TDA4863 INF</td><td>83.5℃</td><td>95.1℃</td></tr>
<tr><td>13</td><td>RTH2</td><td>200KΩ ±5% (90℃ ± 10℃)</td><td>76.6℃</td><td>88.5℃</td></tr>
<tr><td>14</td><td>Q100</td><td>IRF2807 75V/82A IR</td><td>71.2℃</td><td>83.8℃</td></tr>
<tr><td>15</td><td>C105</td><td>2200U/16V RUB 105℃ ZLH</td><td>78.9℃</td><td>90.9℃</td></tr>
<tr><td>16</td><td>TEMP INSIDE</td><td>T1 BETWEEN C5</td><td>80.9℃</td><td>92.8℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P: 230 VAC
O/P: 100 % LOAD
Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P: 230 VAC
O/P: 95 % LOAD
Ta= -30 ℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 40℃
NO DAMAGE</td><td>I/P: 295 VAC
O/P: 95% LOAD
Ta= 40℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.03 %(0~50℃)</td><td>I/P: 230 VAC
O/P:95% LOAD</td><td>± 0.01 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">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℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75 KVAC/min I/P-FG: 2KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 4.2 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 0.6 KVAC/min Ta:25℃	I/P-O/P: 5.84 mA I/P-FG 4.89 mA O/P-FG 2.566 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25℃	I/P-O/P: 3 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO ：R50091288 UL: File NO ：E307078			P

E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS C	I/P: 230 VAC/50HZ O/P: 95% LOAD Ta:25℃	PASS	P
2	CONDUCTION	EN55022 EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P: 95% LOAD /50% LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P: 95% LOAD Ta:25℃	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: 95% LOAD Ta:25℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P: 95% LOAD Ta:25℃	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N ：2KV L,N-PE ：4KV	I/P: 230 VAC/50HZ O/P: 95% LOAD Ta:25℃	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	PLN-100-12:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P: 95% LOAD Ta= 25 ℃ LIFE TIME= 96459 HRS I/P: 230VAC O/P: 95% LOAD Ta= 40 ℃ LIFE TIME= 42846 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 303.1K HRS			P
3	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Tcase 65℃; 50,000 hours @ Tcase 50℃			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated SPA11N65C3 : 650V 11 A	I/P:High-Line +3V = 298 V O/P: (1) 95% LOAD Turn on (2) Output Short Ta:25℃	(1) 576 V (2) 510 V	P
2	Diode Peak Voltage	Q100 Rated STP80NF12 : 80A 120V	I/P:High-Line +3V = 298 V O/P: (1) 95% LOAD Turn on (2)Output Short Ta:25℃	(1) 103 V (2) 87 V	P
3	Clamp Diode Peak Voltage	D2 Rated IN4007 : 1KV 1A	I/P:High-Line +3V = 298 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 506 V	P
4	Input Capacitor Voltage	C5 Rated : 150 u / 400V/ 105℃	I/P:High-Line +3V = 298 V O/P: (1) 95% LOAD Turn on /Off (2) Min load Turn on /Off (3) 95% /Min load Change Ta:25℃	(1) 384 V (2) 384 V (3) 383 V	P
5	Control IC Voltage Test	U2 Rated TEA1552 : 20V	I/P:High-Line +3V = 298 V O/P: (1) 95% LOAD Turn on /Off (2) Min load Turn on /Off (3) 95% /Min load Change Ta:25℃	(1) 17.9 V (2) 17.8 V (3) 17.8 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2006/7/4	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/8/24	PRODUCT SAMPLE W0607C06	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023