

MODEL : PLN-100-48

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 200 mVp-p (Max)	I/P: 230VAC O/P: 95% LOAD Ta:25°C	V1: 33 mVp-p (Max)	P
2	OUTPUT CURRENT ADJUST RANGE	CH1: 40.8V~48 V	I/P: 230 VAC I/P: 115 VAC Ta:25°C	38.22V~ 49.11 V/ 230 VAC 38.22V~ 49.11 V/ 115 VAC	P
3	OUTPUT CURRENT ADJUST RANGE	CH1: 1.5 A~2A	I/P: 230 VAC I/P: 115 VAC Ta:25°C	1.33 A~ 2.37 A/ 230 VAC 1.32 A~ 2.37 A/ 115 VAC	P
4	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max)	I/P: 100 VAC / 295 VAC O/P: 95% LOAD / MIN LOAD Ta:25°C	V1: 0.4 %~ -0.4 %	P
5	LINE REGULATION	V1: 1 %~ -1 % (Max)	I/P: 100VAC ~ 295 VAC O/P: 95% LOAD Ta:25°C	V1: 0.02 %~ -0.02 %	P
6	LOAD REGULATION	V1: 2 %~ -2 % (Max)	I/P: 230 VAC O/P: 95% LOAD ~MIN LOAD Ta:25°C	V1: 0.4 %~ -0.4 %	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°C	230VAC/ 359.460 ms 115VAC/ 366.212 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°C	230VAC/ 23 ms 115VAC/ 23 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°C	230VAC/ 108 ms 115VAC/ 36 ms	P
10	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P: 95% LOAD Ta:25°C	TEST: <5 %	P
11	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230 VAC O/P: 95% LOAD /Min LOAD 90%DUTY/1KHZ Ta:25°C	434 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°C	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 OSC	I/P: 90 VAC ~ 295 VAC O/P: 95% LOAD ~MIN LOAD Ta:25°C	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°C	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°C	89.4 %	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°C	I = 0.48 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°C	I = 32 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 0.75 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	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°C	99.5 %/ 230 VAC 99 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 52V~ 64V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	57.6 V/ 230 VAC 57.6 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°C	NO DAMAGE Hiccup Mode or Constant Current Limiting	p

ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT																																																																																					
1	TEMPERATURE RISE TEST	MODEL : PLN-100-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: 95% LOAD Ta= 30.1 °C 2. HIGH AMBIENT BURN-IN : 62 HRS I/P: 230VAC O/P: 95% LOAD Ta= 45.4 °C			P																																																																																					
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 30.1 °C</th> <th>HIGH AMBIENT Ta= 45.4 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>US4KB80 4A/800V SHI</td><td>74.3°C</td><td>87.3°C</td></tr> <tr><td>2</td><td>LF2</td><td>TR-689</td><td>67.0°C</td><td>79.6°C</td></tr> <tr><td>3</td><td>L2 COIL</td><td>TF-1356 LS</td><td>82.7°C</td><td>94.7°C</td></tr> <tr><td>4</td><td>L1 COIL</td><td>TR-623</td><td>75.5°C</td><td>88.3°C</td></tr> <tr><td>5</td><td>Q2</td><td>2SK3683 19A/500V FUJI</td><td>83.9°C</td><td>96.8°C</td></tr> <tr><td>6</td><td>D1</td><td>MUR460 4A/600V VIS</td><td>94.0°C</td><td>107.5°C</td></tr> <tr><td>7</td><td>C5</td><td>150U/400V NCC 105°C KMG</td><td>86.4°C</td><td>99.1°C</td></tr> <tr><td>8</td><td>C42</td><td>47U/63V RUB 105°C YXF</td><td>83.9°C</td><td>96.3°C</td></tr> <tr><td>9</td><td>Q1</td><td>SPA11N65C3 11A/820V INF</td><td>91.4°C</td><td>104.4°C</td></tr> <tr><td>10</td><td>T1 COIL</td><td>TF-1472 LS</td><td>84.6°C</td><td>107.8°C</td></tr> <tr><td>11</td><td>U2</td><td>TEA1552/N1 PH</td><td>87.5°C</td><td>100.1°C</td></tr> <tr><td>12</td><td>U1</td><td>TDA4863 INF</td><td>78.6°C</td><td>89.5°C</td></tr> <tr><td>13</td><td>RTH2</td><td>200KΩ ±5% (90°C ± 10°C)</td><td>81.3°C</td><td>94.1°C</td></tr> <tr><td>14</td><td>Q100</td><td>IRF3415 150V/43A IR</td><td>79.1°C</td><td>92.7°C</td></tr> <tr><td>15</td><td>C105</td><td>680U/35V NCC 105°C KY</td><td>88.0°C</td><td>101.2°C</td></tr> <tr><td>16</td><td>TEMP INSIDE</td><td>T1 BETWEEN C5</td><td>80.9°C</td><td>92.8°C</td></tr> </tbody> </table>	NO	Position		P/N	ROOM AMBIENT Ta= 30.1 °C	HIGH AMBIENT Ta= 45.4 °C	1	BD1	US4KB80 4A/800V SHI	74.3°C	87.3°C	2	LF2	TR-689	67.0°C	79.6°C	3	L2 COIL	TF-1356 LS	82.7°C	94.7°C	4	L1 COIL	TR-623	75.5°C	88.3°C	5	Q2	2SK3683 19A/500V FUJI	83.9°C	96.8°C	6	D1	MUR460 4A/600V VIS	94.0°C	107.5°C	7	C5	150U/400V NCC 105°C KMG	86.4°C	99.1°C	8	C42	47U/63V RUB 105°C YXF	83.9°C	96.3°C	9	Q1	SPA11N65C3 11A/820V INF	91.4°C	104.4°C	10	T1 COIL	TF-1472 LS	84.6°C	107.8°C	11	U2	TEA1552/N1 PH	87.5°C	100.1°C	12	U1	TDA4863 INF	78.6°C	89.5°C	13	RTH2	200KΩ ±5% (90°C ± 10°C)	81.3°C	94.1°C	14	Q100	IRF3415 150V/43A IR	79.1°C	92.7°C	15	C105	680U/35V NCC 105°C KY	88.0°C	101.2°C	16	TEMP INSIDE	T1 BETWEEN C5	80.9°C	92.8°C		
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 100 % LOAD Ta:25°C	TEST : OK	P																																																																																					
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 95 % 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: 95% LOAD Ta= 40°C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																					
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~50°C)	I/P: 230 VAC O/P:95% LOAD	± 0.01 %(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: 3.75 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: 2.4 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	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°C	I/P-O/P: 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : R50091288 UL: File NO : E307078			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: 95% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P: 95% LOAD /50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 EN55015 CLASS B	I/P: 230 VAC (50HZ) O/P: 95% 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: 95% 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: 95% LOAD Ta:25°C	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°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-100-24:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P: 95% LOAD Ta= 25 °C LIFE TIME= 50930 HRS I/P: 230VAC O/P: 95% LOAD Ta= 40 °C LIFE TIME= 20790 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°C ; 50,000 hours @ Tcase 50°C			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°C	(1) 562 V (2) 484 V	P
2	Diode Peak Voltage	Q100 Rated STTH2003CT : 20A 300V	I/P:High-Line +3V = 298 V O/P: (1) 95% LOAD Turn on (2)Output Short Ta:25°C	(1) 264 V (2) 204 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°C	(1) 498 V	P
4	Input Capacitor Voltage	C5 Rated : 150 u / 400V/ 105°C	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°C	(1) 393 V (2) 385 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°C	(1) 17.9 V (2) 17.9 V (3) 17.9 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
2006/11/15	PRODUCT SAMPLE W0611A21	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023