Test Report: PLD-40-1400B

40W Single Output LED Power Supply

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test
E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1：2500 mVp-p (Max)	I/P： 230VAC O/P：FULL LOAD Ta：25℃	V1： 1100 mVp-p (Max)	P
2	OPERATING VOLTAGE RANGE	V1= 17V~29V	I/P： 230VAC O/P：CV MODE Ta：25℃	O/P= 17V ： 1.402 A O/P= 28V： 1.402 A	P
3	SET UP TIME	230VAC： 500 ms (Max)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 443 ms	P
4	OVER/UNDERSHOOT TEST	< 35V	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	TEST： < 35 V	P
5	CURRENT ACCURACY	±5%	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	TEST： ±0.12% %	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~295 VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	175 V~295V	P
			I/P： LOW-LINE-3V=177 V HIGH-LINE=295 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： 180 VAC ~ 295 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST： OK	P
3	POWER FACTOR	0.9 / 230 VAC(TYP) 0.9 / 277 VAC(TYP)	I/P： 230 VAC I/P： 277 VAC O/P：FULL LOAD Ta：25℃	PF= 0.965 / 100% PF= 0.940 / 100%	P
4	EFFICIENCY	86 % (TYP)	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	88.75 %	P
5	INPUT CURRENT	230V/ 0.35 A (TYP) 277V/ 0.30 A (TYP)	I/P： 230 VAC I/P： 277 VAC O/P：FULL LOAD Ta：25℃	I = 0.200 A/ 230 VAC I = 0.170 A/ 277 VAC	P
6	INRUSH CURRENT	230V/ 25 A (TYP) (twidth=60us measured at 50% Ipeak) COLD START	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I = 21.375 A/ 230 VAC T= 52.4 **us**	P
7	LEAKAGE CURRENT	< 0.5 mA / 240 VAC	I/P： 240 VAC O/P：Min LOAD Ta：25℃	L-CASE： 0.003 mA N-CASE： 0.003 mA	P
8	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC	I/P： 230VAC O/P：60% LOAD Ta：25℃	THD： 18.71 %	P
		Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 277VAC	I/P： 277VAC O/P：75% LOAD Ta：25℃	THD： 18.10 %	

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER TEMPERATURE PROTECTION	SPEC： TSW1： 105± 5 ℃ O.T.P. NO DAMAGE	I/P： 230 VAC O/P：FULL LOAD	O.T.P. Active Shut down o/p voltage, re-power on to recover	P
5	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 295 VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE Hiccup mode, recovers automatically after fault condition is removed.	P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated： STP10NK80ZFP: 800V/9A	I/P：High-Line +3V = 298 V O/P： (1)Full Load Turn on (2) Output Short (3)Full load continue Ta：25℃	(1) 622 V (2) 478 V (3) 592 V	P
2	Diode Peak Voltage	D100 Rated： STTH3002CT: 200V/30A	I/P：High-Line +3V = 298 V O/P： (1)Full Load Turn on (2)Output Short (3)Full load continue Ta：25℃	(1) 159 V (2) 117 V (3) 154 V	P
3	Clamp Diode Peak Voltage	D 10 Rated： HER308: 1000V/3A	I/P：High-Line +3V = 298 V O/P： (1)Full Load Turn on (2)Output Short (3)Full load continue Ta：25℃	(1) 618 V (2) 460 V (3) 584 V	P
4	Control IC Voltage Test	U 1 Rated： NCP1608B: 10.2V~20V	I/P：High-Line +3V = 298 V O/P： (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta：25℃	(1) 14.1 V (2) 12.0 V (3) 14.0 V	P

■ SAFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P： 3.75 KVAC/min	I/P-O/P： 4 KVAC/min Ta：25℃	I/P-O/P： 1.252 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P：500VDC>100MΩ	I/P-O/P： 500 VDC Ta：25℃/70%RH	I/P-O/P： >9999 MΩ NO DAMAGE	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230/240/277VAC /50HZ/60HZ O/P:100% LOAD Ta:25℃	PASS	P
2	CONDUCTION	EN55015	I/P:230 VAC (50HZ) O/P:FULL LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN55015	I/P: 230 VAC (50HZ) O/P:FULL 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:FULL LOAD Ta:25℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA B	P
6	SURGE	EN61000-4-5 LIGHT INDUSTRY L-N :1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA B	P
7	Test by certified Lab & Test Report Prepare				

■ RELIABILITY TEST

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</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： PLD-40-1750B
1. ROOM AMBIENT BURN-IN：2.5 HRS
I/P： 230VAC O/P： 95% LOAD Ta=30.3 ℃
2. HIGH AMBIENT BURN-IN：3.5 HRS
I/P： 230VAC O/P： 95% LOAD Ta=56.5 ℃
<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 30.3 ℃</th><th>HIGH AMBIENT Ta= 56.5 ℃</th></tr>
<tr><td>1</td><td>LF2</td><td>LF6013</td><td>53.3℃</td><td>78.6℃</td></tr>
<tr><td>2</td><td>BD1</td><td>UR4KB80</td><td>62.2℃</td><td>86.5℃</td></tr>
<tr><td>3</td><td>C10</td><td>C/MPE 154/630V</td><td>57.9℃</td><td>85.0℃</td></tr>
<tr><td>4</td><td>L1</td><td>TR6108</td><td>59.3℃</td><td>88.1℃</td></tr>
<tr><td>5</td><td>U1</td><td>NCP1608B</td><td>62.7℃</td><td>90.2℃</td></tr>
<tr><td>6</td><td>C40</td><td>47uF/63V L7Kh 8*11.5 KY</td><td>63.3℃</td><td>88.9℃</td></tr>
<tr><td>7</td><td>Q2</td><td>STP10NK80ZFP</td><td>66.5℃</td><td>96.1℃</td></tr>
<tr><td>8</td><td>T1</td><td>TF6496</td><td>70.8℃</td><td>95.5℃</td></tr>
<tr><td>9</td><td>D100</td><td>FCH20A15</td><td>81.3℃</td><td>104.5℃</td></tr>
<tr><td>10</td><td>LF100</td><td>TR574</td><td>49.7℃</td><td>76.1℃</td></tr>
<tr><td>11</td><td>C105</td><td>1000u/35V UL10Kh 12.5*20 ZLH</td><td>58.8℃</td><td>83.3℃</td></tr>
<tr><td>12</td><td>TSW1</td><td>BW-DCP-105℃-R0 110mm</td><td>63.8℃</td><td>89.5℃</td></tr>
<tr><td>13</td><td>D10</td><td>3A/1KV HER308</td><td>64.9℃</td><td>93.0℃</td></tr>
<tr><td>14</td><td>R20</td><td>2W 240KΩ 5%</td><td>67.5℃</td><td>94.3℃</td></tr>
<tr><td>15</td><td>D30</td><td>2A/300V HER204</td><td>65.7℃</td><td>92.6℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 180VAC/295VAC
O/P： 95 % LOAD
Ta= -30 ℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50 ℃
NO DAMAGE</td><td>I/P： 295 VAC
O/P：95% LOAD
Ta= 50 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.03 %(0~50℃)</td><td>I/P： 230 VAC
O/P：95% LOAD</td><td>± 0.015 %(0~50℃)</td><td>P</td></tr>
<tr><td>5</td><td>STORAGE TEMPERATURE TEST</td><td colspan="2">1. Thermal shock Temperature： -45℃~ +85℃
2. Temperature change rate ：25℃ / MIN
3. Dwell time low and high temperature ： 30 MIN/EACH
4. Total test cycle：5 CYCLE
5. Input/Output condition： STATIC</td><td>OK</td><td>P</td></tr>
<tr><td>6</td><td>THERMAL SHOCK TEST</td><td colspan="2">1. Thermal shock Temperature： -35℃~ +55℃
2. Temperature change rate ：25℃ / MIN
3. Dwell time low and high temperature ： 30 MIN/EACH
4. Total test cycle：10 CYCLE
5. Input/Output condition： 230VAC/Full Load AC ON/OFF TEST
turn on 58sec；turn off 2sec</td><td>OK</td><td>P</td></tr>
</table>

7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform： Sine Wave (2) Frequency：10~500Hz (3) Sweep Time：12min/sweep cycle (4) Acceleration：2G (5) Test Time：72min in each axis (X.Y.Z) (6) Ta：25℃	TEST：OK	P
8	CAPACITOR LIFE CYCLE	PLD-40-1750B:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Ta=25 ℃ LIFE TIME (2) I/P： 230VAC O/P：FULL LOAD Ta=50 ℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta=50 ℃ LIFE TIME	(1) 431801.6HRS (2) 59462.4HRS (3) 100684.8HRS	P
9	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE：865.176KHRS		P
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 75℃; 50,000 hours @ Tcase 65℃		P

TEST RESULT	TESTER	APPROVAL
PASS	ZOULF	HOWAY

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