



Test Report: PLD-16-1050A

16W 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 : 2200 mVp-p (Max)	I/P : 115VAC O/P : FULL LOAD Ta : 25°C	V1 : 1550 mVp-p (Max)	P
2	CONSTANT CURRENT REGION	V1= 12V~16V	I/P : 115VAC O/P : CV MODE Ta : 25°C	O/P= 12V : 1.066 A O/P= 15V : 1.065 A	P
3	SET UP TIME	115VAC : 2000 ms (Max)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	115VAC/ 859 ms	P
4	OVER/UNDERSHOOT TEST	< 25V	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	TEST : < 25V	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	90VAC~135 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	85 V~135V	P
			I/P : LOW-LINE=3V=87 V HIGH-LINE=135 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 ~ 135 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	P
3	POWER FACTOR	0.9 / 115 VAC(TYP)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF= 0.993 / 100%	P
4	EFFICIENCY	84 % (TYP)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	84.78 %	P
5	INPUT CURRENT	115V/ 0.4 A (TYP)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 0.164 A/ 115 VAC	P
6	INRUSH CURRENT	115V/ 20 A (TYP) COLD START	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 7.2 A/ 115 VAC	P
7	LEAKAGE CURRENT	< 0.5 mA / 120 VAC	I/P : 120 VAC O/P : Min LOAD Ta : 25°C	L-CASE : 0.003 mA N-CASE : 0.003 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 % ~ 108 %	I/P : 115 VAC I/P : 90 VAC O/P : TESTING Ta : 25°C	101.48 %/ 115 VAC 101.47 %/ 90 VAC Constant Current Limiting ,recovers automatically after fault condition is removed.	P
3	OVER TEMPERATURE PROTECTION	SPEC : RTH1 : 95± 10°C O.T.P. NO DAMAGE	I/P : 115 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage, re-power on to recover	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 135 VAC O/P : FULL LOAD Ta : 25°C	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 1 Rated : STD10NM60N: 8A/650V	I/P : High-Line +3V = 138 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 380 V (2) 262 V (3) 364 V	P
2	Diode Peak Voltage	D100 Rated : B5100C:5A/100V	I/P : High-Line +3V = 138 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 44.2 V (2) 31.2 V (3) 43.2 V	P
3	Clamp Diode Peak Voltage	D 6 Rated : 1N4007GP: 1A/1KV	I/P : High-Line +3V = 138 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 372 V (2) 260 V (3) 352 V	P
4	Control IC Voltage Test	U 1 Rated : NCP1608B: 10.2V~20V	I/P : High-Line +3V = 138 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 14.2 V (2) 11.8 V (3) 14.2 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°C	I/P-O/P : 1.092 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 : >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: 100V/115V/120VAC /60HZ O/P:100% LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55015	I/P:115 VAC (60HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55015	I/P: 115 VAC (60HZ) O/P:FULL 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: 115 VAC/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 115 VAC/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	SURGE	EN61000-4-5 LIGHT INDUSTRY L-N :1KV	I/P: 115 VAC/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																						
1	TEMPERATURE RISE TEST	MODEL : PLD-16-1400A 1. ROOM AMBIENT BURN-IN : 2.5 HRS I/P : 115VAC O/P : 95% LOAD Ta=19.5 °C 2. HIGH AMBIENT BURN-IN : 3.5 HRS I/P : 115VAC O/P : 95% LOAD Ta=52.0 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 19.5 °C</th><th>HIGH AMBIENT Ta= 52.0 °C</th></tr><tr><td>1</td><td>LF1</td><td>LF-804</td><td>39.0°C</td><td>71.5°C</td></tr><tr><td>2</td><td>BD1</td><td>KBP208G</td><td>47.2°C</td><td>79.0°C</td></tr><tr><td>3</td><td>L1</td><td>TF-2171</td><td>48.3°C</td><td>80.5°C</td></tr><tr><td>4</td><td>C9</td><td>104/250V MEC</td><td>47.9°C</td><td>79.5°C</td></tr><tr><td>5</td><td>D6</td><td>1N4007GP</td><td>55.5°C</td><td>86.7°C</td></tr><tr><td>6</td><td>C48</td><td>22u/50V YXM</td><td>47.2°C</td><td>78.9°C</td></tr><tr><td>7</td><td>C54</td><td>47u/25V YXM</td><td>47.4°C</td><td>78.7°C</td></tr><tr><td>8</td><td>T1</td><td>TF-2145</td><td>58.0°C</td><td>88.0°C</td></tr><tr><td>9</td><td>Q1</td><td>STD10NM60N</td><td>55.3°C</td><td>86.4°C</td></tr><tr><td>10</td><td>U1</td><td>NCP1608B</td><td>48.1°C</td><td>79.7°C</td></tr><tr><td>11</td><td>C105</td><td>4700u/16V ZLH</td><td>52.4°C</td><td>82.6°C</td></tr><tr><td>12</td><td>D100</td><td>B5100C</td><td>69.0°C</td><td>98.7°C</td></tr><tr><td>13</td><td>RTH1</td><td>220KΩ 3Φ 1%</td><td>43.0°C</td><td>76.6°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 19.5 °C	HIGH AMBIENT Ta= 52.0 °C	1	LF1	LF-804	39.0°C	71.5°C	2	BD1	KBP208G	47.2°C	79.0°C	3	L1	TF-2171	48.3°C	80.5°C	4	C9	104/250V MEC	47.9°C	79.5°C	5	D6	1N4007GP	55.5°C	86.7°C	6	C48	22u/50V YXM	47.2°C	78.9°C	7	C54	47u/25V YXM	47.4°C	78.7°C	8	T1	TF-2145	58.0°C	88.0°C	9	Q1	STD10NM60N	55.3°C	86.4°C	10	U1	NCP1608B	48.1°C	79.7°C	11	C105	4700u/16V ZLH	52.4°C	82.6°C	12	D100	B5100C	69.0°C	98.7°C	13	RTH1	220KΩ 3Φ 1%	43.0°C	76.6°C	P
NO	Position	P/N	ROOM AMBIENT Ta= 19.5 °C	HIGH AMBIENT Ta= 52.0 °C																																																																							
1	LF1	LF-804	39.0°C	71.5°C																																																																							
2	BD1	KBP208G	47.2°C	79.0°C																																																																							
3	L1	TF-2171	48.3°C	80.5°C																																																																							
4	C9	104/250V MEC	47.9°C	79.5°C																																																																							
5	D6	1N4007GP	55.5°C	86.7°C																																																																							
6	C48	22u/50V YXM	47.2°C	78.9°C																																																																							
7	C54	47u/25V YXM	47.4°C	78.7°C																																																																							
8	T1	TF-2145	58.0°C	88.0°C																																																																							
9	Q1	STD10NM60N	55.3°C	86.4°C																																																																							
10	U1	NCP1608B	48.1°C	79.7°C																																																																							
11	C105	4700u/16V ZLH	52.4°C	82.6°C																																																																							
12	D100	B5100C	69.0°C	98.7°C																																																																							
13	RTH1	220KΩ 3Φ 1%	43.0°C	76.6°C																																																																							
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 90VAC/135VAC O/P : 95 % LOAD Ta= -30 °C	TEST : OK	P																																																																						
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 135 VAC O/P : 95% LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																						
4	TEMPERATURE COEFFICIENT	± 0.03 %(0~50°C)	I/P : 115 VAC O/P : 95% LOAD	± 0.012 %(0~50°C)	P																																																																						
5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~ +85°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		OK	P																																																																						
6	THERMAL SHOCK TEST	1. Thermal shock Temperature : -35°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : 115VAC/Full Load AC ON/OFF TEST turn on 58sec : turn off 2sec		OK	P																																																																						

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°C	TEST : OK	P
8	CAPACITOR LIFE CYCLE	PLD-16-1400A:SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 115VAC O/P : FULL LOAD Ta=25 °C LIFE TIME (2) I/P : 115VAC O/P : FULL LOAD Ta=50 °C LIFE TIME	(1) 319535.7 HRS (2) 66300.3 HRS	P
9	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 906.5KHRS		P
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 75°C ; 50,000 hours @ Tcase65°C		P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2012/05/02	PRODUCT SAMPLE	PASS	ZOULF	HOWAY

2009/08/04 A50-F023