



Test Report: PCD-25-1400A

25W Single Output AC Dimmable 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 : 2 Vp-p (Max)	I/P : 115VAC O/P : FULL LOAD Ta : 25°C	V1 : 1.24 Vp-p (Max)	P
2	SET UP TIME	115VAC : 2000 ms (Max)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	115VAC/ 825 ms	P
3	OPERATING VOLTAGE RANGE	12V~18V	I/P : 115VAC O/P : CV MODE Ta : 25°C	O/P= 12V : 1.463 A O/P= 17V : 1.464 A	P
4	OVER/UNDERSHOOT TEST	< 25V	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	TEST : <25 V	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 I/P : LOW-LINE-3V= 87 V HIGH-LINE+15%=155.25 V O/P : FULL/MIN LOAD ON : 30 Sec. OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	68 V~135V TEST : OK	P
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) 0.9 / 90 VAC(TYP)	I/P : 115 VAC (FULL LOAD) I/P : 90 VAC (FULL LOAD) O/P : FULL LOAD Ta : 25°C	PF= 0.979 / 115 VAC PF= 0.986 / 90 VAC	P
4	EFFICIENCY	80 % (TYP)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	83.72 %	P
5	INPUT CURRENT	115V/ 0.6 A (TYP)	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I= 0.2 A/ 115 VAC	P
6	INRUSH CURRENT	115V/ 40 A (TYP) COLD START	I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I= 7 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 : 0.1 mA N-CASE : 0.1 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	95 % - 110 %	I/P : 115 VAC I/P : 90 VAC O/P : TESTING Ta : 25°C	104 %/ 115 VAC 104%/ 90 VAC Constant Current Limiting recovers automatically after fault condition is removed.	P
2	OVER TEMPERATURE PROTECTION	SPEC : RTH1 : 95 ± 10°C O.T.P. Detect on heatsink of power transistor	I/P : 115 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage · Re-power ON to recover	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 135 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE	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) 342 V (2) 280 V (3) 336 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) 48.4 V (2) 34 V (3) 47.8 V	P
3	Clamp Diode Peak Voltage	D 6 Rated : 1A/1KV 1N4007GP	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) 336 V (2) 258 V (3) 334 V	P
4	Control IC Voltage Test	U 1 Rated : PWM 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) 13.670 V (2) 12.358 V (3) 12.322 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 : 1.246 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 : 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV : Certificate NO : UL : File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS C	I/P:115V/100V/120VAC/60HZ LOAD:LED/ELECTRONIC LOAD O/P:40V/58VLOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55015 CLASS B	I/P : 115 VAC (60HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab	P
3	RADIATION	EN55015 CLASS B	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	IEC61000-4-5 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 : PCD-25-1400A 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 115VAC O/P : FULL LOAD Ta=28.8 °C 2. HIGH AMBIENT BURN-IN : 4 HRS I/P : 115VAC O/P : FULL LOAD Ta= 50.7 °C			P
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 115VAC/100VAC O/P : 100 % LOAD Ta= -30 °C	TEST : OK	
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 40 °C NO DAMAGE	I/P : 135 VAC O/P : FULL LOAD Ta= 40 °C HUMIDITY= 95 %R.H	TEST : OK	P
4	TEMPERATURE COEFFICIENT	± 0.03 %(0-40°C)	I/P : 115 VAC O/P : FULL LOAD	± 0.005 %(0-40°C)	P
5	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -45°C~ +90°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 : -30°C~ +40°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	PCD-25.1400: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) 242246 HRS (2) 60562 HRS	P
9	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 906.5 HRS		P
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 30,000 hours @ Tcase 75°C ; 50,000 hours @ Tcase 65°C		P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2010/10/6	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG
2010/11/10	PRODUCT SAMPLE	PASS	SANFORD SU	VINCENT TSENG

2009/08/04 A50-F023