Temperature Rise Test Report

Name	Model No.	Version
LED Driver	**LS-40-650 LI2**	**Rev1.0.5**

Tester	朱俊槟	**Date**	**2020-7-27**
Auditor		**Date**	

1. Overview

LS-40-650 LI2 Prototype for Electrical Performance Testing

2. Testing place, time, personnel

Tested on: 2020-7-23

Test location: R&D and test center

Tested by: Zhu Junpeng

3. Test reference standards

3.1 Technical specifications requirements

Product Design Specification, DZ-CS3-003 A Edition Power Supply Test Specification, DZ-YF-004 A Edition LED Power Supply Validation Assessment Test Standard of Electronic Branch Company

3.2 Test methods

DZ-CS3-003 Version A Power Test Specification

4. Test equipment

Table 4-1 Testing instruments, equipment

Equipment name	Model number	Test Project	Manufacturer
Electric heating constant temperature blast drying oven	LX—9140L	Temperature rise	中国 深圳品极
Digital thermometer	52II	Temperature rise	美国 FLUCK
Thermal imaging camera	Ti10	Temperature rise	美国 FLUKE

5. Result

☑**Pass** **Fail**

6. Issue reports

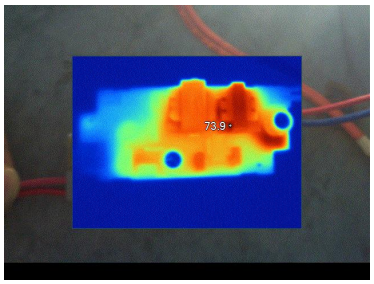
No	Description of the problem	Solution of the problem
1		
2		
3		
4		

1. Thermal stress test

1.1 Thermal stress at ambient temperature

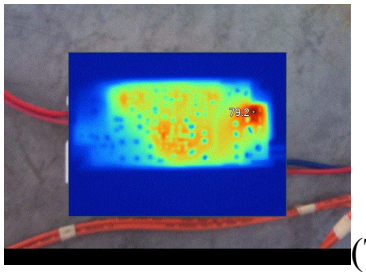
a. Test conditions: Ambient temperature = 25 ℃; Upper limit of rated input voltage = 264 V; Load: 13 3.3V lamp beads in series with light box

b. Component plane



(Thermography)

c. Welding surface



(Thermography)

Test results: Maximum hot spot temperature of 79.2°C, component D3 ES2D

Judgment basis: According to DZ-YF-004 document, when working at 25℃ at room temperature, the temperature of all components should not exceed 80℃, or the temperature rise should be less than 55℃.

Result: Pass

1.2 Thermal stress in high temperature environments

Test conditions: Ambient temperature = 45 °C; upper limit of input voltage range (upper and lower limit of input voltage range for wide voltage), full load.

Test method: The sample is placed in the oven, the box temperature is set to 45 °C at 264V working voltage, to be stable work of the sample machine (generally 4h), measuring the temperature of the main heating devices, such as switching tubes, high-frequency transformers, output rectifier, electrolytic capacitors and other temperature values; the dimmable sample, but also need to dimming to 60%, 30%, 10% (according to the output current Io), each state about 30 minutes after the measurement of the temperature of the main components.

Table 1-1 Temperature Data for Non-Electrolytic Capacitors Unit: (°C)

Designation	Component	Model	Test temperature (°C)	Limit temperature (°C)	Result
T1	Transformers		85.5	110	PASS
D3	Diodes	ES2D	80.3	110	PASS
D10	Diodes	ES2D	82.4	110	PASS
Q1	Triplex	3DD4244DM	81.7	110	PASS
Q2	Triplex	3DD4244DM	73.1	110	PASS
L2	Inductor		83.2	110	PASS
TC			68	85	PASS

Note 1: "Limit temperature" refers to the uniform standard (DZ-YF-004) specified by R&D according to the component usage specification, and "Test temperature" refers to the surface temperature of the component.
Note 2: The maximum temperature point of "7.1" test must be tested.

Table 1-2 Temperature Data for Electrolytic Capacitors Unit: (°C)

Designation	Component	Model NO	To (°C)	Lo(hrs)	T (°C)	L(hrs)	Result
EC1	Electrolysis	10uF/450V	105	12K	73.5	128.0 K	PASS
EC3	Electrolysis	150uF/50V	105	5K	71.5	70K	PASS

Note: The formula for calculating the life of an electrolytic capacitor follows the following formula requirements
(≥30Khrs or 50Khrs)
L: The design life of the product under Ta condition; unit: hrs
Lo: Nominal life of electrolytic capacitors; unit: hrs
To: Nominal rated temperature of electrolytic capacitors; unit: °C
T: Measured surface temperature of electrolytic capacitor under Ta condition. Unit：°C

$$\Delta T = 5 * \left(\frac{I / F}{I_r} \right)^2 ℃$$

Ir is the maximum allowable ripple current of the capacitor, I is the measured ripple current flowing through the capacitor, and F is the frequency coefficient.