SHANGYU CITY BEISITE ELECTRICAL APPLIANCE CO.,LTD.

CE LVD REPORT

Prepared For :	SHANGYU CITY BEISITE ELECTRICAL APPLIANCE CO.,LTD. Xinzhai Village, Xiaoyue Town, Shangyu City, Zhejiang Province, China
Product Name:	ELECTRONIC BALLAST
Model :	BEST-E136DB, BEST-E220SUD, BEST-E236SUD, BEST-E240SUD, BEST-E230SUD, BEST-E120DB, BEST-140DB, BEST-E132DB, BEST-E218SU, BEST-E236SU
Prepared By :	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Test Date:	Jun. 20, 2014 –Jul. 04, 2014
Date of Report :	Jul. 06, 2014
Report No.:	SHBST2014081905-2YSR-2

Test Report

EN61347-2-3

Lamp Controlgear

Part 1: General and safety requirements

Part 2-3: Particular requirements for A.C Supplied electronic ballasts for fluorescent lamps

Testing laboratory ..... :	Shenzhen BST Technology Co., Ltd.
Address ..... :	Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Testing location ..... :	Shenzhen BST Technology Co., Ltd.
Applicant ..... :	SHANGYU CITY BEISITE ELECTRICAL APPLIANCE CO.,LTD.
Address ..... :	Xinzhai Village, Xiaoyue Town, Shangyu City, Zhejiang Province, China
Standard ..... :	EN 61347-2-3:2011 EN 61347-1: 2008+A1:2011+A2:2013
Test Result ..... :	Compliance with EN 61347-2-3:2011 EN 61347-1: 2008+A1:2011+A2:2013
Procedure deviation ..... :	N.A.
Non-standard test method ..... :	N.A.
Type of test object ..... :	ELECTRONIC BALLAST
Trademark ..... :	
Model/type reference ..... :	BEST-E136DB, BEST-E220SUD, BEST-E236SUD, BEST-E240SUD,BEST-E230SUD, BEST-E120DB, BEST-140DB, BEST-E132DB, BEST-E218SU, BEST-E236SU
Rating ..... :	220-240V~, 50/60Hz, 36W Power Factor: 0.95
Manufacturer ..... :	SHANGYU CITY BEISITE ELECTRICAL APPLIANCE CO.,LTD.
Address ..... :	Xinzhai Village, Xiaoyue Town, Shangyu City, Zhejiang Province, China
Test item particulars :	
Operation condition ..... :	Continuous
Class of equipment ..... :	--
Mass of equipment (Kg) ..... :	--
Protection against ingress of water . :	IPX0

Possible test case verdicts :	
test case does not apply to the test object …….. :	N(N.A.)
test object does meet the requirement …….. :	P(Pass)
test object does not meet the requirement ……. :	F(Fail)

General remarks:	
"(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.	Attached with: A. photo documentation Remark:

Artwork of Marking Label

Product: ELECTRONIC BALLAST
Model: BEST-E136DB
Rated : 220-240V~, 50/60Hz, 36W
Power Factor: 0.95

SHANGYU CITY BEISITE ELECTRICAL APPLIANCE CO.,LTD.

Prepared by : Jenny chen
Engineer

Reviewer : CS chan
Supervisor

Approved & Authorized Signer : Christina
Christina / Manager

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
4	**General Reqirement**		**P**
	In normal use it operates without danger to the user or surrounding		P
	Independent controlgear be comply with EN60598-1 including the classification and marking requirements		P
5.	**General note on tests**		**P**
5.1	Type tests		P
5.2	Unless otherwise specified, ambient 10°C-30°C		P
5.3	Unless otherwise specified, type test is carried out on one sample		P
5.4	Be carried out in the order list, or specified in part2		P
5.5	Test in a test corner		P
5.6	d.c supplied ballasts permit use equal supply.		P
6.	**Classification**		**P**
	Built-in		N
	Independent		P
	integral		N
7.	**Marking**		**P**
7.1	Mandatory markings		P
	- items a), b), c), d), e), l) and k) of 7.1 of IEC 61347-1,		P
	a) mark of origin	See page 2	P
	b) model number or type reference	See page 2	P
	c) symbol for independent lamp controlgear		N
	d) the correlation between replaceable and interchangeable parts be marked unambiguously		N
	e) rated supply voltage/voltage range, supply frequency and supply current	220-240V~, 50/60Hz, 36W Power Factor: 0.95	P
	l) value of t_c.	65 °C	P
	k) wiring diagram indication the position and purpose of terminals.		P
	– the symbol for earthing, as applicable;		P
	– for controllable ballasts, the control terminals shall be identified;		P
	– a declaration of the maximum working voltage (r.m.s.) according to 12.2 between		P
	– output terminals;		P
	-any output terminal and earth, if applicable.		P
7.2	Information to be provided, if applicable		P
	h) indication not rely upon the luminaire enclosure for protection against accidental contact with live parts.		P
	i) indication the terminal's cross-section of		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	conductors		
	j) lamp type and rated wattage /wattage range.		P
8	**Protection against accidental contact with live parts**		**P**
10.1	Lamp controlgear not rely upon the luminaire enclosure for protection against electric shock be sufficiently protected against accidental contact with live parts in normal use.		P
	Integral lamp controlgear, relies upon the luminaire enclosure, be tested according to its intended use.		N
	Lacquer or enamel not considered to be adequate protection.		N
	Parts providing protection against accidental contact have adequate mechanical strength.		P
	Recommended, lamp used for the indication of contact, voltage not less than 40V		N
10.2	Lamp controlgear incorporating capacitors of capacitance exceeding 0.5μF		P
	1 min after disconnection, the voltage at the lamp controlgear terminations not exceed 50V.		P
9	**Terminals**		**P**
	Screw terminals comply with section 14 of EN60598-1		N
	Screwless terminals comply with section 15 of EN60598-1		P
	SCREW TERMINALS(section 14 of EN60598-1)		N
	Type of terminal.....:		—
	Rated current (A).....:		—
	Material		P
	Clamping		P
	Stop		P
	Non-prepared conductors		P
	Pressure though insulating material		P
	Clear connection method		P
	Clamping each conductor independently		P
	Fixed in position		P
	Withstand concerning tests		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	Manufacturers state the conductor size		P
	Type of conductor		—
	Mechanical tests		P
	Non-permanent connections		N
	Torqe test for screws (0.4Nm, each 5 times)		P
	Pull test for pin or tab and receptacle type terminals		N
	Insertion force not exceeding 50N		N
	Permanent connections: pull-off test (20N)		P
	Electrical tests		P
	Contact resistance test		P
	Heating tests		P
	Terminals and Connection for external wiring		N
	Terminal size and rating		—
	Mechanical tests		N
	Electrical tests		N
10	**Provisions for protective earthing**		**N**
	Earthing terminals comply with the requirements of clause 8.		N
	The electrical connection/clamping means be adequately locked against loosening		N
	Earthing of lamp controlgear(other than independent ones) permit via means of fixing the lamp controlgear to earthed metal.		N
	Earthing terminal be minimize the danger of electrolytic corrosion .		N
	The screw and the other parts of the earthing terminal be made of brass or other metal no less resistant to corrosion, or material with a non-rusting surpace and at least one of the contact surfaces be bare metal.		N
	Protective earthing provided by tracks on printed circuit boards be tested		N
	25A a.c., 1 min between the earthing terminal or earthing contact via the track on the printed board		N

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	and each fo the accessible metal parts in turn.		
	Resistance < 0.5Ω		N
11	**Moisture resistance and insulation**		**P**
	Lamp controlgear be moisture-resistant.		P
	Humidity: 91%~95%, temperature: 20℃~30℃	H:95%, T: 24°C, for 48Hrs,	P
	Test with 500Vdc, 1 min, insulation resistance not less than 2MΩ for basic insulation		P
	a) between live parts of different polarity which are or can be separated;	>2MΩ	P
	b) between live parts and external parts, including fixing screws	>2MΩ	P
	c) between live parts and control terminals.		N
	During test, output terminal and the earth terminal connection be removed		P
12	**ELECTRIC STRENGTH**		**P**
	Lamp controlgear have adequate electric strength.		P
	Electric strength test, 1min:		P
	Working voltage U up to and including 42V, test voltage: 500V		N
	Working voltage U above 42V up to and including 1000V, test voltage: 2U+1000V		P
	The high-voltage transformer, the output terminals are short-circuited after the output voltage be adjusted to the appropriate test voltage, the output current at least 200mA.		N
	The overcurrent relay not trip when the output current less than 100mA		P
13	**Thermal endurance test for windings of ballasts**		**N**
	Windings of ballasts have adequate thermal endurance.		N
	No indication, the test period be 30 days		N
	The test is carried out in an appropriate oven.		N
	Seven blasts are placed in the oven for test.		N

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	The oven thermostat regulated in according to table 2.		N
	After the test, at room temperature		N
	a) at rated voltage, lamp arc current not exceed 115% of before.		N
	b) insulation resistance between the winding and the allast case, not less than 1MΩ		N
	At least six of the seven ballasts satisfy these requirements.		N
14	**Fault conditions**		**P**
	Under fault conditions, no emission of flames or molten material or production of flammable gases.		P
	Totally enclosed lamp controlgear or components not be opened for examination nor for the application of internal fault conditions.		N
	For lamp controlgear marked with ▽, the lamp controlgear case temperature at any place not exceed the marked value.		N
14.1	Short circuit across creepage distances and clearances, if less than the values specified in clause 16.		P
14.2	Short circuit across or interruption of semi-conductor devices		N
14.3	Short circuit across insulation consisting of covering of lacquer, enamel or textile	No used lacque,enamel or textile	N
14.4	Short circuit across electrolytic capacitors		P
	Test voltage between 0.9 and 1.1 times Urate; Lamp controlgear case at tc, fault condition in turn.		P
	Test with a high-frequency spark generator is made, to check gases liberated from component are not flammable		N
	According to annex A to check accessible parts have not become live.		P
	Check of flames or molten material might not present a safety hazard.		P
15	**Protection of associated components**		**P**
15.1	Under conditions of normal operation, verified with		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	dummy cathode resistors inserted and conditions of abnormal operation, as specified in clause 16, the voltage at the output terminals shall at no time exceed the maximum permitted peak value specified in table 1.		
15.2	Under normal operating conditions and abnormal operating conditions as specified in clause 15, except for the rectifying effect, and from 5 s after the switch on or beginning of the starting process, the voltage at the output terminals shall not exceed the maximum working voltage for which the ballast is declared.		P
15.3	In the case of a rectifying effect, the r.m.s. voltage at the output terminal shall not exceed the maximum permitted value for which the ballast is designed for a period longer than 30 s after switch-on, or beginning of the starting process.		P
15.4	For the tests of 15.1, 15.2 and 15.3, the output voltages measured shall be those between any output terminal and earth. Additionally, voltages that appear between output terminals shall be measured in cases where the voltage is present across insulation barriers within associated components.		N
15.5	For controllable electronic ballasts, the control input shall be isolated from the mains circuit by an insulation at least equal to basic insulation.		P
16	**Abnormal conditions**		**P**
	The ballast shall not impair safety when operated under abnormal conditions at any voltage between 90 % and 110 % of the rated supply voltage.	240V~x0.9=216 V~ And 240V~x1.1=264 V~	P
	A)the lamp or one of the lamps is not inserted; b) the lamp does not start because one of the cathodes is broken; c) the lamp does not start although the cathode circuits are intact (de-activated lamp); d) the lamp operates, but one of the cathodes is de-activated or broken (rectifying effect); e) short circuit of the starter switch, if any.		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
17	**Behaviour of the ballast at end of lamp life**		**P**
17.1	At the end of lamp life the ballast shall behave in such a way that no overheating of lamp caps occurs at any voltage between 90% and 110% of the rated supply voltage.	240V~x0.9=216 V~ And 240V~x1.1=264 V~	P
17.2	Asymmetric pulse test		N
17.3	Asymmetric power test		N
17.4	Open filament test		N
19	**Creepage distances and clearances**		**P**
	Creepage distances and clearances not less than the values given in tables 3 and 4, as appropriate, unless otherwise specified in clause 14.		P
	Creepage distances and clearances		P
	Working voltage (V) .....:	220-240V~	—
	PTI .....:	<600	—
	Rated pulse voltage (kV) .....:	2.5 kV	—
	- live parts of different polarity:	Cr>2.5mm, Cl>1.5mm	P
	- between live parts and accessible metal parts	Cr>5.0mm, Cl>3.0mm	P
	- between live parts and a flat supporting surface or a loose metal cover	Cr>5.0mm, Cl>3.0mm	P
20	**Screws, current-carrying parts and connections**		**N**
	Screws, current-carrying parts and mechanical connections, withstand the mechanical stresses occurring in normal use.		N
	Comply 4.11 and 4.12 of EN60598-1		N
21	**Resistance to heat, fire and tracking**		**P**
21.1	Parts of insulating material be sufficiently resistant to heat.		P
	For materials other than ceramic		P
21.1	Resistance to heat (Ball-pressure test): (EN60598-1)		P
	part tested; temperature (°C): 1h, (T+25) or 75 or 125		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
	- measured diameter shall not exceed 2 mm		P
21.2	Resistance to flame and ignition:		P
21.3	Glow-wire test (650°C, 30s):		P
	- part tested; result.....:		P
21.4	Needle flame test (10s)		P
	- part tested; result.....:		P
21.5	Resistance to tracking (Tracking test)::		N
	- part tested; result.....		N
22	**Resistance to corrosion**		**P**
	Ferrous parts be adequately protected against rusting.		P
	Comply 4.18.1 of EN60598-1		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
12	**ENDURANCE TEST AND THERMAL TEST(EN60598-1)**		**P**
12.2	Selection of lamps and ballasts		—
	According to annex B		—
12.3	Endurance test:		P
	- mounting-position.....:	In normal use position	—
	- test ambient temperature (°C).....:	35°C	—
	- total duration (h).....:	168Hrs. Totally 7 cycle, each 24h: 21h on, 3h off;10 cycles at normal operation.	—
	- supply voltage:1.05Xrated voltage; or - 1.1 times rated voltage;	1.1 Un =264V~ Un: which make rate voltage.	—
12.3.2	Compliance:		N
	- track system shall be visually inspected		N
	- plastic ES lampholders shall not be deformed		N
	- not become unsafe such as cracks etc.		N
	- no damage to track system		N
	- marking still legible		N
12.4	Thermal test (normal operation)	See table 12	P
12.4.1	Test		P
	Filament lamp luminaires: the voltage which produces 1.05 times the rated wattage of the test lamp		N
	Tubular fluorescent and other discharge lamp luminaries: 1.06times the rated voltage or the maximum of the rated voltage range.		P
	For motors contained in luminaries: 1.06 times the rated voltage or the maximum of the rated voltage range		N
12.4.2	Compliance In the test , temperatures not exceed the limited value.		P

EN 61347-2-3			
Clause	Requirement - Test	Result - Remark	Verdict
14	**SCREW TERMINALS**		**N**
14.3	General requirements and basic principles		N
14.3.1	Type of terminal		N
14.3.2	Design and shape of terminals	The screw is in terminal block Terminals in which the conductor is clamped directly under the shank of the screw	—
14.3.4	Adequate connection of the conductors	Test of clause 14.4	N
14.4	Mechanical tests.	Conductor can not slip out.	N
14.4.4	Terminal shall have adequate mechanical strength.		N
14.4.5	Terminals shall be resistant to corrosion.		N
14.4.6	Terminals shall be fixed to the suitable position.		N
14.4.7	Terminals shall clamp the conductor reliably between metal surfaces		N
14.4.8	Terminals shall clamp the conductor without undue damage to the conductor	No damage to the conductor	N

12.4 (EN60598-1)	Temperature measurements, thermal tests		P
	Lamp used .....:		—
	Ballast used .....:		—
	Mounting position of luminaries :	Normal position	—
	Supply voltage (w) - 1.06xrated voltage .....:	A: 254.4V~	—

Thermal test (Normal operation)

Parts	Measured temperature (°C)		limit temperature (°C)
	A		
PCB	54.8		130
Winding of T1	64.2		110
E capacitor	51.5		105
Winding of L1	60.3		130
L1 core	62.5		130
X-capacitor	58.7		100
Ambient	25.2		--

Table 12	**Electric strength**		**P**
Test points		Test voltage	Results
Between	To		
Live	Neutral	1875V~	No breakdown

ANNEX A:

Photo-documentation

Photo 1 Overview

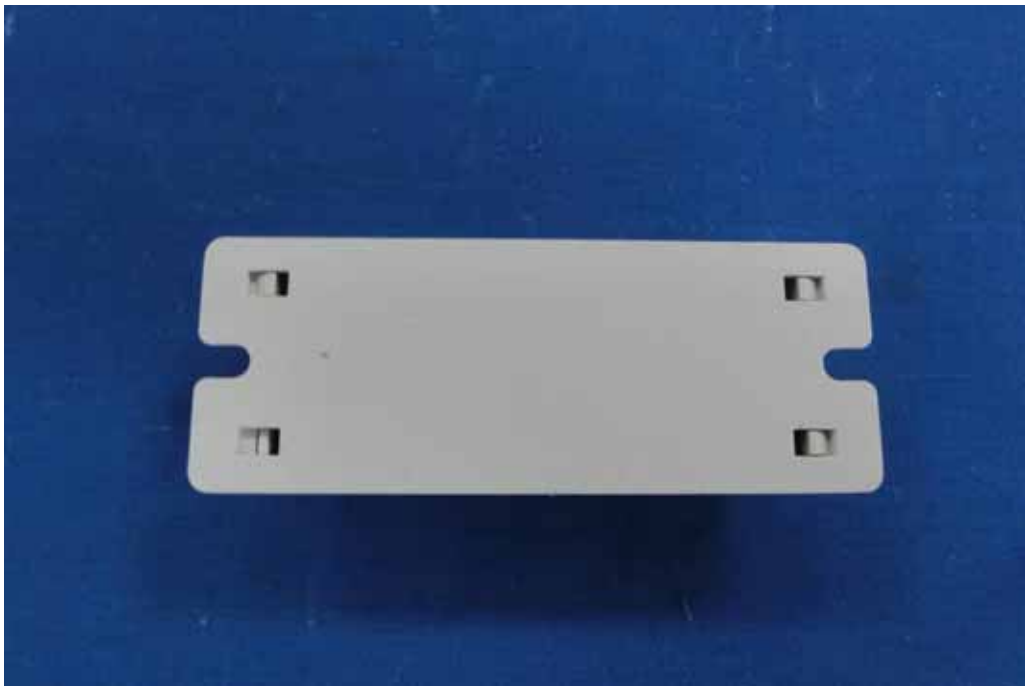

Photo 2 Overview

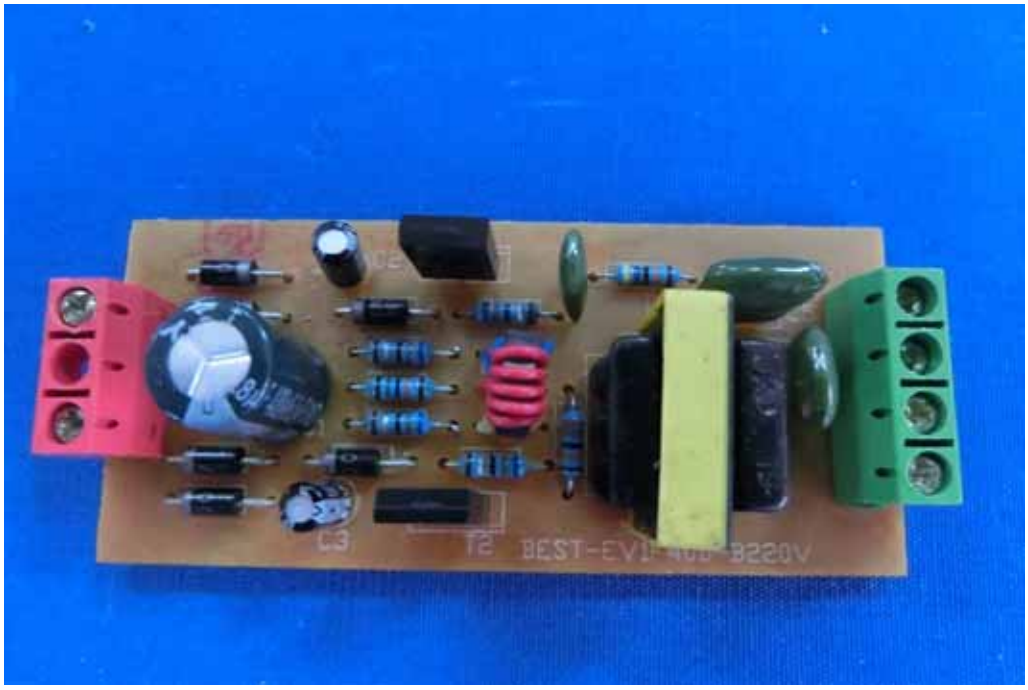

Photo 3 Overview

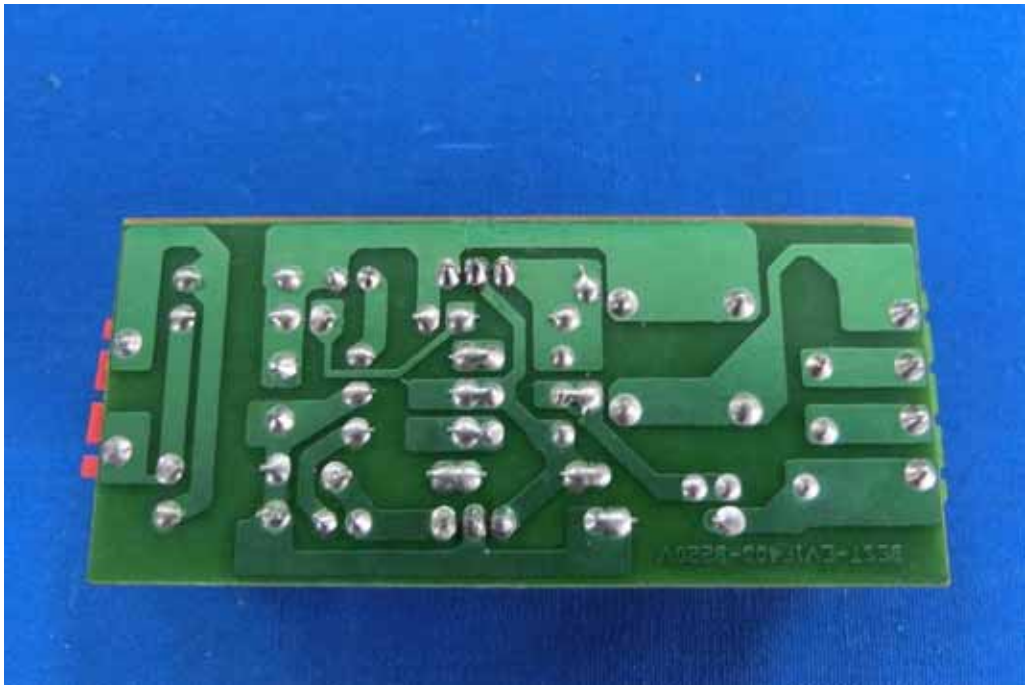

Photo 4 Overview

Photo 5 Overview(Additional model)

Photo 6 Overview(Additional model)

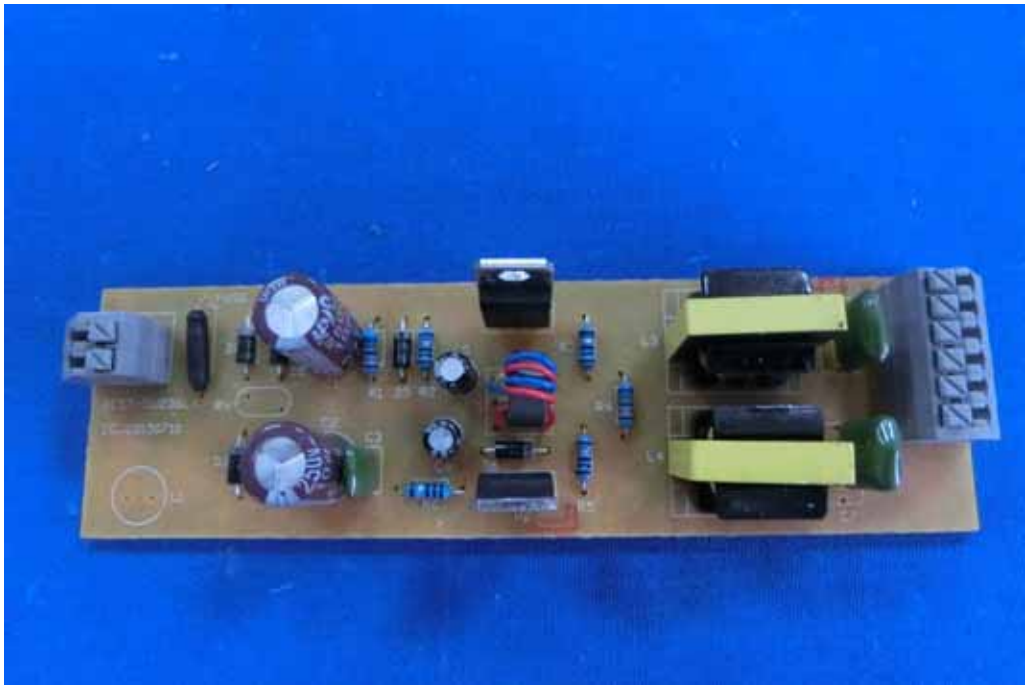

Photo 7 Overview(Additional model)

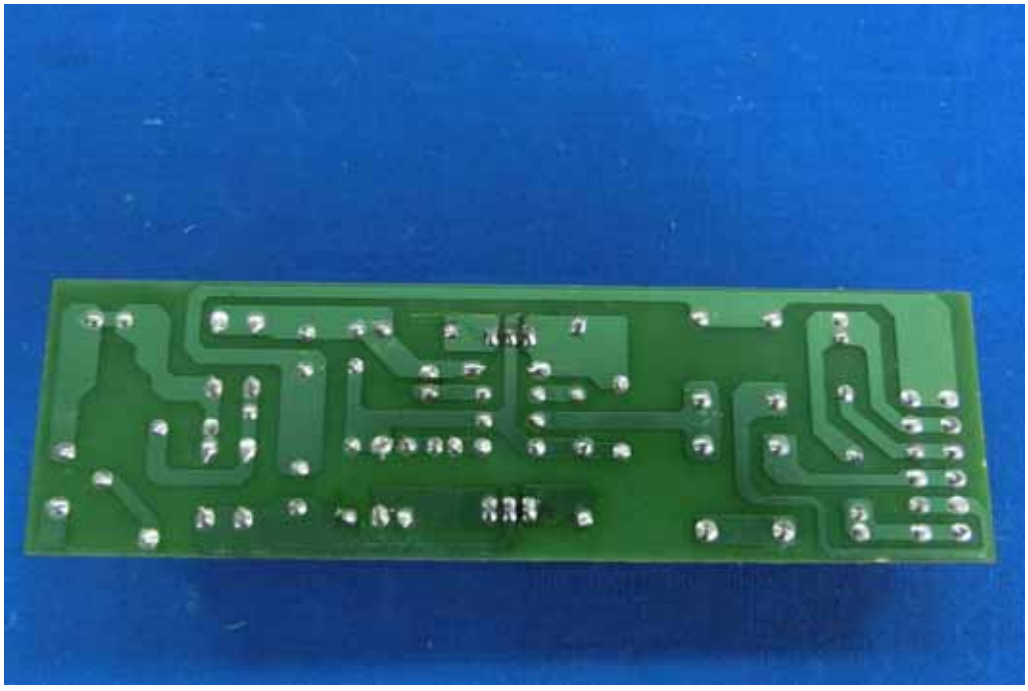

Photo 8 Overview(Additional model)