

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20161025-E317867  
**Report Reference** E317867-A90-UL  
**Issue Date** 2016-OCTOBER-25

**Issued to:** XP POWER L L C  
15641 RED HILL AVE, SUITE 100  
TUSTIN CA 92780

**This is to certify that  
representative samples of**

COMPONENT - POWER SUPPLIES, INFORMATION  
TECHNOLOGY EQUIPMENT INCLUDING ELECTRICAL  
BUSINESS EQUIPMENT


See Addendum Page

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07,  
Information Technology Equipment - Safety - Part 1:  
General Requirements

**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's  
Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog  
number, model number or other product designation as specified under "Marking" for the particular  
Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products  
that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark:  
, may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is  
required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual  
recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance  
capabilities and are intended for use as components of complete equipment submitted for investigation rather  
than for direct separate installation in the field. The final acceptance of the component is dependent upon its  
installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



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**Certificate Number** 20161025-E317867  
**Report Reference** E317867-A90-UL  
**Issue Date** 2016-OCTOBER-25

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Switching Power Supply, Model VCE05USXX (where XX can be any number between 03 and 48 designating the output voltage), may also be provided with suffix "-A" optionally for open frame type.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

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## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
<b>Product:</b>	Switching Power Supply
<b>Model:</b>	ECE80USXX-ZZ-YYYYYY (where XX represents the output voltage between 12-48, ZZ can be blank or S represents screw terminals or D represents DIN rail mount or SD represents DIN rail mount with screw terminals), Y represents any alphanumeric character, blank or "-".
<b>Rating:</b>	Input: 100-240 Vac, 1.7 A, 50/60 Hz Output: See Model differences for details.
<b>Applicant Name and Address:</b>	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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Prepared by: Robert Leon/Project Handler

Reviewed by: Walid Beytoughan/Reviewer

**Supporting Documentation**

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
  - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
  - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
  - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

**Product Description**

The model covered in this report is a component power supply intended for use in Information Technology Equipment. It is an open frame power supply intended for building-in.

**Model Differences**

All models in the Model ECE60USXX Series are identical with exception to the Mains Transformer, T1, and minor secondary components that allow for different output voltage ratings. See below for Model Ratings

Table for 50°C ambient below:

Model ECE60US03: Output Rated: 3.3 Vdc, 10 A max, 33 W max

Model ECE60US05: Output Rated: 5 Vdc, 10 A max, 50 W max

Model ECE60US09: Output Rated: 9 Vdc, 6.67 A max, 60 W max

Model ECE60US12: Output Rated: 12 Vdc, 5 A max, 60 W max

Model ECE60US15: Output Rated: 15 Vdc, 4 A max, 60 W max

Model ECE60US24: Output Rated: 24 Vdc, 2.5 A max, 60 W max

Model ECE60US36: Output Rated: 36 Vdc, 1.67 A max, 60 W max

Model ECE60US48: Output Rated: 48 Vdc, 1.25 A max, 60 W max

See Enclosure - Miscellaneous for de-rating curve.

Additional Suffix "S" denotes units provided with Screw Terminals.

Additional Suffix "D" denotes units provided with DIN Rail mounting Clip.

Additional Suffix "SD" denotes units provided with DIN Rail mounting Clip with Screw Terminals.

**Technical Considerations**

- Equipment mobility : for building-in
- Connection to the mains : To be determined in end-use product
- Operating condition : continuous
- Access location : To be determined in end-use product
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes

- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Not classified to be determined in the end product.
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IPX0
- Altitude of operation (m) : 5000
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.15 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T<sub>ma</sub>) permitted by the manufacturer's specification of: 50°C at full rated load and 70°C at 50% rated load.
- The means of connection to the mains supply is: for building-in, to be determined in the end product.
- The product is intended for use on the following power systems: IT, TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: Load side of CY1
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): Outputs of models ECE60US03 to ECE60US36.

#### **Engineering Conditions of Acceptability**

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 270 Vrms, 550 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at non-hazardous energy levels: All outputs
- The following secondary output circuits are Limited Current Circuits: Load side of CY1
- The power supply terminals and/or connectors are: Suitable for factory wiring only except for models with suffix -S and -SD which are suitable for field wiring,
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- The following input terminals/connectors must be connected to the end-product supply neutral: ACN
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1 (Class B, 130°C)
- The following end-product enclosures are required: Fire, Electrical
- Printed Wiring Board rated 130°C.
- The clearance distances have additionally been assessed for suitability up to 5000 m elevation (1.48 correction factor as per IEC 60664-1, Table A2).
- Repeat of heating and dielectric test to be considered as part of end product.
- Secondary circuits are isolated from primary circuits by double or reinforced insulation, however the

Class of equipment shall be considered in the end product.

#### Additional Information

This report is a Standard upgrade/reissue of CBTR Ref. No.: E317867-A84-CB-1, CB Test Certificate Ref. No.US-23599-UL to IEC 60950-1:2005 (Second Edition), Am1:2009 + Am2:2013. Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, only the construction review and the review of previous tests was deemed necessary. All required tests were carried out under the original investigation.

Marking label is representative of all models.

#### Additional Standards

The product fulfills the requirements of: -

#### Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Operator caution statement	"CAUTION: For continued protection against risk of fire, replace only with same type and rating of fuse".

#### Special Instructions to UL Representative

Inspect the transformer(s) listed in BD1.1 per AA1.1- (C). When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in BD1.1 be conducted at the component manufacturer.

<b>Production-Line Testing Requirements</b>						
<b><u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u></b>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
All Models	T1	-	Primary to Secondary	300 0	4242	1
<b><u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u></b>						
-						
<b><u>Electric Strength Test Exemptions - This test is not required for the following models:</u></b>						
-						
<b><u>Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:</u></b>						
-						
<b><u>Sample and Test Specifics for Follow-Up Tests at UL</u></b>						
Model	Component	Material	Test	Sample(s)	Test Specifics	
N/A	-	-	-	-	-	

1.5.1	TABLE: list of critical components					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
Enclosure - For E type models only	Wah Hong Industrial Corp	WH-9100	V-0 rated, 130C. Overall 9.14 by 4.57 by 2.795 cm, min. 1.3 mm thick. Provided with bottom base, overall 9 by 4.42 cm, min. 1 mm thick. Bottom base	QMFZ2 (E150608)	UL	
Enclosure - For E type models only - Alternate	Interchangeable	Interchangeable	V-0 rated, 130C. Overall 9.14 by 4.57 by 2.795 cm, min. 1.3 mm thick. Provided with bottom base, overall 9 by 4.42 cm, min. 1 mm thick. Bottom base	QMFZ2	UL	
Potting Compound	Fong Yong Chemical Co Ltd	SFY-161 or SFY-171	Min V-1, 150°C	QMFZ2 (E120665)	UL	
Potting Compound – Alternate	Dow Corning (Shanghai) Co Ltd	CN-8760 CN-8760G	Min V-1, 150°C	QMFZ2 (E251343)	UL	
Potting Compound – Alternate	Wevo-Chemie GMBH or equivalent	PU 552 FL or equivalent	Min V-1, 130°C	QMFZ2 (E108835)	UL	
Potting Compound – Alternate	SHIN-ETSU SILICONE TAIWAN CO LTD	KET-132 A/B H	Min. V-1 or better, min. 130°C	QMFZ2 (E174951)	UL	
Potting Compound – Alternate	Hengzhou Zhongyuan Applied Technology Research and Development Co Ltd	MF211	Min. V-2 or better, min. 105°C	QMFZ2 (E342437)	UL	
Potting Compound – Alternate	Interchangeable	Interchangeable	Min V-1, 130°C	QMFZ2	UL	
Terminal block (for model ECE80USXX-S or ECE80USXX-SD)	DINKLE ENTERPRISE CO LTD	EK508V	Rated 20A, 300Vac, 105°C	XCFR2 (E102914)	UL	
Terminal block (for model	DINKLE ENTERPRISE	EK500V	Rated 20A, 300Vac, 105°C	XCFR2 (E102914)	UL	



ECE80USXX-S or ECE80USXX-SD)					
Terminal block (for model ECE80USXX-S or ECE80USXX-SD)	Switchlab	MB310	Rated 16A, 300Vac, 105°C	XCFR2 (E167040)	UL
Terminal block (for model ECE80USXX-S or ECE80USXX-SD)	EXCEL CELL ELECTRONICS	ETB13 series	Rated 16A, 300Vac, 110°C	XCFR2 (E133988)	UL
Fuse (F1)	Cooper Bussmann Inc	SS-5	Rated 2.5A, 250Vac,min 105°C, soldered to PWB	JDYX2 (E19180)	UL
Fuse (F1) – Alternate	Conquer Electronics Co Ltd	MST	Rated 2.5A, 250Vac,min 105°C, soldered to PWB	JDYX2 (E82636)	UL
Fuse (F1) – Alternate	Ever Island Electric Co Ltd & Walter Electric	2010	Rated 2.5 A, 250 V, min 105°C, soldered to PWB	JDYX2 (E220181)	UL
Fuse (F1) – Alternate	Bel Fuse Inc	RST	Rated 2.5A, 250Vac,min 105°C, soldered to PWB	JDYX2 (E20624)	UL
Fuse (F1) – Alternate	Littelfuse Wickmann Werke	392	Rated 2.5A, 250Vac,min 105°C, soldered to PWB	JDYX2 (E67006)	UL
X-Capacitor (CX1)	Vishay BC Components BV	MKP 3382 Series	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2 (E112471)	UL
X-Capacitor (CX1)	Carli Electronics Co Ltd	MPX	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2 (E120045)	UL
X-Capacitor (CX1) – Alternate	Iskra Kondenzatorji D D	KNB1560	250Vac minimum, Class "X1" or "X2", 0.68uF maximum..	FOWX2, FOWX8 (E145156)	UL
X-Capacitor (CX1) – Alternate	Cheng tung industrial co., ltd	CTX	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2, (E193049)	UL
X-Capacitor (CX1) – Alternate	Chiefcon Electronics Co Ltd	CKX	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2, FOWX8 (E209251)	UL
X-Capacitor (CX1) – Alternate	Jenn Fu Electronics Corporation	MPX	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2, FOWX8 (E184650)	UL
X-Capacitor (CX1) – Alternate	KEMET	R.46	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2 (E97797)	UL
X-Capacitor (CX1) – Alternate	KEMET	PHE840M or PHE830M	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2 (E73869)	UL

X-Capacitor (CX1) – Alternate	Shiny space enterprise co., ltd	SX1	250Vac minimum, Class "X1" or "X2", 0.68uF maximum.	FOWX2 (E186561)	UL	
X-Capacitor (CX1) – Alternate	Panasonic Corporation Of North America	ECQUG	250Vac minimum, Class "X1" or "X2", 0.68uF	FOWX2 (E62674)	UL	
X-Capacitor (CX1) – Alternate	Xiamen Faratronic co., ltd	MKP62	250Vac minimum, Class "X1" or "X2", 0.68uF	FOWX2 (E186600)	UL	
X-Capacitor (CX1) – Alternate	Hua Jung Components	MKP	275Vac minimum, Class "X1" or "X2", 0.68uF	FOWX2 (E149075)	UL	
Bridging capacitor (CY1) - Optional	Success Electronics Co., Ltd.	SE,SB	2200 pF max, 250Vac min,  85°C	FOWX2 (E114280)	UL	
Bridging capacitor (CY1) Optional – Alternate	JYA-NAY Co., Ltd.	JN	2200 pF max, 250Vac min, 85°C	FOWX2 (E201384)	UL	
Bridging capacitor (CY1) Optional – Alternate	Murata Mfg Co Ltd	KX	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E37921)	UL	
Bridging capacitor (CY1) Optional – Alternate	VISHAY Electronic GmbH	WKP	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E183844)	UL	
Bridging capacitor (CY1) Optional – Alternate	TDK-EPC CORP	CD, CS	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E37861)	UL	
Bridging capacitor (CY1) Optional – Alternate	Walsin Technology Corp.	AH	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E146544)	UL	
Bridging capacitor (CY1) Optional – Alternate	PANASONIC CORPORATION	NS-A	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E62674)	UL	
Bridging capacitor (CY1) Optional – Alternate	Welson Industrial Co Ltd	WD	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E104572)	UL	
Bridging capacitor (CY2, CY3) - Optional	Success Electronics Co., Ltd.	SE,SB	2200 pF max, 250Vac min,  85°C	FOWX2 (E114280)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	JYA-NAY Co., Ltd.	JN	2200 pF max, 250Vac min, 85°C	FOWX2 (E201384)	UL	

Bridging capacitor (CY2, CY3) - Optional – Alternate	Murata Mfg Co Ltd	KX	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E37921)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	VISHAY Electronic GmbH	WKP	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E183844)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	TDK-EPC CORP	CD, CS	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E37861)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	Walsin Technology Corp.	AH	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E146544)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	PANASONIC CORPORATION	NS-A	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E62674)	UL	
Bridging capacitor (CY2, CY3) - Optional – Alternate	Welson Industrial Co Ltd	WD	Max. 2200 pF, min. 250 V, 85°C	FOWX2 (E104572)	UL	
Bleeder resistor(R1A, R1B, R1C)	--	--	1/10 W min., 300K ohm	-	-	
Inductor (L1) (Pri)	Interchangeable	Interchangeable	Toroidal. min. 130 °C, Overall approx. 14 outer dia. by 7.5 mm wide. Windings are soldered through the printed wiring board.	-	-	
Inductor (L1) – Magnet Wire	Interchangeable	Interchangeable	Rated min 130°C min.	OBMW2	UL	
Inductor (L1) – Triple Insulated Wire	Furukawa electric Co Ltd.	TEX-E	Rated min 130 °C	OBJT2 (E206440)	UL	
Inductor (L1) – Triple Insulated Wire - Alternate	Totoku Electric Co Ltd	TIW-2	Rated min 130 °C	OBJT2 (E166483)	UL	
Inductor (L1) – Triple Insulated Wire - Alternate	Teamwork International Corporation	TIWW-B	Rated min 130 °C	OBJT2 (E321186)	UL	
Inductor (L1) – Tubing, sleeving	Great Holding Industrial Co.,Ltd.	TFL	Rated 200 °C	YDPU2 (E156256)	UL	

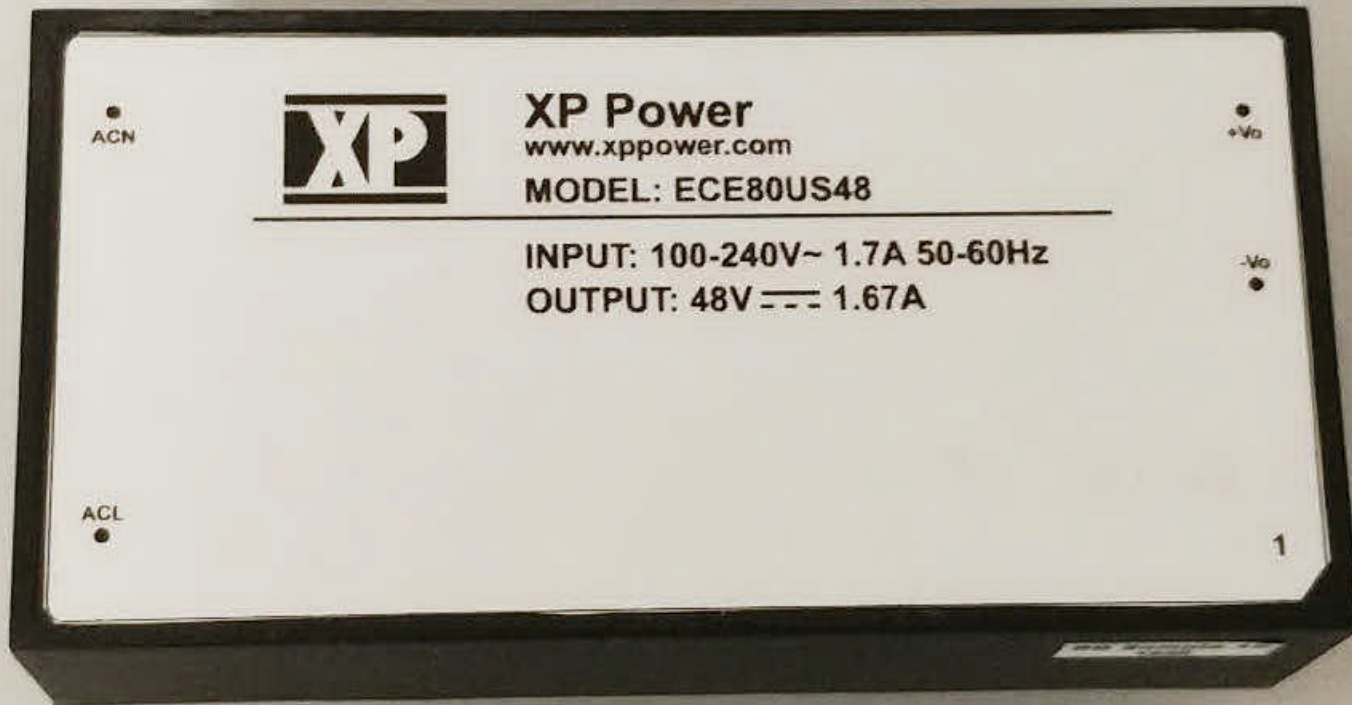
Inductor (L2) (Pri)	Interchangeable	Interchangeable	Spilt bobbin type, min. 130 °C, Overall approx. 19 x 17 x 23 mm. Windings are soldered through the printed wiring board.	-	-	
Inductor (L2) - Bobbin Material	Sumitomo Bakelite Co. Ltd.	PM-9820	Rated min. 150°C, min. V-0, min. 1.0 mm thick.	QMFZ2 (E41429)	UL	
Inductor (L2) – Magnet Wire	Interchangeable	Interchangeable	Rated min 130°C min.	OBMW2	UL	
Inductor (L2) - Insulating Tape	Symbio Inc	35660Y	Polyester film tape, rated min. 130°C.	OANZ2 (E50292)	UL	
Inductor (L2) - Insulating Tape - Alternate	3M	1350F-1	Polyester film tape, rated min. 130°C.	OANZ2 (E17385)	UL	
Inductor (L2) - Insulating Tape - Alternate	Jingjiang Yahua Pressure Sensitive Glue Co.,Ltd.	CT	Polyester film tape, rated min. 130°C.	OANZ2 (E165111)	UL	
Thermistor (RT1) - Alternate	Thinking electronic industrial co., LTD	SCK SERIES	NTC. Rated 240 V, 200°C, 2.5 ohm, min. 6.0 A (Not relied upon for safety).	-	-	
Thermistor (RT1) - Alternate	--	--	NTC. Rated 240 V, 200°C, 2.5 ohm, Imin. 6.0 A (Not relied upon for safety).	-	-	
Bridge Diode (BR1)	Interchangeable	Interchangeable	600V min, 6A min, 150 °C	-	-	
Storage capacitor (C1)	--	--	150uF, 400V min., 105°C min.  Provided with integral pressure relief.	-	-	
Transistor (Q1)(PRI)	--	--	Min 650V, Min 11A	-	-	
Optocoupler (IC2)	Cosmo Electronics Corp.	K1010	Double protection, isolation voltage 5000 V, DTI min. 0.4mm.	FPQU2 (E169586)	UL	
Optocoupler (IC2) - Alternate	Lite-On Technology Corp	LTV- 817	Double protection, isolation voltage 5300 V, DTI min. 0.4mm.	FPQU2 (E113898)	UL	

Optocoupler (IC2) - Alternate	Vishay Semiconductor GmbH	TCET1100, TCET1101, TCET1102, TCET1103, TCET1104, TCET1105	Double protection, isolation voltage 5000 V, DTI min. 0.5mm.	FPQU2 (E52744)	UL	
Optocoupler (IC2) - Alternate	SHARP CORP ELECTRONIC COMPONENTS ANDHexBDEVICES GROUP	PC120, PC121, PC123,	Double protection, isolation voltage 5000 V, DTI min. 0.4mm.	FPQU2 (E64380)	UL	
Optocoupler (IC2) - Alternate	Fairchild	H11A817A, H11A817B, H11A817C	Double protection, isolation voltage 5000 V, DTI min. 0.4mm.	FPQU2 (E90700)	UL	
Transformer (T1)	Dong Guan Cincon	(ECE80USxx, where xx can be 12 to 48)	Open-type. Class B. see Insulation System for details.  See Enclosures 4-01 to 4-05 for construction details.	-	-	
Transformer (T1) - Insulation System	Dong Guan Cincon	SBI4.2	Class B.	OBJY2 (E305999)	UL	
Transformer (T1) - Bobbin - Alternate	Sumitomo Bakelite Co., Ltd.	PM-9820 or PM-9630	Rated V-0, min. 1 mm thick, 150°C.	QMFZ2 (E41429)	UL	
Transformer (T1) - Magnet Wire	Interchangeable	Interchangeable	Rated 130°C min.	OBMW2	UL	
Transformer (T1) - Triple Insulating Wire	Furukawa Electric Co. Ltd	TEX-E	Reinforced Insulation. Rated 130°C min.	OBJT2 (E206440)	UL	
Transformer (T1) - Triple Insulating Wire- Alternate	Totoku	TIW-2	Reinforced Insulation. Rated 130°C min.	OBJT2 (E166483)	UL	
Transformer (T1) - Triple Insulating Wire - Alternate	RUBADUE WIRE CO INC	TEFZEL WIRE T-AA-X-XX-T-XXX-L	Reinforced Insulation. Rated 155°C min.	OBJT2 (E206198)	UL	
Transformer (T1) - Insulating Tape	3M	1350F-1 or -2, 1350T-1	130 °C minimum, Polyester Film Tape, 0.05 mm thickness. One layer certified to provide	OANZ2 (E17385)	UL	

			5000V dielectric strength. Two or more layers provided between primary and secondary windings.			
Transformer (T1) - Outerwrap	3M	1350F-1 or -2, 1350T-1	130 °C minimum, Polyester Film Tape, 0.05 mm thickness. 2 or more layers	OANZ2	UL	
Transformer (T1) - Insulating Tubing/Sleeving	Great Holding Industrial Co. Ltd.	TFL	200 °C, TEFLON.	YDPU2 (E156256)	UL	
PWB (PRI/Selv)	—	—	Rated min. V-0, 130°C, rated for direct support of live parts.	ZPMV2	UL	
Label System	Interchangeable	Interchangeable	Laser Engraving	-	-	

## Enclosures

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Photographs	3-01	Top View
Photographs	3-02	Bottom View
Photographs	3-03	PWB Component Side
Photographs	3-04	PWB Solder Side
Diagrams	4-01	ECE80US12: T1
Diagrams	4-02	ECE80US15: T1
Diagrams	4-03	ECE80US24: T1
Diagrams	4-04	ECE80US36: T1
Diagrams	4-05	ECE80US48: T1
Diagrams	4-06	L1
Diagrams	4-07	L2
Diagrams	4-08	L3
Schematics + PWB	5-01	PWB Trace Layouts
Schematics + PWB	5-02	PWB Component Layouts
Schematics + PWB	5-03	Electrical Schematic
Schematics + PWB	5-04	Electrical Schematic-Alternate
Miscellaneous	7-01	Enclosure Outlines
Miscellaneous	7-02	Enclosure Outlines
Miscellaneous	7-03	Enclosure Outlines



●  
ACN



**XP Power**  
www.xppower.com

**MODEL: ECE80US48**

**INPUT: 100-240V~ 1.7A 50-60Hz**

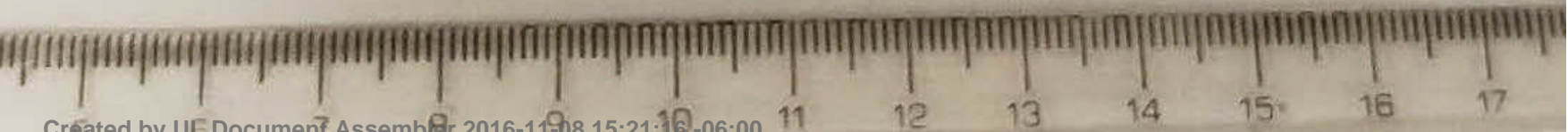
**OUTPUT: 48V  $\text{---}$  1.67A**

●  
+Vo

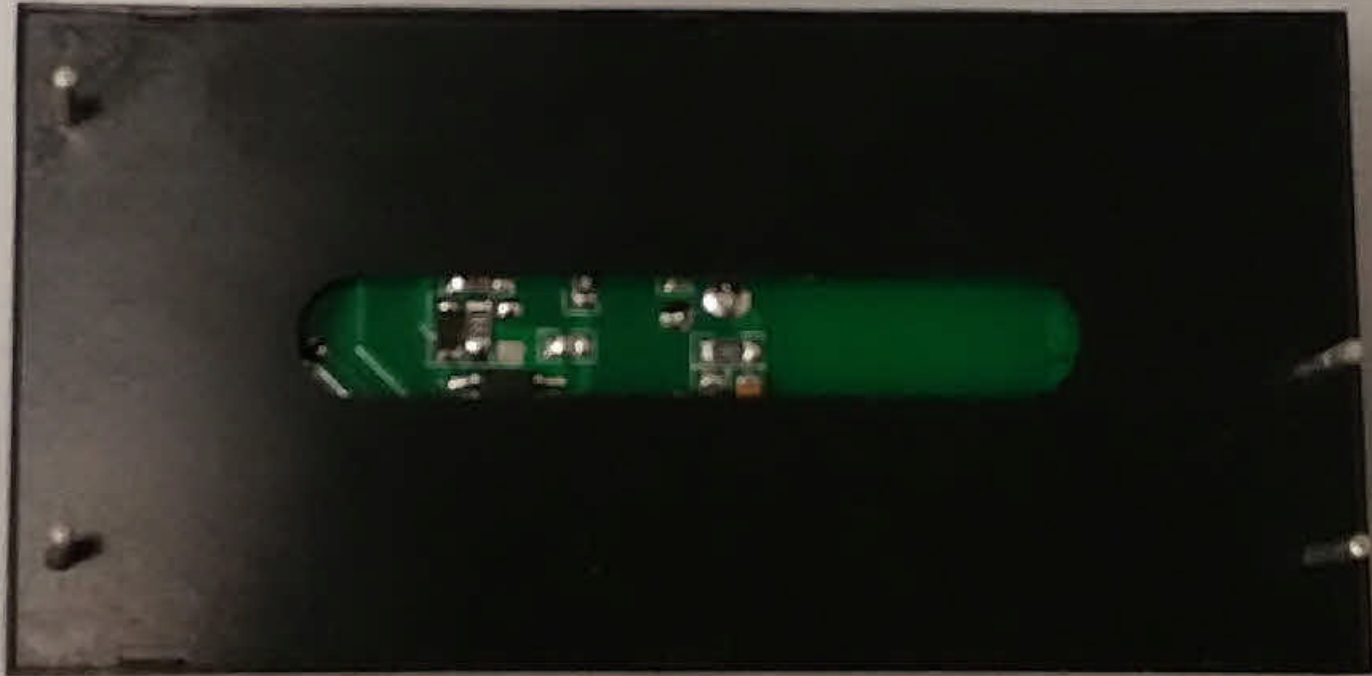
●  
-Vo

●  
ACL

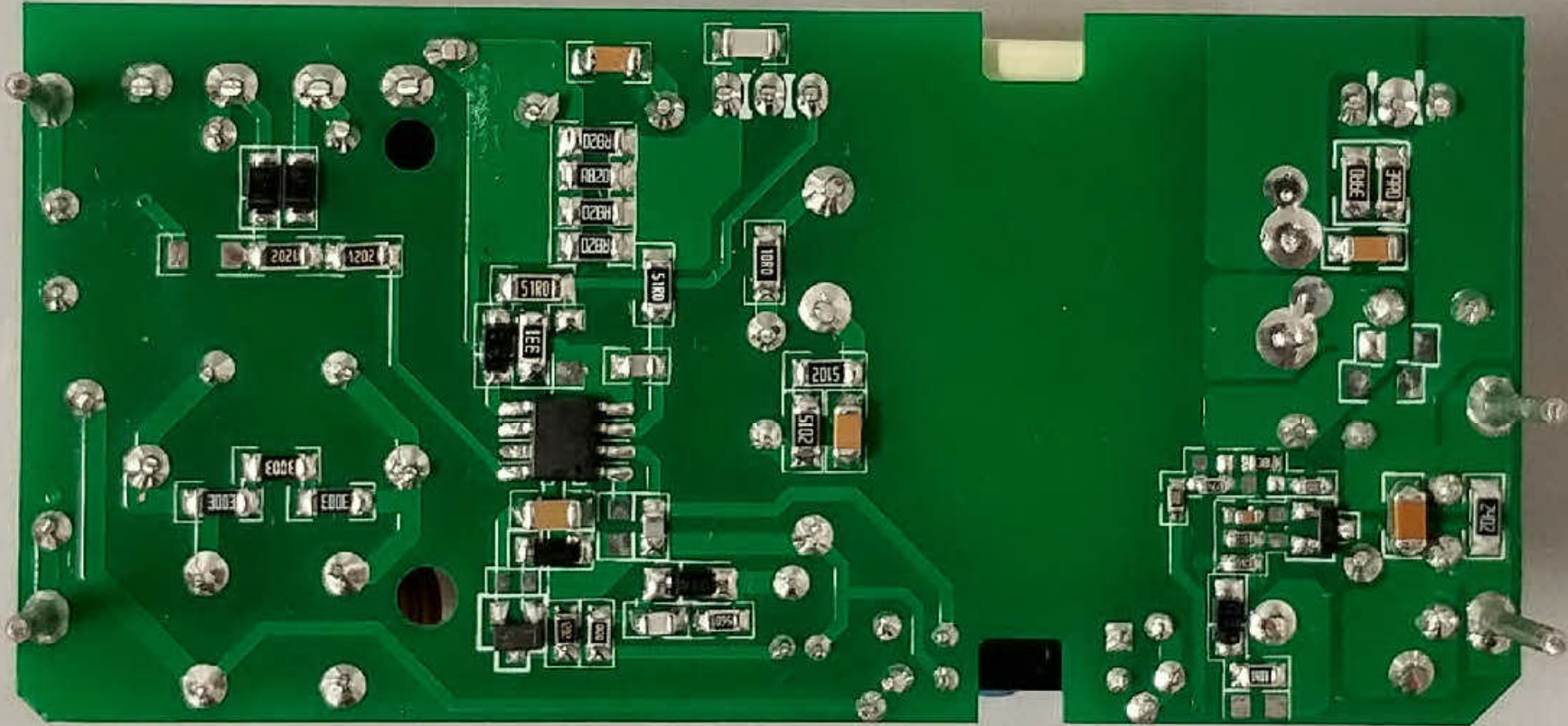
1











# 承認書

## APPROVAL SHEET

Green Product

RoHS

客戶名稱  
CUSTOMER: 台灣幸康

品名規格  
PART NAME: ECE80US12

承認料號  
PART NO.: \_\_\_\_\_

日期  
DATE: 2016-08-04

東莞幸康承認欄：

制作 PREPARED BY	審核 CHECKED BY	核准 APPROVED BY
謝東論 8/04	王偉 8/04	陳瓊 8/04
	黃青波 8/04	鍾成彬 8/04
		徐禮強 8/04

客戶承認欄：

承認 SIGNATURE	審核 CHECKED BY	核准 APPROVED BY

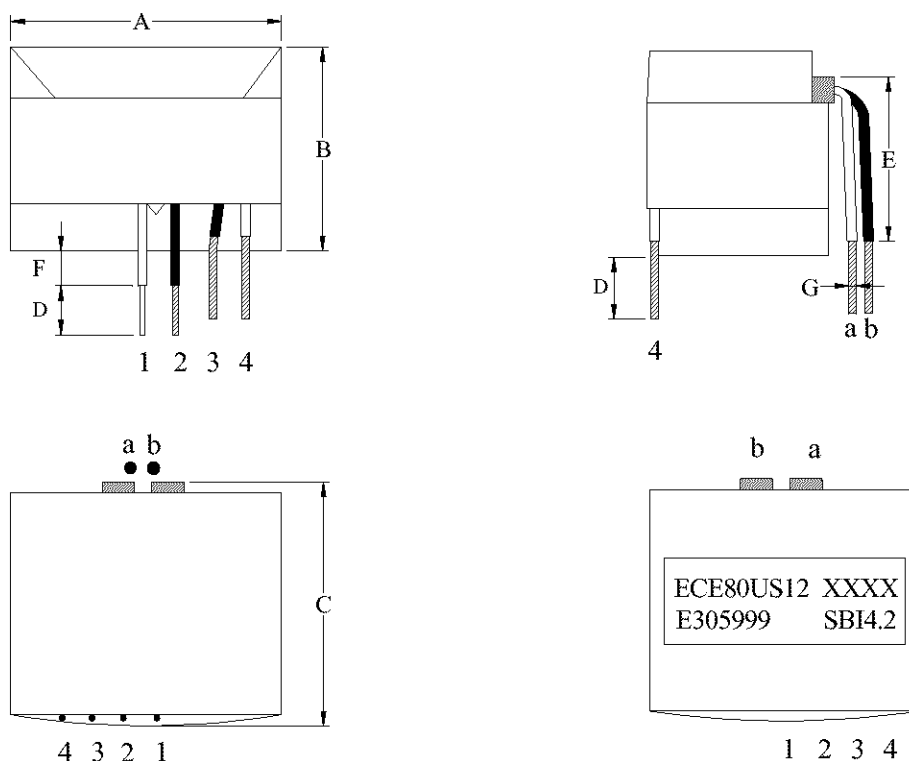


**東莞幸康電子有限公司**  
 Dongguan Cincon Electronics Limited  
 東莞東城牛山外經工業園景祥路1號  
 TEL:0769-22663801 22258876  
 22619670  
 FAX:0769-22663800

# SPECIFICATION FOR APPROVAL

CUSTOMER: 台灣 幸康	DESCRIPTION: PQ3220	PART NAME: ECE80US12
--------------------	------------------------	-------------------------

## 1. CONFIGURATION&DESCRIPTION: UNIT:mm



※ NO PIN 1,2,3,4(繞製時 PIN 端為 BOBBIN 頂部且頂部朝里).

※ CORE GAP:YES.

※ “4”由 BOBBIN 頂部出線成品後折至 PIN4 旁,穿白色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “3”由 BOBBIN 頂部出線成品後折至 PIN3 旁,穿黑色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “2”由 BOBBIN 頂部出線成品後折至 PIN2 旁,穿黑色 TFL TUBE.絞合後線徑 1.2mm (max).

※ “1”由 BOBBIN 頂部出線成品後折至 PIN1 旁,穿白色 TFL TUBE.

※ “a”由 BOBBIN 頂部入線,穿透明 TFL TUBE,“b”由 BOBBIN 頂部出線,穿黑色 TFL TUBE.

※ 鐵芯接合處點 EPOXY(四點).

※ CORE包22mm TAPE 3T固定.成品後先圍繞CORE包0.05t\*15mm自粘性銅箔1T,焊接於CORE側面,無需焊引線.然後用50mm\*60mm(Ref)兩層TAPE置中包於底部鐵芯,多出部份向四面折回(先折CORE兩邊,再折一二次側面),再用45mm\*60mm(Ref)兩層TAPE切齊二次側CORE邊緣包住頂部鐵芯,多出部分折到CORE兩側和一次側,最後用11mmTAPE圍繞線包包2T.

※真空浸凡立水,烘乾,貼標籤,標明產品型號、生產週期.

NO.	A	B	C	D	E	F	G	H	I	J	K
SPEC	34.5	22.5	35.0	10.0	16.0	7.0	2.0				
TOLERANCE	max	max	max	±2.0	±2.0	±2.0	max				



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

Revision 1.0

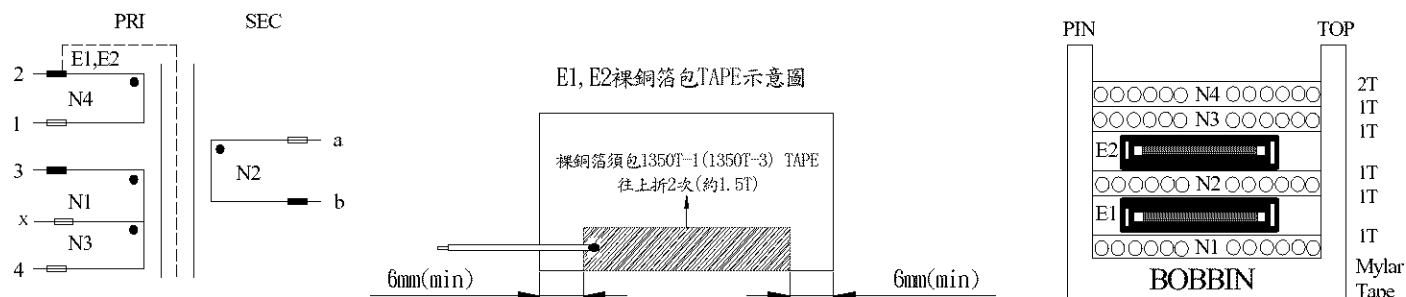
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Date 2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US12
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## 2. SCHEMATIC:



※ NOTE: ● START, —○— TEFLON TUBE, —■— BLACK TEFLON TUBE.

## 3. WINDING CONSTRUCTION:

WINDING ORDER	TERMINAL NO. START-FINISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
1	N1	3---X	TEX-E $\Phi 0.5*2*12T$	預留夠 N3 的線長
2	E1	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
3	N2	a---b	2UEW $0.1*50*2*3T$	密繞
4	E2	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
5	N3	X---4	TEX-E $\Phi 0.5*2*11T$	使用 N1 預留線繞制
6	N4	2---1	TEX-E $\Phi 0.35*1*5T$	靠 PIN 端密繞

※E1 焊點朝下,E2 焊點朝上.

## 4. ELECTRICAL CHARACTERISTICS:

NO	PARAMETER	TERMINAL	SPEC	TEST INSTRUMENT
1	INDUCTANCE	3---4	$350\mu H \pm 8\%$	HP-4284A or EQUIVALENT @10KHZ, 0.25V, 25°C
2	LEAKAGE INDUCTANCE	3---4	$35\mu H$ (max)	HP-4284A or EQUIVALENT @10KHZ, 0.25V 25°C Short other pins.
3	DC RESISTANCE	3---4	$80m\Omega$ (max)	GW GOM 801G
4	HI-POT	P~S	AC3.5KV/5mA/3sec	CHROMA 19052
		P~CORE	AC1.5KV/5mA/3sec	
		S~CORE	AC0.6KV/5mA/3sec	
5	INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100M $\Omega$ (min)	CHROMA 19052

※圈數比及相位需量測.



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

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Date

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# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US12
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## 5. MATERIAL LIST:

ITEM	MATERIAL	SUPPLIER OR MANUFACTURER	ULNO.	CLASS		
1	INSULATION SYSTEM	SBI4.2	CINCON ELECTRONICS CO LTD	✓	E305999	130°C
2	CORE	6H20	FDK			
		P4	ACME	✓		
		MZ4	ALLITON			
		V023	VAKOS			
		JJP-4	A-CORE			
3	BOBBIN	PM-9820	SUMITOMO BAKELITE CO LTD	✓	E41429	150°C
4	WIRE	1UEW MW75	FENG CHING METAL CORP	✓	E172395	130°C
		2UEW MW75				
5	VARNISH	V1630FS V1380FC	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	✓	E75225	130°C
6	TAPE	NO.1350F-1 NO.1350F-2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	✓	E17385	130°C
7	TRIPLE WIRE	TIW-2	TOTOKU ELECTRIC CO LTD		E166483	130°C
		TEX-E	FURUKAWA ELECTRIC CO LTD	✓	E206440	130°C
8	COPPER	0.025t*7mm 0.05t*15mm	WENXIANG/SOLAR PLUS CO	✓	E173444	130°C
9	TUBE	TEFLON (TFL)	GREAT HOLDING INDUSTRIAL CO LTD	✓	E156256	200°C
10	EPOXY	2095	EPOLAB CHEMICAL INDUSTRIES INC	✓		

## 6. TEST DATA:

TEST ITEM	TEST CONDITION	SPEC	1	2	3	4	5
INDUCTANCE	3---4	350uH±8%	345	340	347	347	350
LEAKAGE INDUCTANCE	3---4	35uH (max)	25.3	25.7	24.5	25.7	26.1
DC RESISTANCE	3---4	80mΩ (max)	67.3	67.3	67.5	67.5	67.8
HI-POT	P~S	AC3.5KV/5mA/3sec	OK	OK	OK	OK	OK
	P~CORE	AC1.5KV/5mA/3sec	OK	OK	OK	OK	OK
	S~CORE	AC0.6KV/5mA/3sec	OK	OK	OK	OK	OK
INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	OK	OK	OK	OK	OK



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

Revision

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Date

2016/08/04

# 承認書

## APPROVAL SHEET

Green Product

RoHS

客戶名稱  
CUSTOMER: 台灣幸康

品名規格  
PART NAME: ECE80US15

承認料號  
PART NO.: \_\_\_\_\_

日期  
DATE: 2016-08-04

### 東莞幸康承認欄：

制 作 PREPARED BY	審 核 CHECKED BY	核 准 APPROVED BY
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">謝東論 8/04</div> <div style="border: 1px solid black; padding: 2px;">王偉 8/04</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">陳瓊 8/04</div> <div style="border: 1px solid black; padding: 2px;">黃青波 8/04</div> <div style="border: 1px solid black; padding: 2px;">鍾成彬 8/04</div> </div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">徐禮強 8/04</div>

### 客戶承認欄：

承 認 SIGNATURE	審 核 CHECKED BY	核 准 APPROVED BY



## 東莞幸康電子有限公司

Dongguan Cincon Electronics Limited

東莞東城牛山外經工業園景祥路1號

TEL:0769-22663801 22258876

22619670

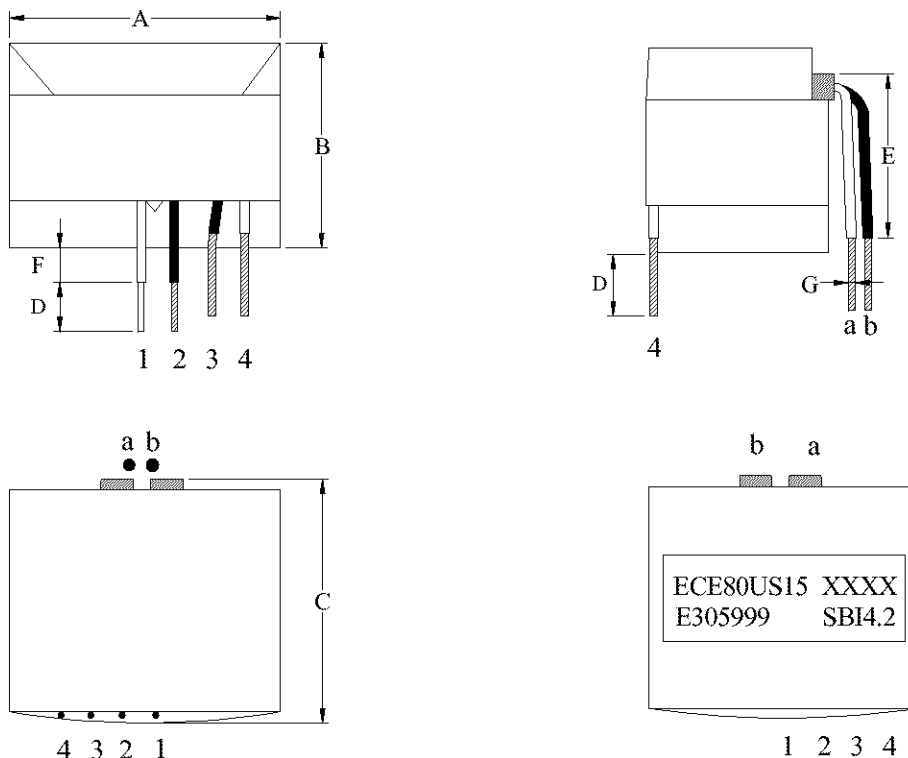
FAX:0769-22663800



# SPECIFICATION FOR APPROVAL

CUSTOMER: <p style="text-align: center;">台灣 幸康</p>	DESCRIPTION: <p style="text-align: center;">PQ3220</p>	PART NAME: <p style="text-align: center;">ECE80US15</p>
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**1. CONFIGURATION&DESCRIPTION: UNIT:mm**



- ※ NO PIN 1,2,3,4(繞製時 PIN 端為 BOBBIN 頂部且頂部朝里).
- ※ CORE GAP:YES .
- ※ “4”由 BOBBIN 頂部出線成品後折至 PIN4 旁,穿白色 TFL TUBE.絞合後線徑 1.5mm ( max ) .
- ※ “3”由 BOBBIN 頂部出線成品後折至 PIN3 旁,穿黑色 TFL TUBE.絞合後線徑 1.5mm ( max ) .
- ※ “2”由 BOBBIN 頂部出線成品後折至 PIN2 旁,穿黑色 TFL TUBE.絞合後線徑 1.2mm ( max ) .
- ※ “1”由 BOBBIN 頂部出線成品後折至 PIN1 旁,穿白色 TFL TUBE.
- ※ “a ”由 BOBBIN 頂部入線,穿透明 TFL TUBE, “b”由 BOBBIN 頂部出線,穿黑色 TFL TUBE.
- ※ 鐵芯接合處點 EPOXY(四點).
- ※ CORE包22mm TAPE 3T固定.成品後先圍繞CORE包0.05t\*15mm自粘性銅箔1T,焊接於CORE側面,無需焊引線.然後用50mm\*60mm(Ref)兩層TAPE置中包於底部鐵芯,多出部份向四面折回(先折CORE兩邊,再折一二次側面),再用45mm\*60mm(Ref)兩層TAPE切齊二次側CORE邊緣包住頂部鐵芯,多出部分折到CORE兩側和一次側,最後用11mmTAPE圍繞線包包2T.
- ※真空浸凡立水,烘乾.貼標籤,標明產品型號、生產週期.

NO.	A	B	C	D	E	F	G	H	I	J	K
SPEC	34.5	22.5	35.0	10.0	16.0	7.0	2.0				
TOLERANCE	max	max	max	±2.0	±2.0	±2.0	max				



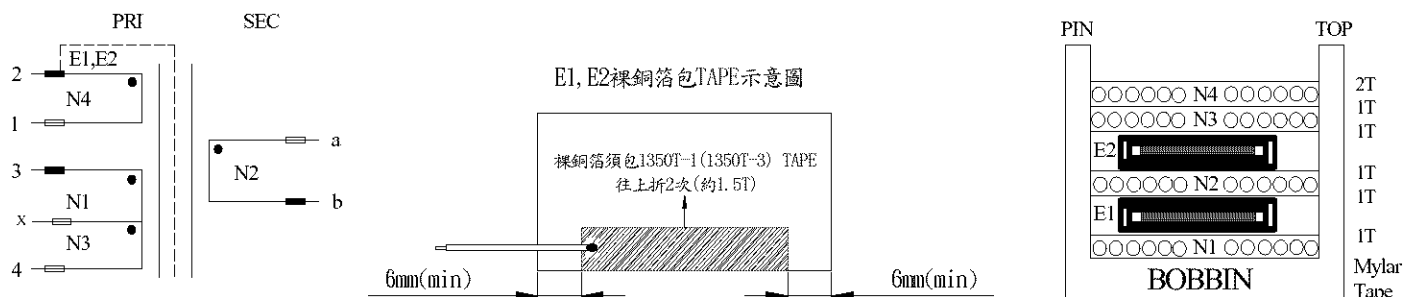
東莞幸康電子有限公司  
DONG GUAN CINCON ELECTRONICS LIMITED

Revision	1.0
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Date	2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US15
------------------------	----------------------------	-----------------------------

## 2. SCHEMATIC:



※ NOTE: ● START, —○— TEFLON TUBE, —■— BLACK TEFLON TUBE.

## 3. WINDING CONSTRUCTION:

WINDING ORDER	TERMINAL NO. START-FINISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
1	N1	3---X	TEX-E $\Phi 0.5*2*12T$	預留夠 N3 的線長
2	E1	2---	COPPER FOIL 0.025t*7mm*1T	背膠銅箔引線 $\Phi 0.3$
3	N2	a---b	2UEW 0.1*40*2*4T	密繞
4	E2	2---	COPPER FOIL 0.025t*7mm*1T	背膠銅箔引線 $\Phi 0.3$
5	N3	X---4	TEX-E $\Phi 0.5*2*11T$	使用 N1 預留線繞制
6	N4	2---1	TEX-E $\Phi 0.35*1*5T$	靠 PIN 端密繞

※E1 焊點朝下,E2 焊點朝上.

## 4. ELECTRICAL CHARACTERISTICS:

NO	PARAMETER	TERMINAL	SPEC	TEST INSTRUMENT
1	INDUCTANCE	3---4	350uH±8%	HP-4284A or EQUIVALENT @10KHZ,0.25V, 25°C
2	LEAKAGE INDUCTANCE	3---4	30uH (max)	HP-4284A or EQUIVALENT @10KHZ,0.25V 25°C Short other pins.
3	DC RESISTANCE	3---4	80mΩ (max)	GW GOM 801G
4	HI-POT	P~S	AC3.5KV/5mA/3sec	CHROMA 19052
		P~CORE	AC1.5KV/5mA/3sec	
		S~CORE	AC0.6KV/5mA/3sec	
5	INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	CHROMA 19052

※圈數比及相位需量測.



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

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Date

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# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US15
------------------------	----------------------------	-----------------------------

## 5. MATERIAL LIST:

ITEM	MATERIAL	SUPPLIER OR MANUFACTURER	ULNO.	CLASS		
1	INSULATION SYSTEM	SBI4.2	CINCON ELECTRONICS CO LTD	✓	E305999	130°C
2	CORE	6H20	FDK			
		P4	ACME	✓		
		MZ4	ALLITON			
		V023	VAKOS			
		JJP-4	A-CORE			
3	BOBBIN	PM-9820	SUMITOMO BAKELITE CO LTD	✓	E41429	150°C
4	WIRE	1UEW MW75	FENG CHING METAL CORP	✓	E172395	130°C
		2UEW MW75				
5	VARNISH	V1630FS V1380FC	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	✓	E75225	130°C
6	TAPE	NO.1350F-1 NO.1350F-2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	✓	E17385	130°C
7	TRIPLE WIRE	TIW-2	TOTOKU ELECTRIC CO LTD		E166483	130°C
		TEX-E	FURUKAWA ELECTRIC CO LTD	✓	E206440	130°C
8	COPPER	0.025t*7mm 0.05t*15mm	WENXIANG/SOLAR PLUS CO	✓	E173444	130°C
9	TUBE	TEFLON (TFL)	GREAT HOLDING INDUSTRIAL CO LTD	✓	E156256	200°C
10	EPOXY	2095	EPOLAB CHEMICAL INDUSTRIESINC	✓		

## 6. TEST DATA:

TEST ITEM	TEST CONDITION	SPEC	1	2	3	4	5
INDUCTANCE	3---4	350uH±8%	349	345	348	349	351
LEAKAGE INDUCTANCE	3---4	30uH (max)	19.8	20.6	20.8	20.9	20.5
DC RESISTANCE	3---4	80mΩ (max)	67.5	67.4	67.3	67.4	67.5
HI-POT	P~S	AC3.5KV/5mA/3sec	OK	OK	OK	OK	OK
	P~CORE	AC1.5KV/5mA/3sec	OK	OK	OK	OK	OK
	S~CORE	AC0.6KV/5mA/3sec	OK	OK	OK	OK	OK
INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	OK	OK	OK	OK	OK



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

Revision

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Date

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# 承認書

## APPROVAL SHEET

Green Product

RoHS

客戶名稱  
CUSTOMER: 台灣幸康

品名規格  
PART NAME: ECE80US24

承認料號  
PART NO.: \_\_\_\_\_

日期  
DATE: 2016-08-04

東莞幸康承認欄：

制作 PREPARED BY	審核 CHECKED BY	核准 APPROVED BY
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">謝東論 8/04</div> <div style="border: 1px solid black; padding: 2px;">王偉 8/04</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">陳瓊 8/04</div> <div style="border: 1px solid black; padding: 2px;">黃青波 8/04</div> <div style="border: 1px solid black; padding: 2px;">鍾成彬 8/04</div> </div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">徐禮強 8/04</div>

客戶承認欄：

承認 SIGNATURE	審核 CHECKED BY	核准 APPROVED BY



東莞幸康電子有限公司

Dongguan Cincon Electronics Limited

東莞東城牛山外經工業園景祥路1號

TEL:0769-22663801 22258876

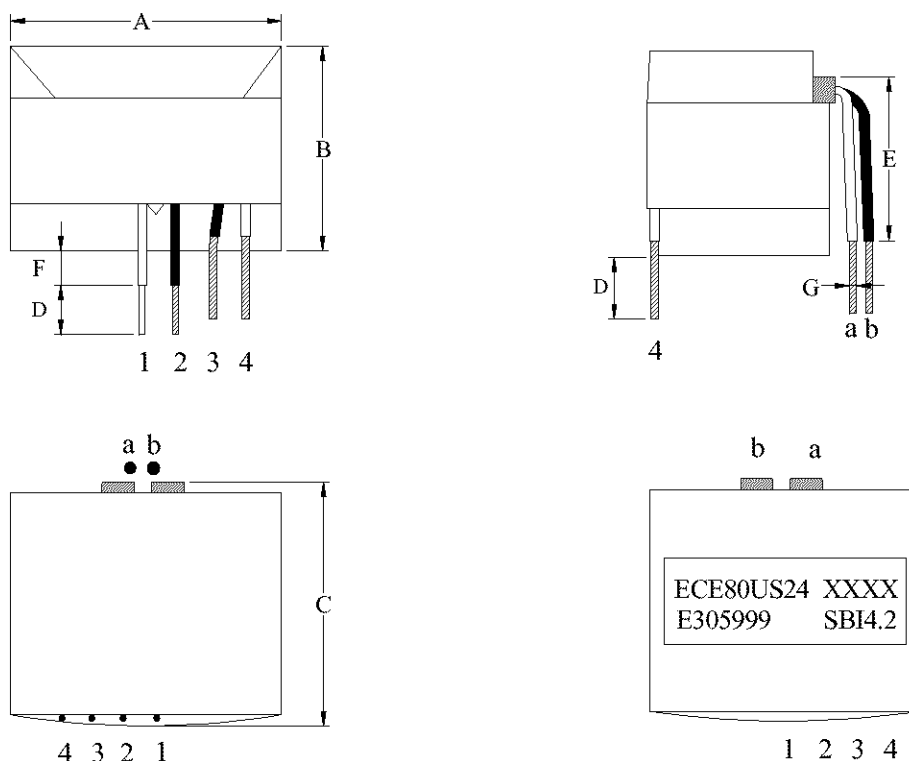
22619670

FAX:0769-22663800

# SPECIFICATION FOR APPROVAL

CUSTOMER: 台灣 幸康	DESCRIPTION: PQ3220	PART NAME: ECE80US24
--------------------	------------------------	-------------------------

## 1. CONFIGURATION&DESCRIPTION: UNIT:mm



※ NO PIN 1,2,3,4(繞製時 PIN 端為 BOBBIN 頂部且頂部朝里).

※ CORE GAP:YES.

※ “4”由 BOBBIN 頂部出線成品後折至 PIN4 旁,穿白色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “3”由 BOBBIN 頂部出線成品後折至 PIN3 旁,穿黑色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “2”由 BOBBIN 頂部出線成品後折至 PIN2 旁,穿黑色 TFL TUBE.絞合後線徑 1.2mm (max).

※ “1”由 BOBBIN 頂部出線成品後折至 PIN1 旁,穿白色 TFL TUBE.

※ “a”由 BOBBIN 頂部入線,穿透明 TFL TUBE,“b”由 BOBBIN 頂部出線,穿黑色 TFL TUBE.

※ 鐵芯接合處點 EPOXY(四點).

※ CORE包22mm TAPE 3T固定.成品後先圍繞CORE包0.05t\*15mm自粘性銅箔1T,焊接於CORE側面,無需焊引線.然後用50mm\*60mm(Ref)兩層TAPE置中包於底部鐵芯,多出部份向四面折回(先折CORE兩邊,再折一二次側面),再用45mm\*60mm(Ref)兩層TAPE切齊二次側CORE邊緣包住頂部鐵芯,多出部分折到CORE兩側和一次側,最後用11mmTAPE圍繞線包包2T.

※真空浸凡立水,烘乾.貼標籤,標明產品型號、生產週期.

NO.	A	B	C	D	E	F	G	H	I	J	K
SPEC	34.5	22.5	35.0	10.0	16.0	7.0	2.0				
TOLERANCE	max	max	max	±2.0	±2.0	±2.0	max				



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

Revision 1.0

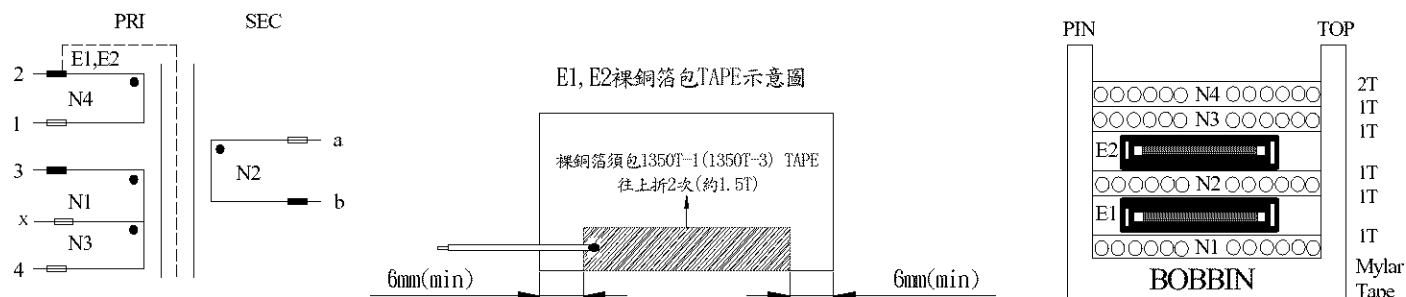
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Date 2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US24
------------------------	----------------------------	-----------------------------

## 2. SCHEMATIC:



※ NOTE: ● START, —○— TEFLON TUBE, —■— BLACK TEFLON TUBE.

## 3. WINDING CONSTRUCTION:

WINDING ORDER	TERMINAL NO. START-FINISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
1	N1	3---X	TEX-E $\Phi 0.5*2*12T$	預留夠 N3 的線長
2	E1	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
3	N2	a---b	2UEW $0.1*50*1*6T$	密繞
4	E2	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
5	N3	X---4	TEX-E $\Phi 0.5*2*11T$	使用 N1 預留線繞制
6	N4	2---1	TEX-E $\Phi 0.35*1*5T$	靠 PIN 端密繞

※E1 焊點朝下,E2 焊點朝上.

## 4. ELECTRICAL CHARACTERISTICS:

NO	PARAMETER	TERMINAL	SPEC	TEST INSTRUMENT
1	INDUCTANCE	3---4	$350\mu H \pm 8\%$	HP-4284A or EQUIVALENT @10KHZ, 0.25V, 25°C
2	LEAKAGE INDUCTANCE	3---4	25 $\mu H$ (max)	HP-4284A or EQUIVALENT @10KHZ, 0.25V 25°C Short other pins.
3	DC RESISTANCE	3---4	80m $\Omega$ (max)	GW GOM 801G
4	HI-POT	P~S	AC3.5KV/5mA/3sec	CHROMA 19052
		P~CORE	AC1.5KV/5mA/3sec	
		S~CORE	AC0.6KV/5mA/3sec	
5	INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100M $\Omega$ (min)	CHROMA 19052

※圈數比及相位需量測.



東莞幸康電子有限公司

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# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US24
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## 5. MATERIAL LIST:

ITEM	MATERIAL	SUPPLIER OR MANUFACTURER		ULNO.	CLASS
1	INSULATION SYSTEM	SBI4.2	CINCON ELECTRONICS CO LTD	✓	E305999 130°C
2	CORE	6H20	FDK		
		P4	ACME	✓	
		MZ4	ALLITON		
		V023	VAKOS		
		JJP-4	A-CORE		
3	BOBBIN	PM-9820	SUMITOMO BAKELITE CO LTD	✓	E41429 150°C
4	WIRE	1UEW MW75	FENG CHING METAL CORP	✓	E172395 130°C
		2UEW MW75			
5	VARNISH	V1630FS V1380FC	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	✓	E75225 130°C
6	TAPE	NO.1350F-1 NO.1350F-2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	✓	E17385 130°C
7	TRIPLE WIRE	TIW-2	TOTOKU ELECTRIC CO LTD		E166483 130°C
		TEX-E	FURUKAWA ELECTRIC CO LTD	✓	E206440 130°C
8	COPPER	0.025t*7mm 0.05t*15mm	WENXIANG/SOLAR PLUS CO	✓	E173444 130°C
9	TUBE	TEFLON (TFL)	GREAT HOLDING INDUSTRIAL CO LTD	✓	E156256 200°C
10	EPOXY	2095	EPOLAB CHEMICAL INDUSTRIES INC	✓	

## 6. TEST DATA:

TEST ITEM	TEST CONDITION	SPEC	1	2	3	4	5
INDUCTANCE	3---4	350uH±8%	352	353	349	355	353
LEAKAGE INDUCTANCE	3---4	25uH (max)	15.8	157	16.5	16.7	16.2
DC RESISTANCE	3---4	80mΩ (max)	67.5	67.7	67.5	67.6	67.8
HI-POT	P~S	AC3.5KV/5mA/3sec	OK	OK	OK	OK	OK
	P~CORE	AC1.5KV/5mA/3sec	OK	OK	OK	OK	OK
	S~CORE	AC0.6KV/5mA/3sec	OK	OK	OK	OK	OK
INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	OK	OK	OK	OK	OK



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# 承認書

## APPROVAL SHEET

Green Product

RoHS

客戶名稱  
CUSTOMER: 台灣幸康

品名規格  
PART NAME: ECE80US36

承認料號  
PART NO.: \_\_\_\_\_

日期  
DATE: 2016-08-04

東莞幸康承認欄：

制作 PREPARED BY	審核 CHECKED BY	核准 APPROVED BY
謝東論 王偉 8/04 8/04	陳瓊 黃青波 鍾成彬 8/04 8/04 8/04	徐禮強 8/04

客戶承認欄：

承認 SIGNATURE	審核 CHECKED BY	核准 APPROVED BY



東莞幸康電子有限公司

Dongguan Cincon Electronics Limited

東莞東城牛山外經工業園景祥路1號

TEL:0769-22663801 22258876

22619670

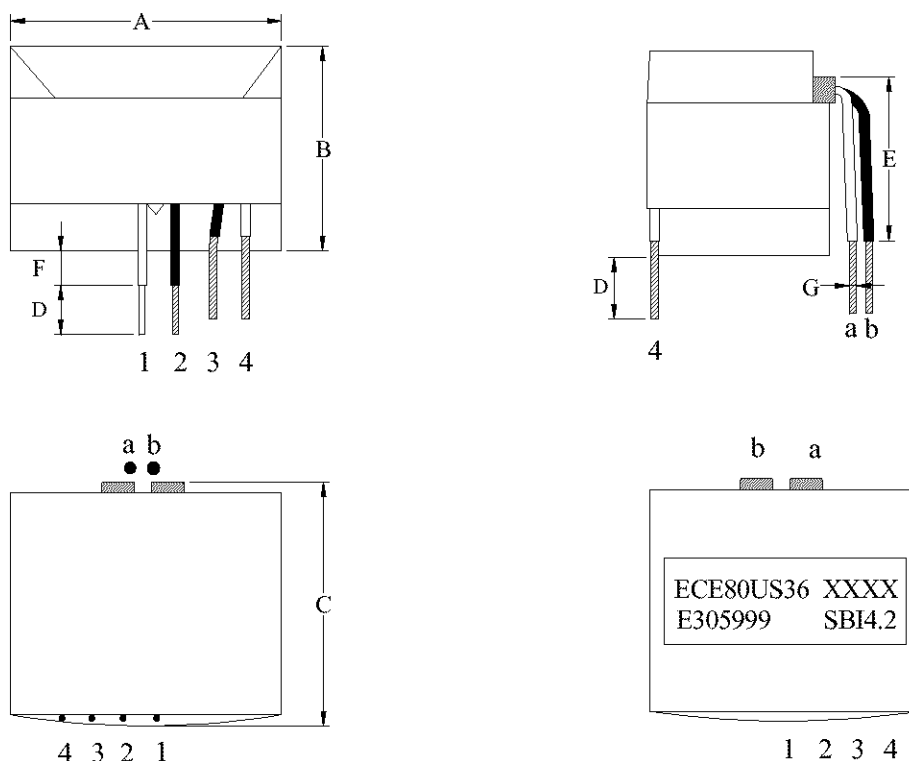
FAX:0769-22663800



# SPECIFICATION FOR APPROVAL

CUSTOMER: 台灣幸康	DESCRIPTION: PQ3220	PART NAME: ECE80US36
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## 1. CONFIGURATION&DESCRIPTION: UNIT:mm



※ NO PIN 1,2,3,4(繞製時 PIN 端為 BOBBIN 頂部且頂部朝里).

※ CORE GAP:YES.

※ “4”由 BOBBIN 頂部出線成品後折至 PIN4 旁,穿白色 TFL TUBE.絞合後線徑 1.5mm (max) .

※ “3”由 BOBBIN 頂部出線成品後折至 PIN3 旁,穿黑色 TFL TUBE.絞合後線徑 1.5mm (max) .

※ “2”由 BOBBIN 頂部出線成品後折至 PIN2 旁,穿黑色 TFL TUBE.絞合後線徑 1.2mm (max) .

※ “1”由 BOBBIN 頂部出線成品後折至 PIN1 旁,穿白色 TFL TUBE.

※ “a”由 BOBBIN 頂部入線,穿透明 TFL TUBE, “b”由 BOBBIN 頂部出線,穿黑色 TFL TUBE.

※ 鐵芯接合處點 EPOXY(四點).

※ CORE包22mm TAPE 3T固定.成品後先圍繞CORE包0.05t\*15mm自粘性銅箔1T,焊接於CORE側面,無需焊引線.然後用50mm\*60mm(Ref)兩層TAPE置中包於底部鐵芯,多出部份向四面折回(先折CORE兩邊,再折一二次側面),再用45mm\*60mm(Ref)兩層TAPE切齊二次側CORE邊緣包住頂部鐵芯,多出部分折到CORE兩側和一次側,最後用11mmTAPE圍繞線包包2T.

※真空浸凡立水,烘乾,貼標籤,標明產品型號、生產週期.

NO.	A	B	C	D	E	F	G	H	I	J	K
SPEC	34.5	22.5	35.0	10.0	16.0	7.0	2.0				
TOLERANCE	max	max	max	±2.0	±2.0	±2.0	max				



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

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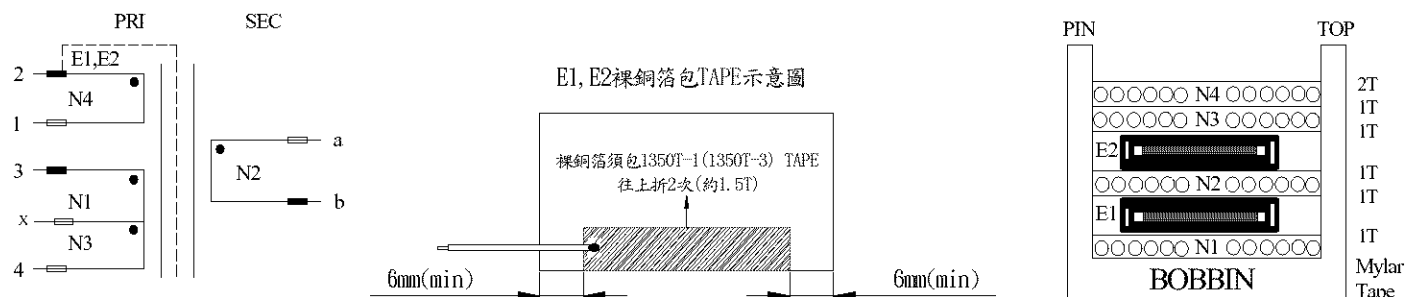
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Date 2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US36
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## 2. SCHEMATIC:



※ NOTE: ● START, —○— TEFLON TUBE, —■— BLACK TEFLON TUBE.

## 3. WINDING CONSTRUCTION:

WINDING ORDER	TERMINAL NO.	START-FINISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
1	N1	3---X	TEX-E $\Phi 0.5*2*12T$	1T	預留夠 N3 的線長
2	E1	2---	COPPER FOIL $0.025t*7mm*1T$	1T	背膠銅箔引線 $\Phi 0.3$
3	N2	a---b	2UEW $0.1*30*1*9T$	1T	密繞
4	E2	2---	COPPER FOIL $0.025t*7mm*1T$	1T	背膠銅箔引線 $\Phi 0.3$
5	N3	X---4	TEX-E $\Phi 0.5*2*11T$	1T	使用 N1 預留線繞制
6	N4	2---1	TEX-E $\Phi 0.35*1*5T$	2T	靠 PIN 端密繞

※E1 焊點朝下,E2 焊點朝上.

## 4. ELECTRICAL CHARACTERISTICS:

NO	PARAMETER	TERMINAL	SPEC	TEST INSTRUMENT
1	INDUCTANCE	3---4	$350\mu H \pm 8\%$	HP-4284A or EQUIVALENT @10KHZ, 0.25V, 25°C
2	LEAKAGE INDUCTANCE	3---4	25 $\mu H$ (max)	HP-4284A or EQUIVALENT @10KHZ, 0.25V 25°C Short other pins.
3	DC RESISTANCE	3---4	80m $\Omega$ (max)	GW GOM 801G
4	HI-POT	P~S	AC3.5KV/5mA/3sec	CHROMA 19052
		P~CORE	AC1.5KV/5mA/3sec	
		S~CORE	AC0.6KV/5mA/3sec	
5	INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100M $\Omega$ (min)	CHROMA 19052

※圈數比及相位需量測.



東莞幸康電子有限公司

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# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US36
------------------------	----------------------------	-----------------------------

## 5. MATERIAL LIST:

ITEM	MATERIAL	SUPPLIER OR MANUFACTURER	ULNO.	CLASS		
1	INSULATION SYSTEM	SBI4.2	CINCON ELECTRONICS CO LTD	✓	E305999	130°C
2	CORE	6H20	FDK			
		P4	ACME	✓		
		MZ4	ALLITON			
		V023	VAKOS			
		JJP-4	A-CORE			
3	BOBBIN	PM-9820	SUMITOMO BAKELITE CO LTD	✓	E41429	150°C
4	WIRE	1UEW MW75	FENG CHING METAL CORP	✓	E172395	130°C
		2UEW MW75				
5	VARNISH	V1630FS V1380FC	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	✓	E75225	130°C
6	TAPE	NO.1350F-1 NO.1350F-2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	✓	E17385	130°C
7	TRIPLE WIRE	TIW-2	TOTOKU ELECTRIC CO LTD		E166483	130°C
		TEX-E	FURUKAWA ELECTRIC CO LTD	✓	E206440	130°C
8	COPPER	0.025t*7mm 0.05t*15mm	WENXIANG/SOLAR PLUS CO	✓	E173444	130°C
9	TUBE	TEFLON (TFL)	GREAT HOLDING INDUSTRIAL CO LTD	✓	E156256	200°C
10	EPOXY	2095	EPOLAB CHEMICAL INDUSTRIES INC	✓		

## 6. TEST DATA:

TEST ITEM	TEST CONDITION	SPEC	1	2	3	4	5
INDUCTANCE	3---4	350uH±8%	355	351	357	347	349
LEAKAGE INDUCTANCE	3---4	25uH (max)	16.6	16.9	17.8	17.4	17.1
DC RESISTANCE	3---4	80mΩ (max)	67.3	67.3	67.5	67.5	67.8
HI-POT	P~S	AC3.5KV/5mA/3sec	OK	OK	OK	OK	OK
	P~CORE	AC1.5KV/5mA/3sec	OK	OK	OK	OK	OK
	S~CORE	AC0.6KV/5mA/3sec	OK	OK	OK	OK	OK
INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	OK	OK	OK	OK	OK



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# 承認書

## APPROVAL SHEET

Green Product

RoHS

客戶名稱  
CUSTOMER: 台灣幸康

品名規格  
PART NAME: ECE80US48

承認料號  
PART NO.: \_\_\_\_\_

日期  
DATE: 2016-08-04

### 東莞幸康承認欄：

制 作 PREPARED BY	審 核 CHECKED BY	核 准 APPROVED BY
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">謝東論 8/04</div> <div style="border: 1px solid black; padding: 2px;">王偉 8/04</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">陳瓊 8/04</div> <div style="border: 1px solid black; padding: 2px;">黃青波 8/04</div> <div style="border: 1px solid black; padding: 2px;">鍾成彬 8/04</div> </div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">徐禮強 8/04</div>

### 客戶承認欄：

承 認 SIGNATURE	審 核 CHECKED BY	核 准 APPROVED BY



## 東莞幸康電子有限公司

Dongguan Cincon Electronics Limited

東莞東城牛山外經工業園景祥路1號

TEL:0769-22663801 22258876

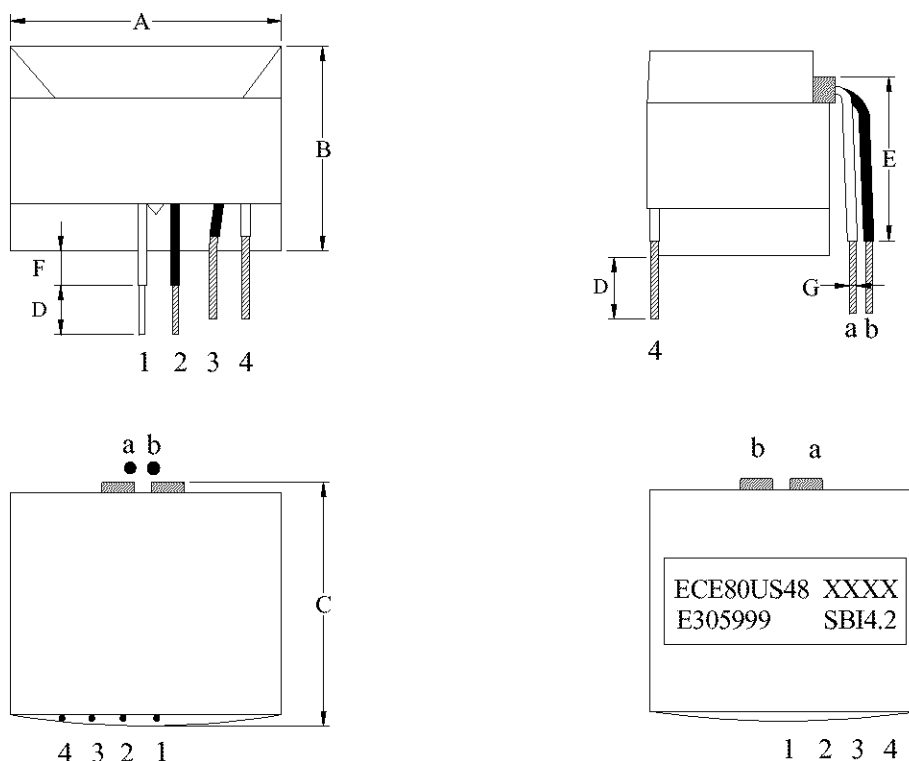
22619670

FAX:0769-22663800

# SPECIFICATION FOR APPROVAL

CUSTOMER: 台灣幸康	DESCRIPTION: PQ3220	PART NAME: ECE80US48
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## 1. CONFIGURATION&DESCRIPTION: UNIT:mm



※ NO PIN 1,2,3,4(繞製時 PIN 端為 BOBBIN 頂部且頂部朝里).

※ CORE GAP:YES.

※ “4”由 BOBBIN 頂部出線成品後折至 PIN4 旁,穿白色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “3”由 BOBBIN 頂部出線成品後折至 PIN3 旁,穿黑色 TFL TUBE.絞合後線徑 1.5mm (max).

※ “2”由 BOBBIN 頂部出線成品後折至 PIN2 旁,穿黑色 TFL TUBE.絞合後線徑 1.2mm (max).

※ “1”由 BOBBIN 頂部出線成品後折至 PIN1 旁,穿白色 TFL TUBE.

※ “a”由 BOBBIN 頂部入線,穿透明 TFL TUBE,“b”由 BOBBIN 頂部出線,穿黑色 TFL TUBE.

※ 鐵芯接合處點 EPOXY(四點).

※ CORE包22mm TAPE 3T固定.成品後先圍繞CORE包0.05t\*15mm自粘性銅箔1T,焊接於CORE側面,無需焊引線.然後用50mm\*60mm(Ref)兩層TAPE置中包於底部鐵芯,多出部份向四面折回(先折CORE兩邊,再折一二次側面),再用45mm\*60mm(Ref)兩層TAPE切齊二次側CORE邊緣包住頂部鐵芯,多出部分折到CORE兩側和一次側,最後用11mmTAPE圍繞線包包2T.

※真空浸凡立水,烘乾,貼標籤,標明產品型號、生產週期.

NO.	A	B	C	D	E	F	G	H	I	J	K
SPEC	34.5	22.5	35.0	10.0	16.0	7.0	2.0				
TOLERANCE	max	max	max	±2.0	±2.0	±2.0	max				



東莞幸康電子有限公司

DONG GUAN CINCON ELECTRONICS LIMITED

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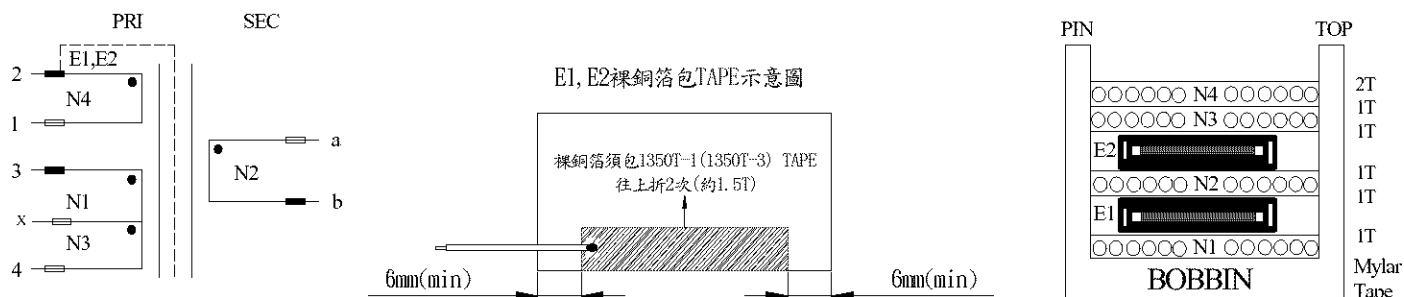
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Date 2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US48
------------------------	----------------------------	-----------------------------

## 2. SCHEMATIC:



※ NOTE: ● START, —○— TEFLON TUBE, —■— BLACK TEFLON TUBE.

## 3. WINDING CONSTRUCTION:

WINDING ORDER	TERMINAL NO. START-FINISH	WINDING SPECIFICATION	MYLAR TAPE	REMARK
1	N1	3---X	TEX-E $\Phi 0.5*2*12T$	預留夠 N3 的線長
2	E1	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
3	N2	a---b	2UEW $0.1*20*1*12T$	密繞
4	E2	2---	COPPER FOIL $0.025t*7mm*1T$	背膠銅箔引線 $\Phi 0.3$
5	N3	X---4	TEX-E $\Phi 0.5*2*11T$	使用 N1 預留線繞制
6	N4	2---1	TEX-E $\Phi 0.35*1*5T$	靠 PIN 端密繞

※E1 焊點朝下,E2 焊點朝上.

## 4. ELECTRICAL CHARACTERISTICS:

NO	PARAMETER	TERMINAL	SPEC	TEST INSTRUMENT
1	INDUCTANCE	3---4	$350\mu H \pm 8\%$	HP-4284A or EQUIVALENT @10KHZ, 0.25V, 25°C
2	LEAKAGE INDUCTANCE	3---4	25 $\mu H$ (max)	HP-4284A or EQUIVALENT @10KHZ, 0.25V 25°C Short other pins.
3	DC RESISTANCE	3---4	80m $\Omega$ (max)	GW GOM 801G
4	HI-POT	P~S	AC3.5KV/5mA/3sec	CHROMA 19052
		P~CORE	AC1.5KV/5mA/3sec	
		S~CORE	AC0.6KV/5mA/3sec	
5	INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100M $\Omega$ (min)	CHROMA 19052

※圈數比及相位需量測.



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Date

2016/08/04

# SPECIFICATION FOR APPROVAL

CUSTOMER:  台灣 幸康	DESCRIPTION:  PQ3220	PART NAME:  ECE80US48
------------------------	----------------------------	-----------------------------

## 5. MATERIAL LIST:

ITEM	MATERIAL	SUPPLIER OR MANUFACTURER	ULNO.	CLASS		
1	INSULATION SYSTEM	SBI4.2	CINCON ELECTRONICS CO LTD	✓	E305999	130°C
2	CORE	6H20	FDK			
		P4	ACME	✓		
		MZ4	ALLITON			
		V023	VAKOS			
		JJP-4	A-CORE			
3	BOBBIN	PM-9820	SUMITOMO BAKELITE CO LTD	✓	E41429	150°C
4	WIRE	1UEW MW75	FENG CHING METAL CORP	✓	E172395	130°C
		2UEW MW75				
5	VARNISH	V1630FS V1380FC	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	✓	E75225	130°C
6	TAPE	NO.1350F-1 NO.1350F-2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	✓	E17385	130°C
7	TRIPLE WIRE	TIW-2	TOTOKU ELECTRIC CO LTD		E166483	130°C
		TEX-E	FURUKAWA ELECTRIC CO LTD	✓	E206440	130°C
8	COPPER	0.025t*7mm 0.05t*15mm	WENXIANG/SOLAR PLUS CO	✓	E173444	130°C
9	TUBE	TEFLON (TFL)	GREAT HOLDING INDUSTRIAL CO LTD	✓	E156256	200°C
10	EPOXY	2095	EPOLAB CHEMICAL INDUSTRIESINC	✓		

## 6. TEST DATA:

TEST ITEM	TEST CONDITION	SPEC	1	2	3	4	5
INDUCTANCE	3---4	350uH±8%	354	352	357	347	350
LEAKAGE INDUCTANCE	3---4	25uH (max)	16.6	17.2	16.8	17.5	17.8
DC RESISTANCE	3---4	80mΩ (max)	67.5	67.7	67.6	67.5	67.8
HI-POT	P~S	AC3.5KV/5mA/3sec	OK	OK	OK	OK	OK
	P~CORE	AC1.5KV/5mA/3sec	OK	OK	OK	OK	OK
	S~CORE	AC0.6KV/5mA/3sec	OK	OK	OK	OK	OK
INSULATION RESISTANCE	COIL~COIL COIL~CORE	DC500V/100MΩ (min)	OK	OK	OK	OK	OK



東莞幸康電子有限公司

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Date

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# 請 承 認 書

## (SPECIFICATION FOR APPROVAL)

客戶名稱： (CUSTOMER.) 零件名稱： (DESCRIPTION) 貴公司料號： (CUSTOMER PT/NO.) 森寶料號： (SP PT/NO.) 提樣編號： (SAMPLES SUBMIT NO.) 發行版本： (ISSUE REVISION.) 發行日期： (ISSUE DATE.)	幸康電子股份有限公司 <hr/> CHOKE COIL T16*9*5C                      L: 5.0mH MIN <hr/> <b>G91C0718701</b> <hr/> <hr/> SP15I091 <hr/> <hr/> 00 <hr/> <hr/> NOV 12,2015 <hr/>
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貴公司承認印鑑  
(APPROVED BY)

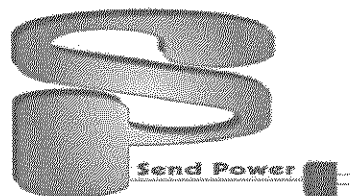
梁雅惠

黃宗銘

林芳嫻

黃偉彬

梁欽富



**森寶電子股份有限公司**

SEND POWER ELECTRONICS CO.,LTD

公司地址：台北縣中和市中正路 880 號 4 樓(MIT 大樓)

TEL：886-2-2221-5088

FAX：886-2-2221-5123

**東莞樟木頭鴻全電子制品厂**

DONGGUAN ZHANGMUTOU HUONGQUAN ELECTRONICS CO,LTD

工廠地址：東莞市樟木頭墟鎮樟洋銀洋第三工業區

TEL：86-769-8718-5568,8719-1918

FAX：86-769-8718-5211





# Content

No.	項目	文件
1	SGS 報告	<input type="checkbox"/>
2	MSDS	<input checked="" type="checkbox"/>
3		<input type="checkbox"/>





# SPECIFICATION FOR APPROVAL

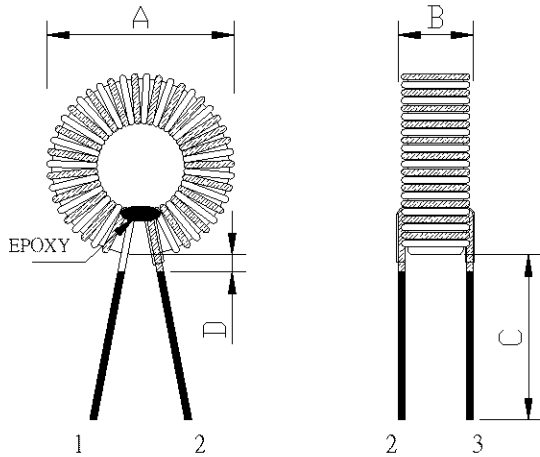
CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKER COIL      SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I091      ISSUE DATE NOV 12,2015      REV: 00

**(1) CONFIGURATION & DESCRIPTION**

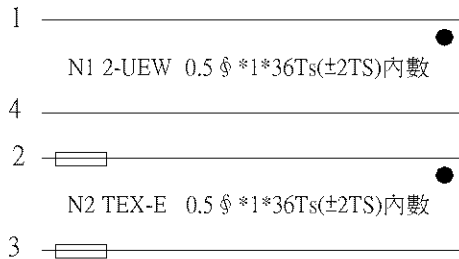
UNIT : mm



A	22.0MAX
B	12.0MAX
C	10.0±2.0
D	1.0MAX
E	
F	


※ 進出線須點 EPOXY 固定.  
 ※ N1,N2 並繞


**(2) SCHEMATIC**




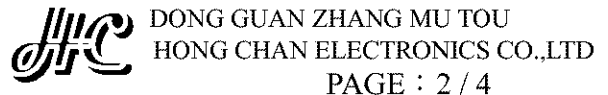
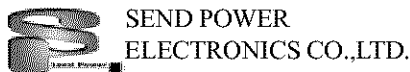
**(3) ELECTRICAL CHARACTERISTICS**

NO.	PARAMETER	TERMINAL	SPECIFICATION	TEST INSTRUMENTS
1.	INDUCATANCE	N1	5.0mH MIN	DELTA UNITED 6021 or EQU. @1 KHz, 0.25Vrms.
		N2	5.0mH MIN	
2.	DC RESISTANCE	N1	100mΩ MAX	DELTA UNITED 5010 or EQU. @25°C
		N2	100mΩ MAX	
3.	HI - POT	COIL COIL	AC 600V, 3mA,3Sec.	DELTA UNITED 3315 or EQU.

APPROVED BY : 

CHECKED BY : 

PREPARED BY : 





# SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKO COIL      SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I091      ISSUE DATE NOV 12,2015      REV: 00

## PART MATERIAL IDENTIFICATION

No	ITEM	MATERIAL	CLASS	UL FILE NO.	MANUFACTURER
1.	CORE	T16*9*5C    M10K			HAOBO
		T16*9*5C    A10			ACME
		T16*9*5C    R10K			VAKOS
2.	WIRE	UEWN/U    MW75-C	130°C	E201757	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN)CO.,LTD.
3.	TRIPLE WIRE	TEX-E	130°C	E206440	FURUKAWA ELECTRIC CO LTD
		TIW-2	130°C	E166483	TOTOKU ELECTRIC CO LTD
		TIWW-B	130°C	E321186	TEAMWORK INTERNATIONAL CORPORATION
4.	EPOXY	3300	90°C	E218090	DONGGUAN EATTO ELECTRONIC MATERIAL, CO LTD
5.	TUBE	TEFLON (TFL)	200°C	E156256	GREAT HOLDING INDUSTRIAL CO.,LTD.

APPROVED BY :



CHECKED BY :



PREPARED BY :



SEND POWER  
ELECTRONICS CO.,LTD.



DONG GUAN ZHANG MU TOU  
HONG CHAN ELECTRONICS CO.,LTD

PAGE : 3 / 4

## SPECIFICATION FOR APPROVAL



CUSTOMER NAME: 幸康電子股份有限公司 CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKE COIL SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I091 ISSUE DATE NOV 12,2015 REV: 00

TEST ITEM	INDUCANCE		DCR	
TEST FREQ.	@1KHz , 0.25Vrms.		25°C	
TERMINAL	N1	N2	N1	N2
SP SPEC.	5.0mH MIN	5.0mH MIN	100mΩ MAX	100mΩ MAX
1.	10.93mH	10.97mH	65.78 mΩ	66.57 mΩ
2.	10.26mH	10.37mH	65.2 mΩ	65.3 mΩ
3.	10.19mH	10.28mH	65.5 mΩ	65.6 mΩ
4.	9.96mH	10.02mH	66.7 mΩ	66.2 mΩ
5.	9.87mH	9.93mH	65.8 mΩ	65.8 mΩ

## 1. TEST INSTRUMENTS :

DELTA UNITED 6021 or EQU.  
 DELTA UNITED 5010 or EQU.  
 DELTA UNITED 3315 or EQU.

## 2. TEST CONDITION :

TEMPERATURE : 25°C  
 HUMIDITY : 65% RH

APPROVED BY :



CHECKED BY :



PREPARED BY :



SEND POWER  
ELECTRONICS CO.,LTD.



DONG GUAN ZHANG MU TOU  
HONG CHAN ELECTRONICS CO.,LTD

PAGE : 4 / 4



CINCON Electronics Co., Ltd.

有害物質保證書

(Guarantee of Restriction of Hazardous Substances)

供應商名稱: 森寶電子股份有限公司/鴻全電子製品廠

本公司(含子公司和協力廠)特此保證: 保證供應給幸康電子公司的

所有產品

產品名稱: 變壓器、線圈、電感 料號: 變壓器全系列、線圈全系列、電感全系列

皆符合下列指令所規範的有害物質及其限值要求:

■ RoHS II(2011/65/EC)

■ PFOS (EU 2006/122/EC)

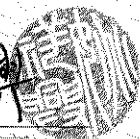
■ REACH (Regulation (EC) No 1907/2006), Substances of Very High Concern (SVHC)及附錄 17 中所列禁限用危險物質

※若因本公司所供應的產品違反上述指令限值標準,造成幸康電子公司的一切損失及風險,本公司將承擔一切責任,承擔補償因此發生的一切費用。

※上述要求,如有修正或改版時,本保證書依法令標準修正或改版內容修正同步更新,不再另行切結保證書。若供應商無法符合時應立即以書面方式通知幸康電子公司,且幸康電子得取消未交貨之所有訂單。

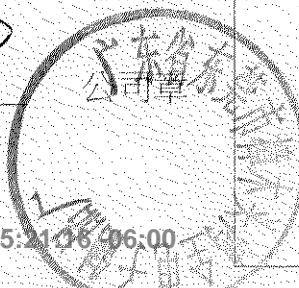
姚祥興

(供應商代表簽章)



總經理

(職稱)



日期: 2014.3.17

# 請 承 認 書 (SPECIFICATION FOR APPROVAL)

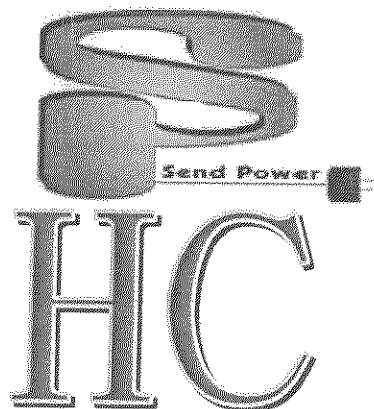
客戶名稱： (CUSTOMER.)	幸康電子股份有限公司
零件名稱： (DESCRIPTION)	CHOKO COIL T16*12*8-C (CFM100M L:8.0mH MIN)
貴公司料號： (CUSTOMER PT/NO.)	CMC-815H-V2 (CFM100M-L1)
森寶料號： (SP PT/NO.)	
提樣編號： (SAMPLES SUBMIT NO.)	SP05I091 69100400801
發行版本： (ISSUE REVISION.)	00
發行日期： (ISSUE DATE.)	June 13, 2005

貴公司承認印鑑  
(APPROVED BY)

蘇漢忠 6/17

林芳緣

張銀世



森寶電子股份有限公司  
SEND POWER ELECTRONICS CO.,LTD  
公司地址：台北縣中和市中正路 880 號 4 樓(MIT 大樓)  
TEL：886-2-2221-5088  
FAX：886-2-2221-5123  
鴻全電子製品廠  
HONG CHAN ELECTRONICS CO.,LTD  
工廠地址：東莞市樟木頭墟鎮樟洋銀洋第三工業區  
TEL：86-769-718-5568,719-1918  
FAX：86-769-718-5211







# SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: G91C0400801  
 DESCRIPTION: CHOKE COIL      SP PT/NO. F1608-802AL  
 SAMPLE SUBMIT NO.: SP05I091      ISSUE DATE MAY 06,2013      REV: 02

(1) CONFIGURATION & DESCRIPTION      UNIT : mm

A	23.5MAX
B	15.5MAX
C	12.0±1.0
D	1.5MAX
E	
F	

※ CORE 中間須用 1.0mm 的隔板將 N1,N2 隔開,繞線方式為同進同出.  
 ※出線加一截黑色 TUBE  
 ※ 點 EPOXY 對角兩點固定隔板

(2) SCHEMATIC

1 ————

N1 2-UEW 0.65 ϕ \*1\*50.5Ts (REF)

4 ————

2 ————

N2 2-UEW 0.65 ϕ \*1\*50.5Ts(REF)

3 ————

(3) ELECTRICAL CHARACTERISTICS

NO.	PARAMETER	TERMINAL	SPECIFICATION	TEST INSTRUMENTS
1.	INDUCATANCE	N1	8.0mH MIN	DELTA UNITED 6021 or EQU. @1 KHz, 0.25Vrms.
		N2	8.0mH MIN	
2.	DC RESISTANCE	N1	120.0mΩ MAX	DELTA UNITED 5010 or EQU. @25°C
		N2	120.0 mΩ MAX	
3.	HI - POT	COIL COIL COIL CORE	AC 600V, 3mA ,3Sec. AC 600V, 3mA,3Sec.	DELTA UNITED 3315 or EQU.
4.	INSULATION RESISTANCE	COIL CORE	DC 500V, 100M OHM MIN.	DELTA UNITED 3315 or EQU.

APPROVED BY :

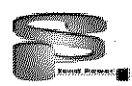
陳  
102.05.06  
淑芬

CHECKED BY :

陳  
102.05.06  
淑芬

PREPARED BY :

卜  
102.05.06  
海橋



**SEND POWER**  
ELECTRONICS CO.,LTD.






**HONG CHAN**  
ELECTRONICS CO.,LTD.

# SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: G91C0400801  
CMC-815H-V2(CFM100M-L1)

DESCRIPTION: CHOKE COIL      SP PT/NO. F1608-802AL

SAMPLE SUBMIT NO.: SP05I091      ISSUE DATE MAY 06,2013      REV: 02

PART MATERIAL IDENTIFICATION						
No	ITEM	MATERIAL	CLASS	UL FILE NO.	MANUFACTURER	
1.	INSULATION SYSTEM	CLASS130(B)VIKING B-2		E231049	DONGGUAN ZHANGMUTOU HONG CHAN ELECTRONICS CO.,LTD.	
2.	FERRITE CORE	T16*12*8- C M10K/KH10			KANGSHUN	✓
		T16*12*8-C A10			ACME	
		T16*12*8-C R12K			VAKOS INDUSTRIES CO.,LTD.	
3.	BOBBIN	T375J	150°C	E59481(S)	CHANG CHUN PLASTICS CO LTD	
4.	TAPE	POLYESTER CAT . NO. 35660Y	130°C	E50292	SYMBIO INC	
		NO.1350F-1	130°C	E17385	3M COMPANY ELECTRICAL PRODUCTS DIV	
		NO.1350F-2				
5.	MARGIN TAPE	#44T	130°C	E17385	3M COMPANY ELECTRICAL PRODUCTS DIV	
		#44D				
		#35661	130°C	E50292	SYMBIO INC	
6.	WIRE	THS4-U130 MW75	130°C	E84201(S)	TA YA ELECTRIC WIRE & CABLE CO., LTD.	✓
		POLYURETHANE ENAMELLED COPPER DD-NYU MW28	130°C	E84081(S)	PACIFIC ELECTRIC WIRE & CABLE CO.,LTD.	
		1007VW-1AWG#24	80°C	E77981	WONDERFUL WIRE CABLECO., LTD	
7.	VARNISH	V1380	130°C	E60614(M)	UNDERWOOD INDUSTRIES OF NEW YORK INC.DBAVIKNG PRODUCTS	✓
8.	TUBE	TEFLON (TFT)(TFL)	200°C	E156256(S)	GREAT HLODING INDUSTRIAL CO.,LTD.	
		UL 940 F2(Z)	125°C	E48762	SUMITOMO ELECTRIC INDUSTRIES LTD.	
APPROVED BY :		CHECKED BY :		PREPARED BY :		
 陳 102.05.06 淑芬		 陳 102.05.06 淑芬		 卜 102.05.06 海橋		



SEND POWER  
ELECTRONICS CO.,LTD.



HONG CHAN  
ELECTRONICS CO.,LTD.

PAGE : 3 / 4

## SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司 CUSTOMER PT/NO: G91C0400801  
CMC-815H-V2(CFM100M-L1)

DESCRIPTION: CHOKO COIL SP PT/NO. F1608-802AL

SAMPLE SUBMIT NO.: SP05I091 ISSUE DATE MAY 06,2013 REV: 02

TEST ITEM	INDUCANCE		DCR	
TEST FREQ.	@1 KHz , 0.25Vrms.		25°C	
TERMINAL	N1	N2	N1	N2
SP SPEC.	8.0mH MIN	8.0mH MIN	120 mΩ MAX	120 mΩ MAX
1.	13.97 mH	14.08 mH	74.49 mΩ	72.51 mΩ
2.	14.53 mH	14.61 mH	73.00 mΩ	73.74 mΩ
3.	14.27 mH	14.26 mH	75.23 mΩ	73.27 mΩ
4.	14.21 mH	14.21 mH	77.86 mΩ	75.75 mΩ
5.	14.80 mH	14.82 mH	75.33 mΩ	74.29 mΩ

## 1. TEST INSTRUMENTS :

DELTA UNITED 6021 or EQU.  
DELTA UNITED 5010 or EQU.  
DELTA UNITED 3315 or EQU.

## 2. TEST CONDITION :

TEMPERATURE : 25°C  
HUMIDITY : 65% RH

APPROVED BY :

陳  
102.05.06  
淑芬

CHECKED BY :

陳  
102.05.06  
淑芬

PREPARED BY :

卜  
102.05.06  
海橋



SEND POWER  
ELECTRONICS CO.,LTD.



HONG CHAN  
ELECTRONICS CO.,LTD.

PAGE : 4 / 4

# 幸康電子股份有限公司



CINCON Electronics Co., Ltd.

有害物質保證書

(Guarantee of Restriction of Hazardous Substances)

供應商名稱：林皇電子股份有限公司鴻全電子製品部

本公司(含子公司和協力廠)特此保證：保證供應給幸康電子公司的

所有產品

產品名稱：變壓器、線圈、電感 料號：變壓器全系列、線圈全系列、電感全系列

皆符合下列指令所規範的有害物質及其限值要求：

■ RoHS(2002/95/EC)

■ PFOS(2006/122/EC)

■ REACH (Regulation (EC) No 1907/2006) , Substances of Very High Concern (SVHC)及附錄 17 中所列禁限用危險物質

※若因本公司所供應的產品違反上述指令限值標準，造成幸康電子公司的一切損失及風險，本公司將承擔一切責任，承擔補償因此發生的一切費用。

※上述要求，如有修正或改版時，本保證書依法令標準修正或改版內容修正同步更新，不再另行切結保證書。若供應商無法符合時應立即以書面方式通知幸康電子公司，且幸康電子得取消未交貨之所有訂單。



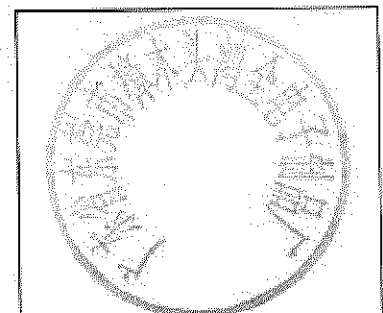
楊桂國

(供應商代表簽章)

協理

(職稱)

公司章



日期：2010.1.20

版次：v4

# 請 承 認 書

## (SPECIFICATION FOR APPROVAL)

客戶名稱： (CUSTOMER.)	幸康電子股份有限公司
零件名稱： (DESCRIPTION)	CHOKE COIL R4*15                      L:0.46uH ± 50%
貴公司料號： (CUSTOMER PT/NO.)	G91A27C2E06 <span style="border: 1px solid black; padding: 2px;">李佩統</span>
森寶料號： (SP PT/NO.)	
提樣編號： (SAMPLES SUBMIT NO.)	SP15I089
發行版本： (ISSUE REVISION.)	00
發行日期： (ISSUE DATE.)	OCT 14,2015

貴公司承認印鑑  
(APPROVED BY)

林芳傑

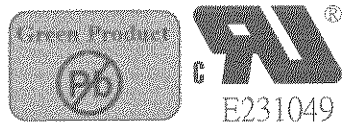
梁欽富 17/11/15

黃宗銘

黃宗銘 梁欽富



**森寶電子股份有限公司**  
 SEND POWER ELECTRONICS CO.,LTD  
 公司地址：台北縣中和市中正路 880 號 4 樓(MIT 大樓)  
 TEL：886-2-2221-5088  
 FAX：886-2-2221-5123  
**東莞樟木頭鴻全電子制品厂**  
 DONGGUAN ZHANGMUTOU HUONGQUAN ELECTRONICS CO,LTD  
 工廠地址：東莞市樟木頭墟鎮樟洋銀洋第三工業區  
 TEL：86-769-8718-5568,8719-1918  
 FAX：86-769-8718-5211



# Content

No.	項目	文件
1	SGS 報告	■
2	MSDS	■
3		□







# SPECIFICATION FOR APPROVAL

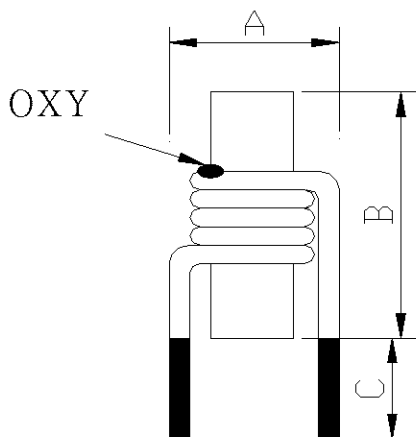
CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKO COIL      SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I089      ISSUE DATE OCT 14,2015      REV: 00

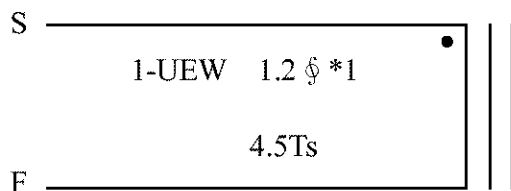
**(1) CONFIGURATION & DESCRIPTION**

UNIT : mm



A	11.0MAX
B	16.0MAX
C	10.0±1.0
D	
E	
F	
G	

**(2) SCHEMATIC**



**(3) ELECTRICAL CHARACTERISTICS**

NO.	PARAMETER	TERMINAL	SPECIFICATION	TEST INSTRUMENTS
1.	INDUCATANCE	S - F	0.46uH ±50%	DELTA UNITED 6021 or EQU. @ 10 KHz, 0.25 Vrms.
2.	DC RESISTANCE	S - F	2.0mΩ MAX	DELTA UNITED 5010 or EQU. @25°C

APPROVED BY :



CHECKED BY :



PREPARED BY :



SEND POWER  
ELECTRONICS CO.,LTD.



DONG GUAN ZHANG MU TOU  
HONG CHAN ELECTRONICS CO.,LTD  
PAGE : 2 / 4






# SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKO COIL      SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I089      ISSUE DATE OCT 14,2015      REV: 00

PART MATERIAL IDENTIFICATION					
No	ITEM	MATERIAL	CLASS	UL FILE NO.	MANUFACTURER
1.	CORE	R4*15      K3B			FERRITE KING ELECTRONICS CO., LTD
		R4*15      Y2B			HORNG YIH ELECTRONICS CO.,LTD
		R4*15      T5B			TEST FERRITE CORES CO.,LTD
		R4*15      EM11			CRYSTAL FERRITE CO.,LTD
		R4*15      L5MC			FENG XIANG ELECTRON CO., LTD
2.	WIRE	UEWN/U      MW75-C	130°C	E201757	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN)CO.,LTD.
3.	VARNISH	V1380FC	130°C	E75225	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC
4.	EPOXY	3300	90°C	E218090	DONGGUAN EATTO ELECTRONIC MATERIAL, CO LTD
APPROVED BY :		CHECKED BY :		PREPARED BY :	
 工程 15.10.14 付勝樹		 工程 15.10.14 卜海橋		 工程 15.10.14 龍鳳	



SEND POWER  
ELECTRONICS CO.,LTD.



DONG GUAN ZHANG MU TOU  
HONG CHAN ELECTRONICS CO.,LTD  
PAGE : 3 / 4



# SPECIFICATION FOR APPROVAL

CUSTOMER NAME: 幸康電子股份有限公司      CUSTOMER PT/NO: \_\_\_\_\_

DESCRIPTION: CHOKO COIL      SP PT/NO. \_\_\_\_\_

SAMPLE SUBMIT NO.: SP15I089      ISSUE DATE OCT 14,2015      REV: 00

TEST ITEM	INDUCANCE	DCR
TEST FREQ.	@ 10 KHz , 0.25Vrms.	25°C
TERMINAL	S – F	S – F
SP SPEC.	0.46 uH ±50%	2.0mΩ MAX
1.	0.468 uH	1.23 mΩ
2.	0.445 uH	1.24 mΩ
3.	0.467 uH	1.25 mΩ
4.	0.467 uH	1.23 mΩ
5.	0.466 uH	1.23 mΩ

1. TEST INSTRUMENTS :

DELTA UNITED 6021 or EQU.  
 DELTA UNITED 5010 or EQU.  
 DELTA UNITED 3315 or EQU.

2. TEST CONDITION :

TEMPERATURE : 25°C  
 HUMIDITY : 65% RH

APPROVED BY :



CHECKED BY :



PREPARED BY :



SEND POWER  
ELECTRONICS CO.,LTD.



DONG GUAN ZHANG MU TOU  
HONG CHAN ELECTRONICS CO.,LTD  
PAGE : 4 / 4



CINCON Electronics Co., Ltd.

有害物質保證書

(Guarantee of Restriction of Hazardous Substances)

供應商名稱: 幸康電子股份有限公司/鴻全電子製品廠

本公司(含子公司和協力廠)特此保證: 保證供應給幸康電子公司的

所有產品

產品名稱: 變壓器、線圈、電感 料號: 變壓器全系列、線圈全系列、電感全系列

皆符合下列指令所規範的有害物質及其限值要求:

RoHS II(2011/65/EC)

PFOS (EU 2006/122/EC)

REACH (Regulation (EC) No 1907/2006), Substances of Very High Concern (SVHC)及附錄 17 中所列禁限用危險物質

※若因本公司所供應的產品違反上述指令限值標準,造成幸康電子公司的一切損失及風險,本公司將承擔一切責任,承擔補償因此發生的一切費用。

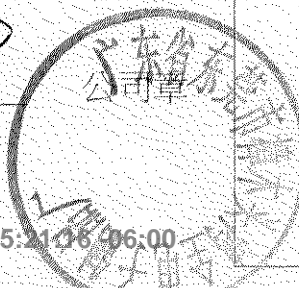
※上述要求,如有修正或改版時,本保證書依法令標準修正或改版內容修正同步更新,不再另行切結保證書。若供應商無法符合時應立即以書面方式通知幸康電子公司,且幸康電子得取消未交貨之所有訂單。

姚祥興

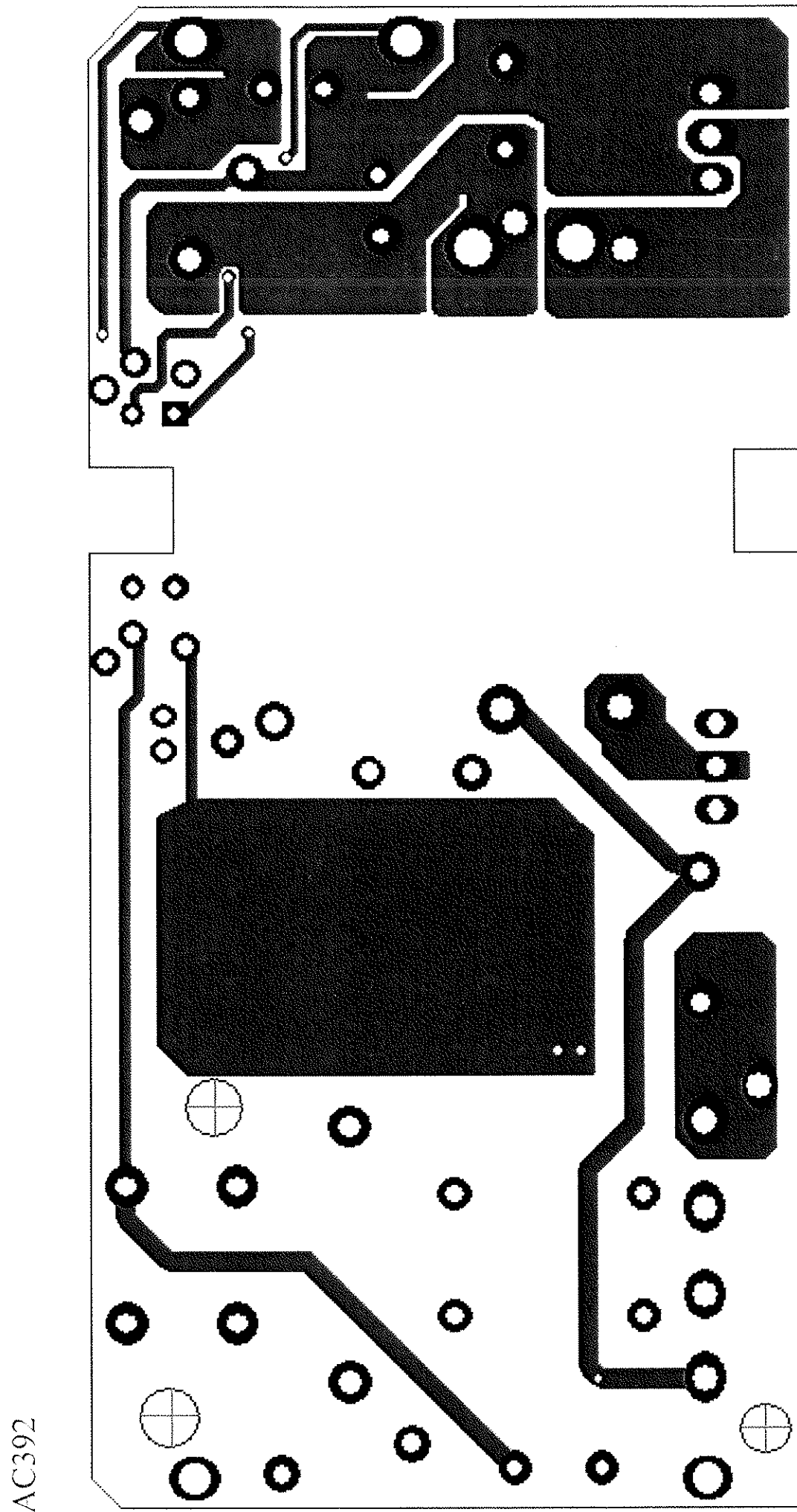
(供應商代表簽章)

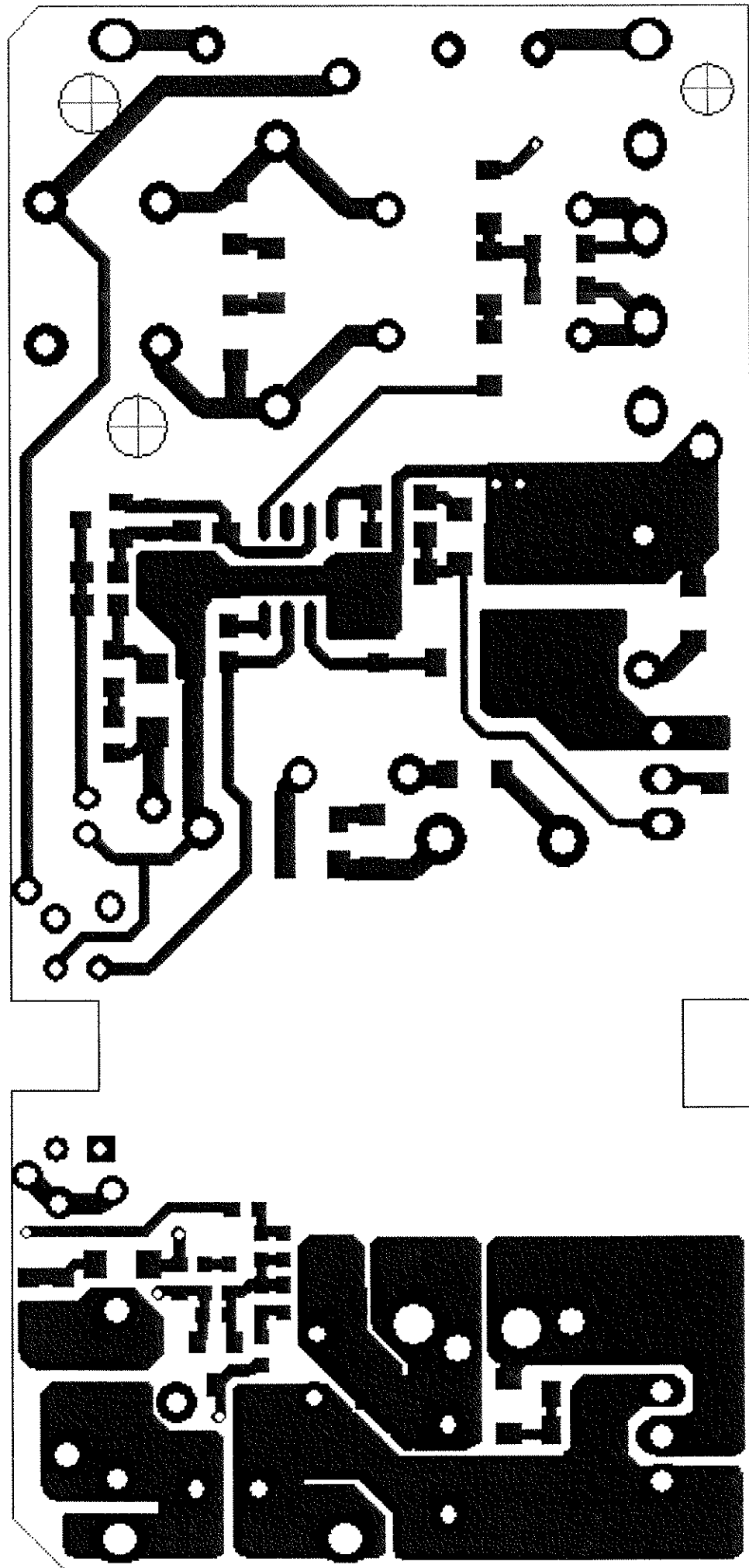
總經理

(職稱)

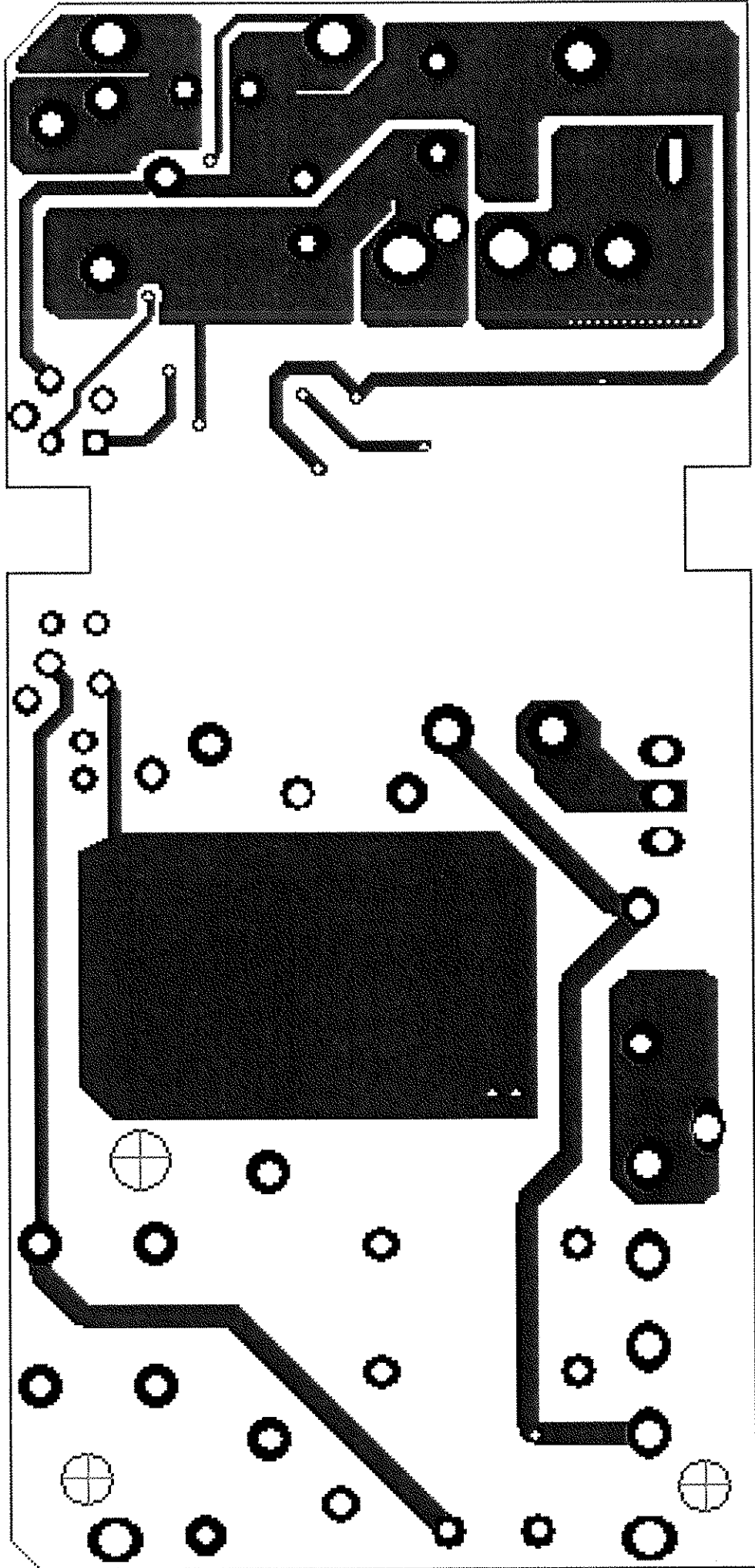


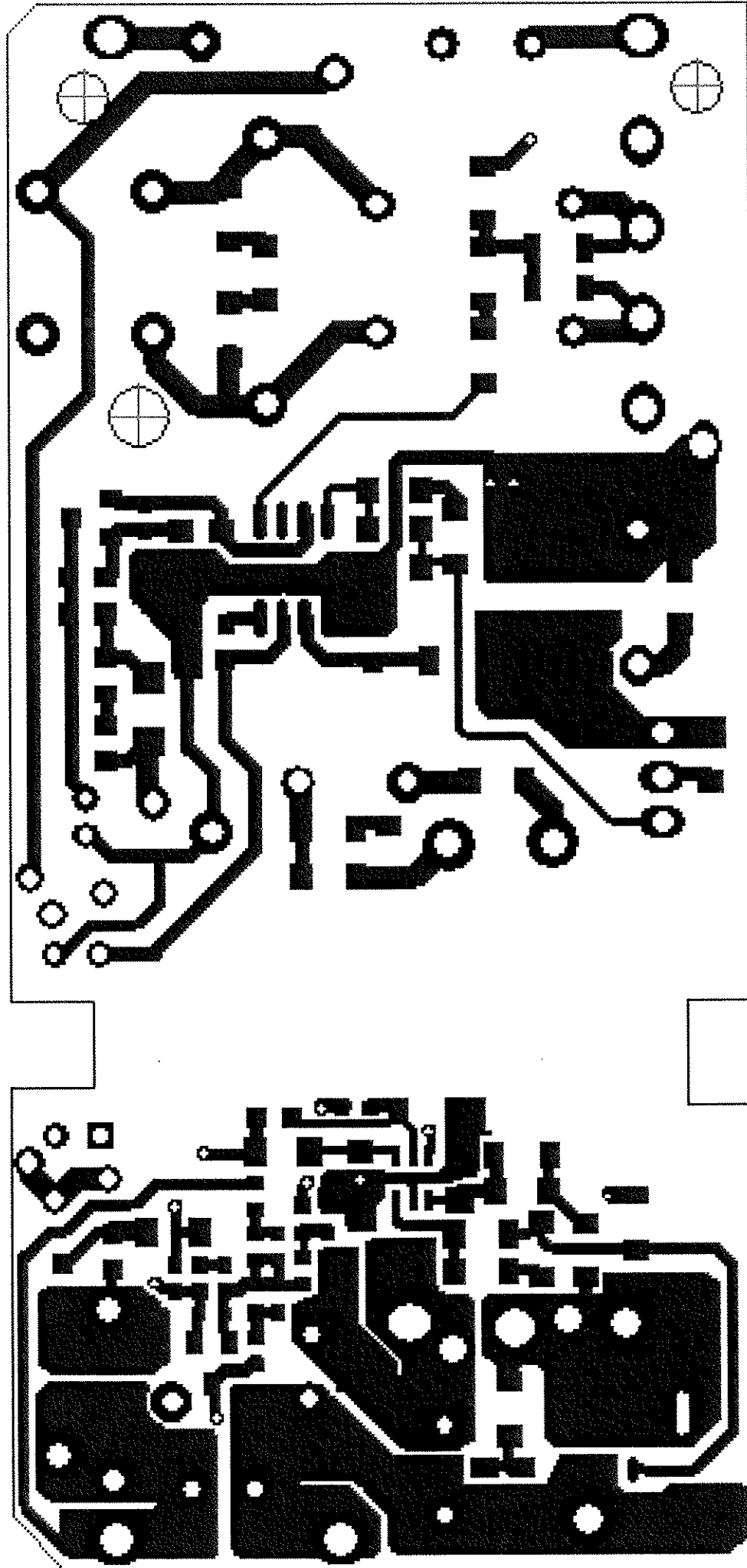
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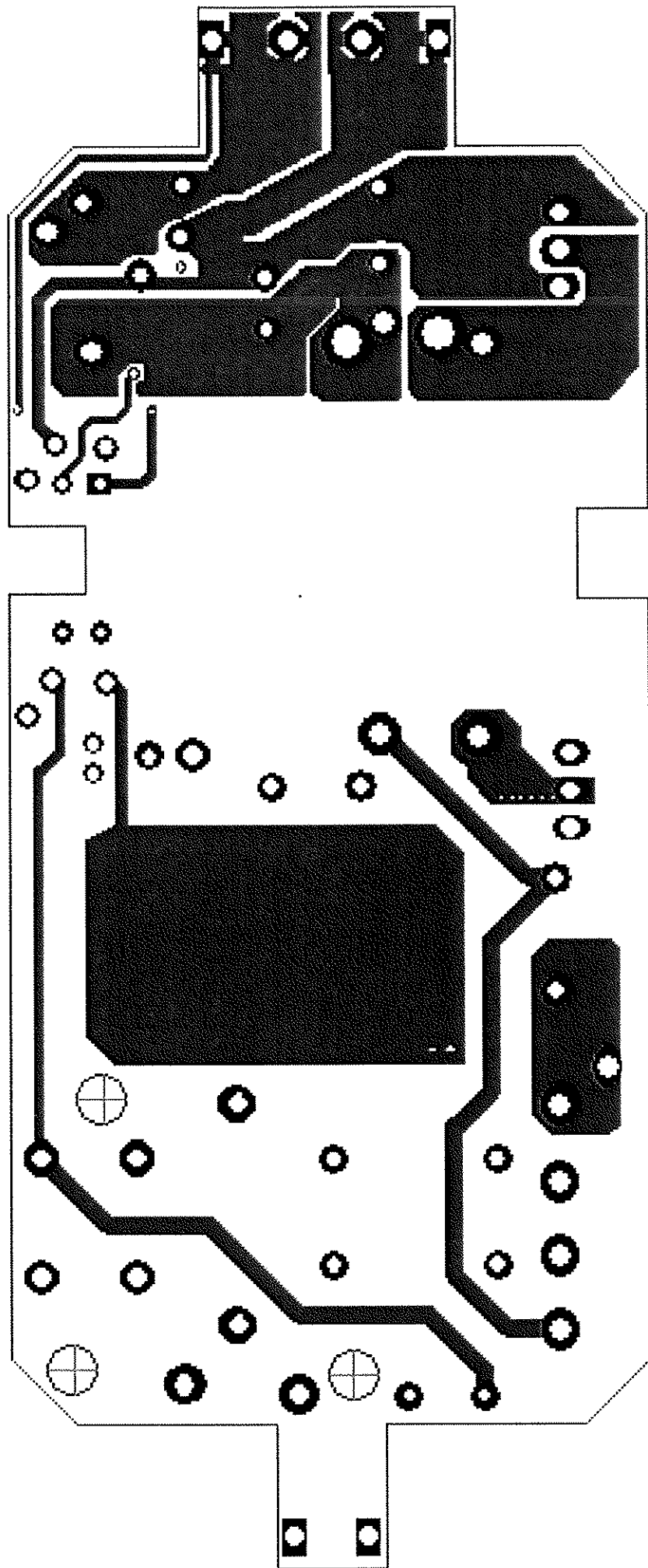


AC393

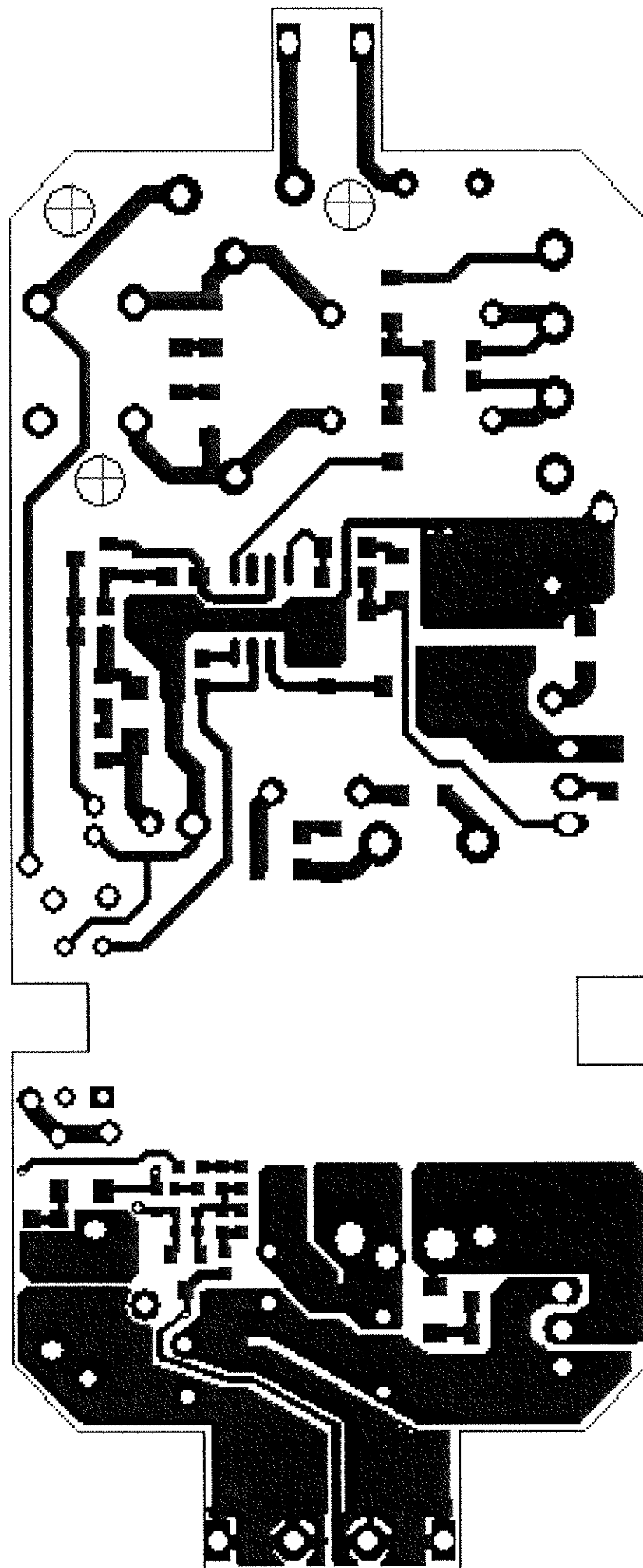


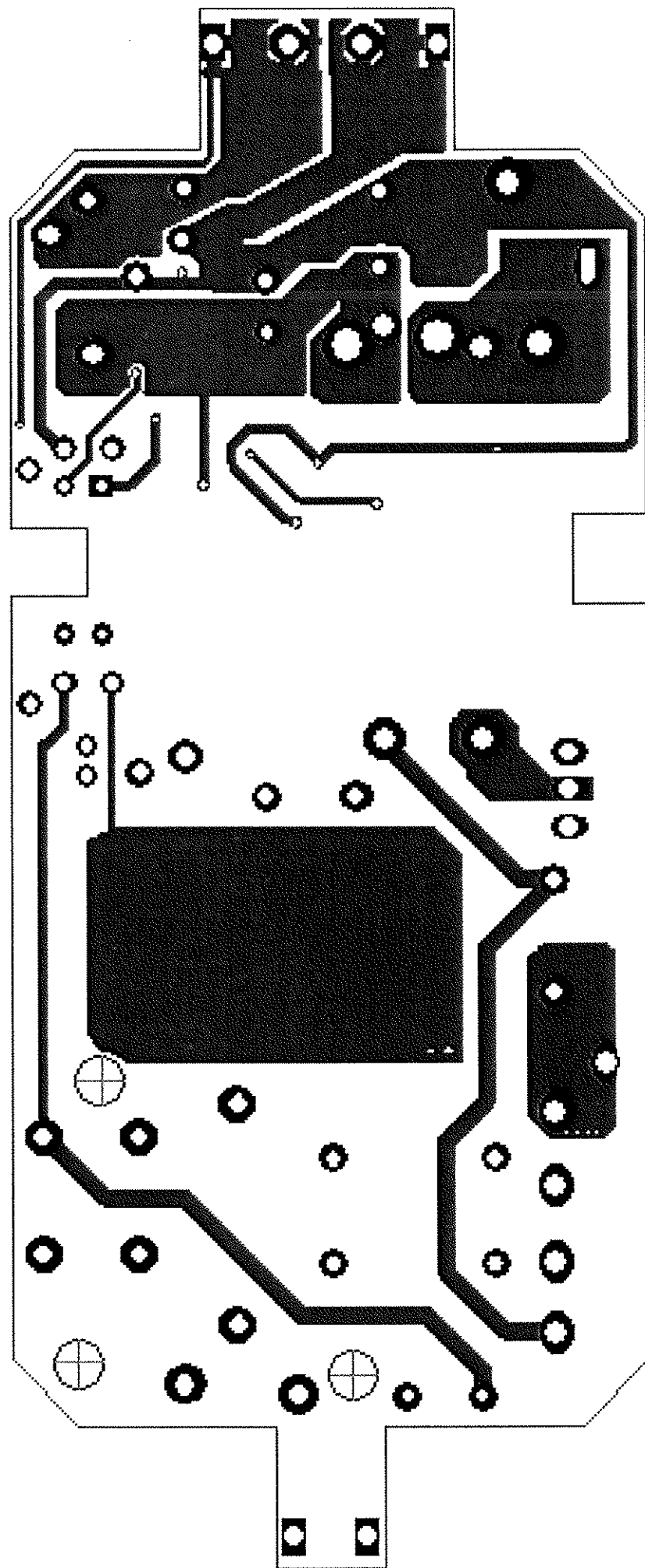




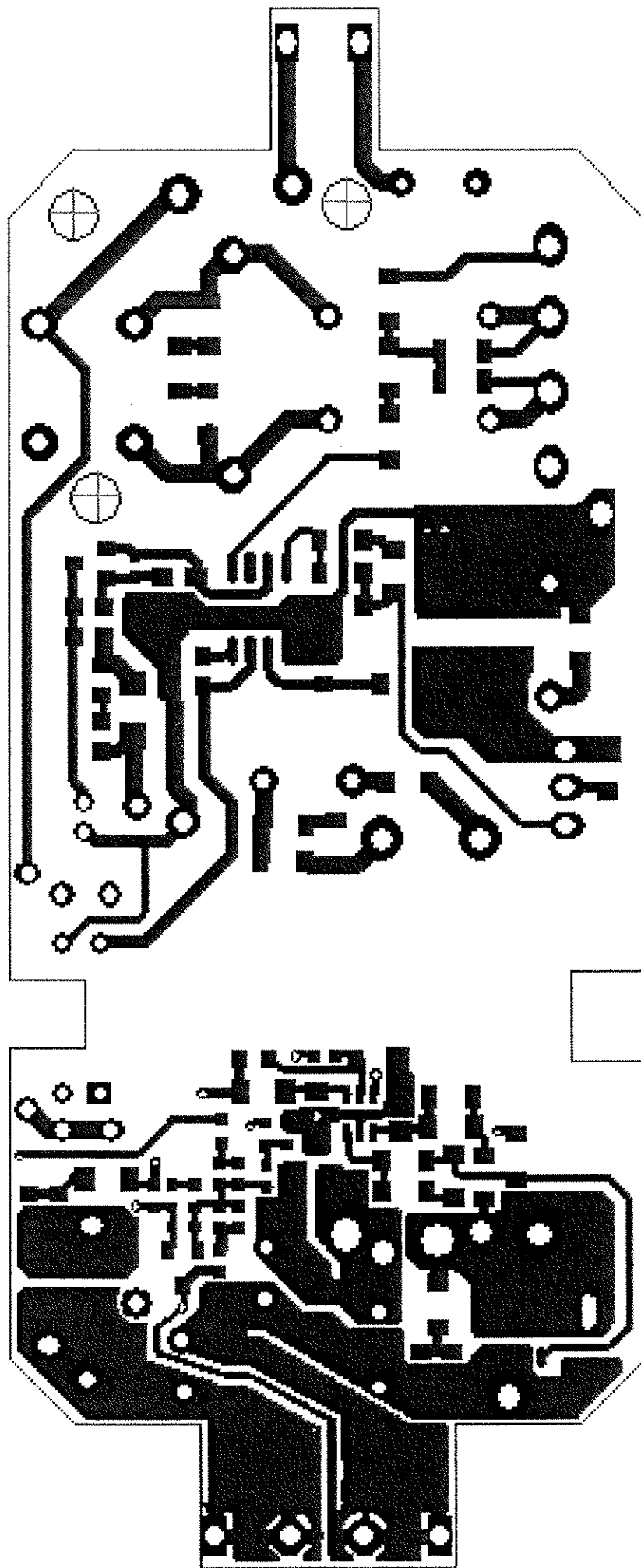


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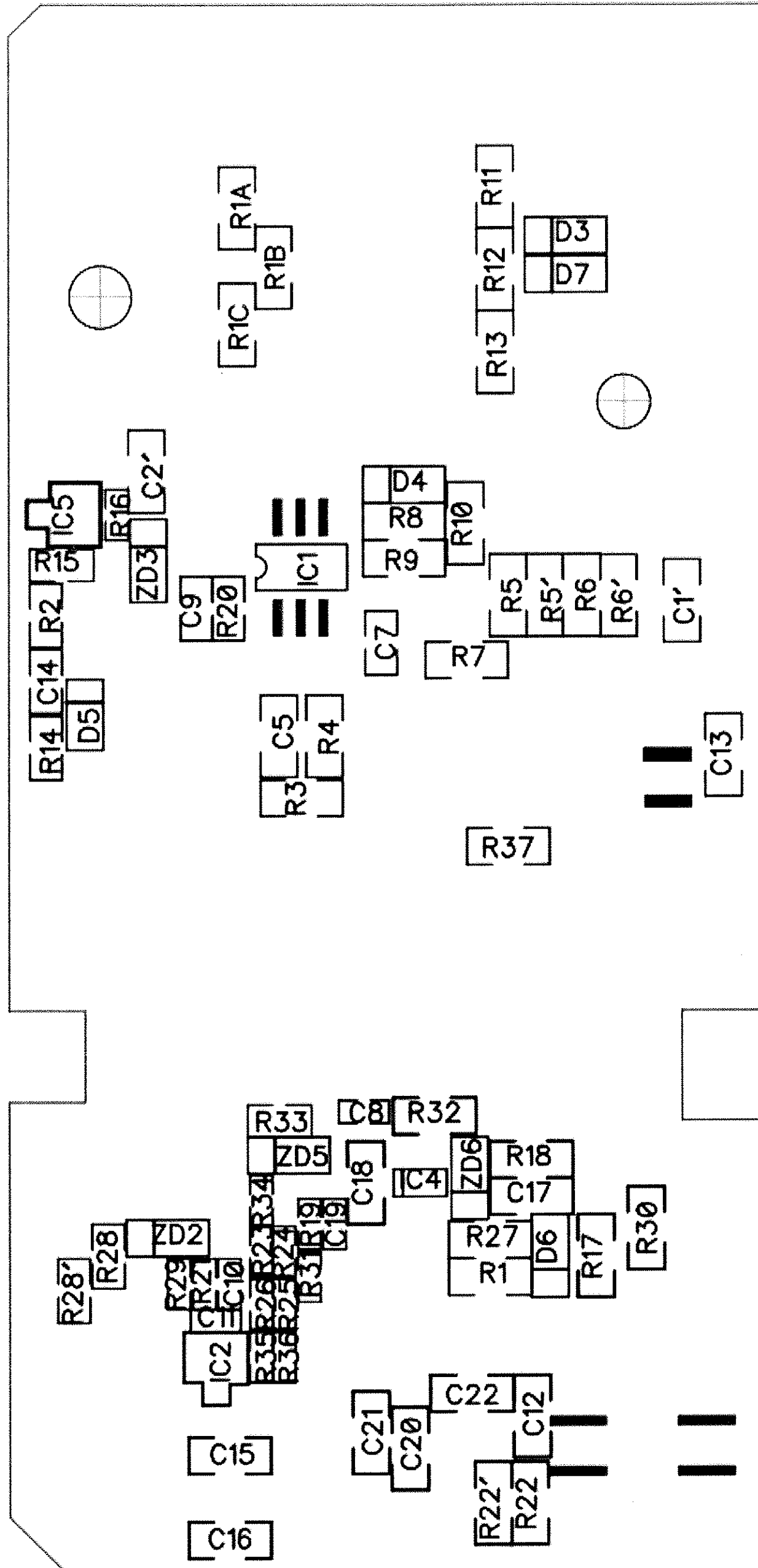


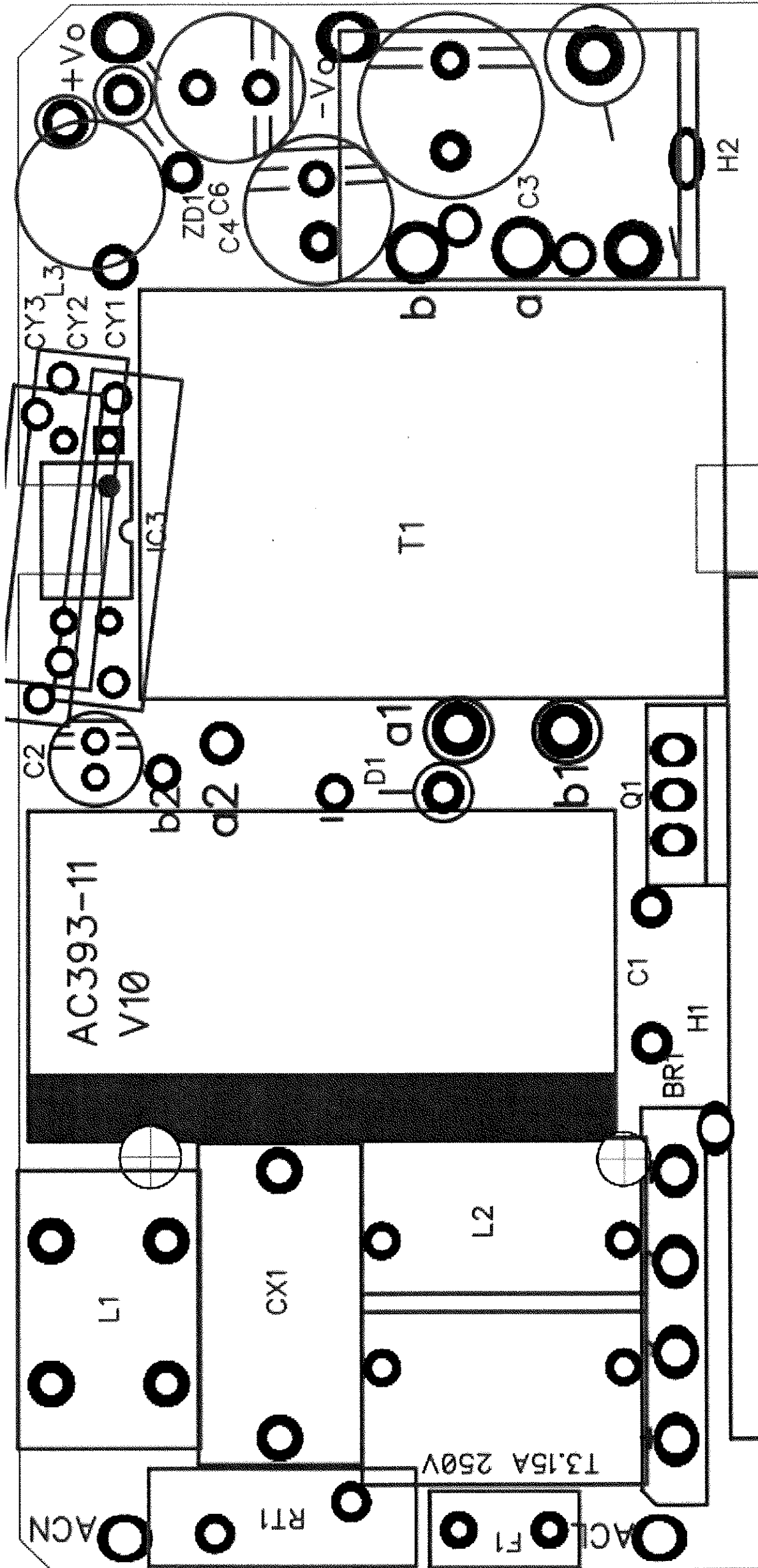


AC395



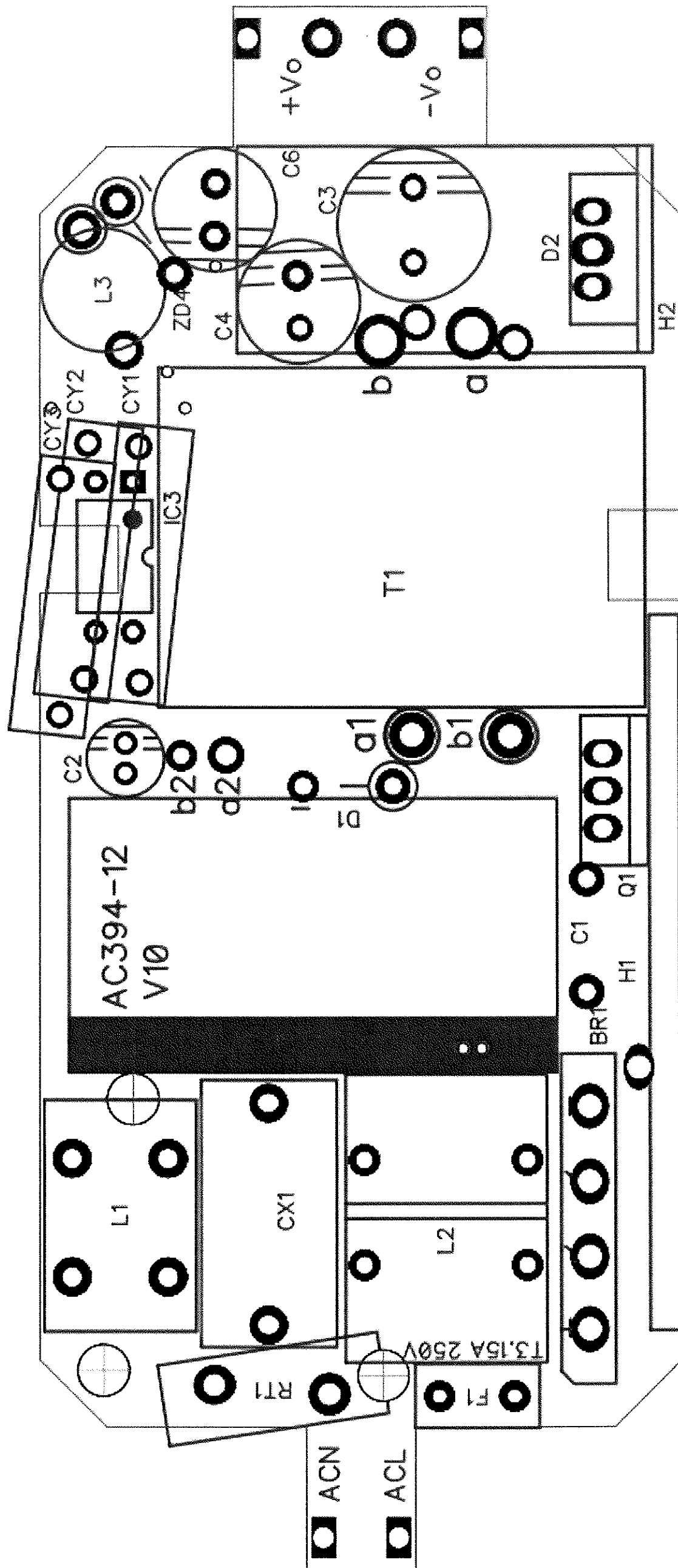


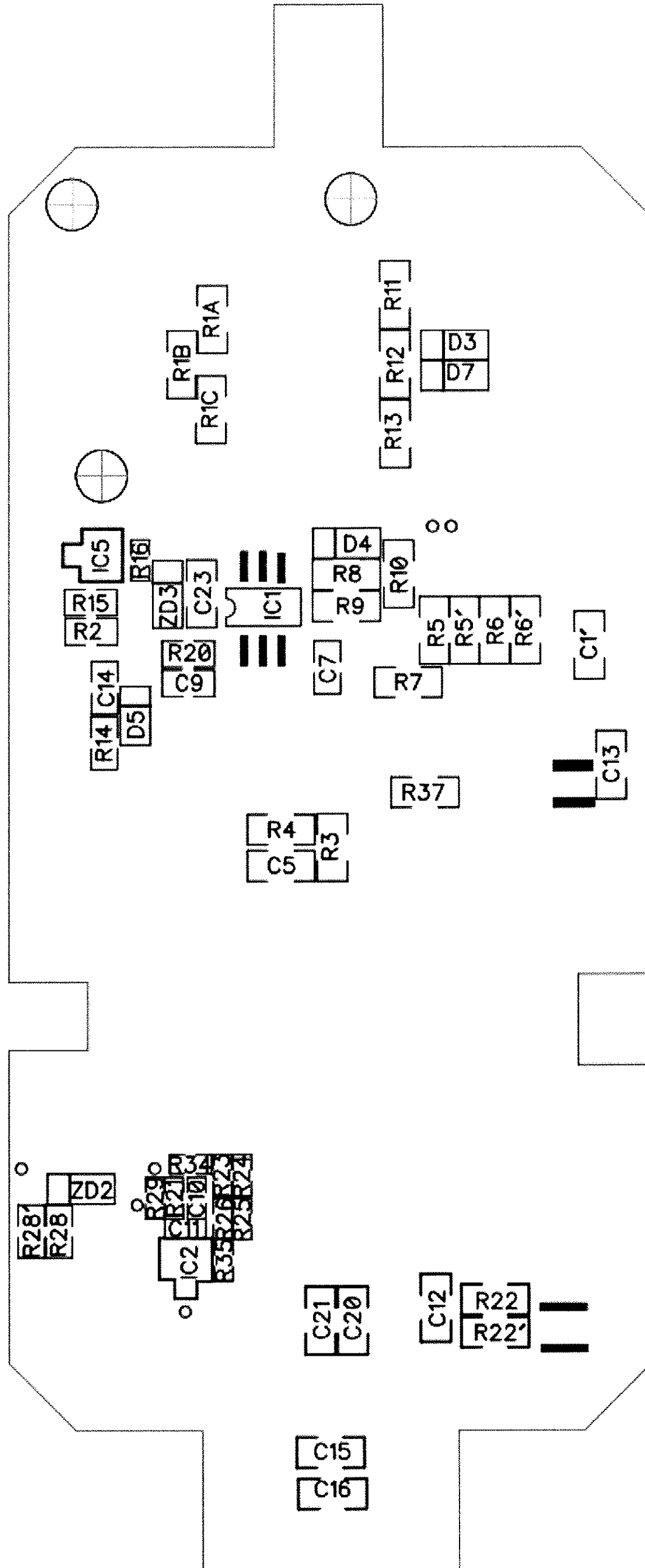




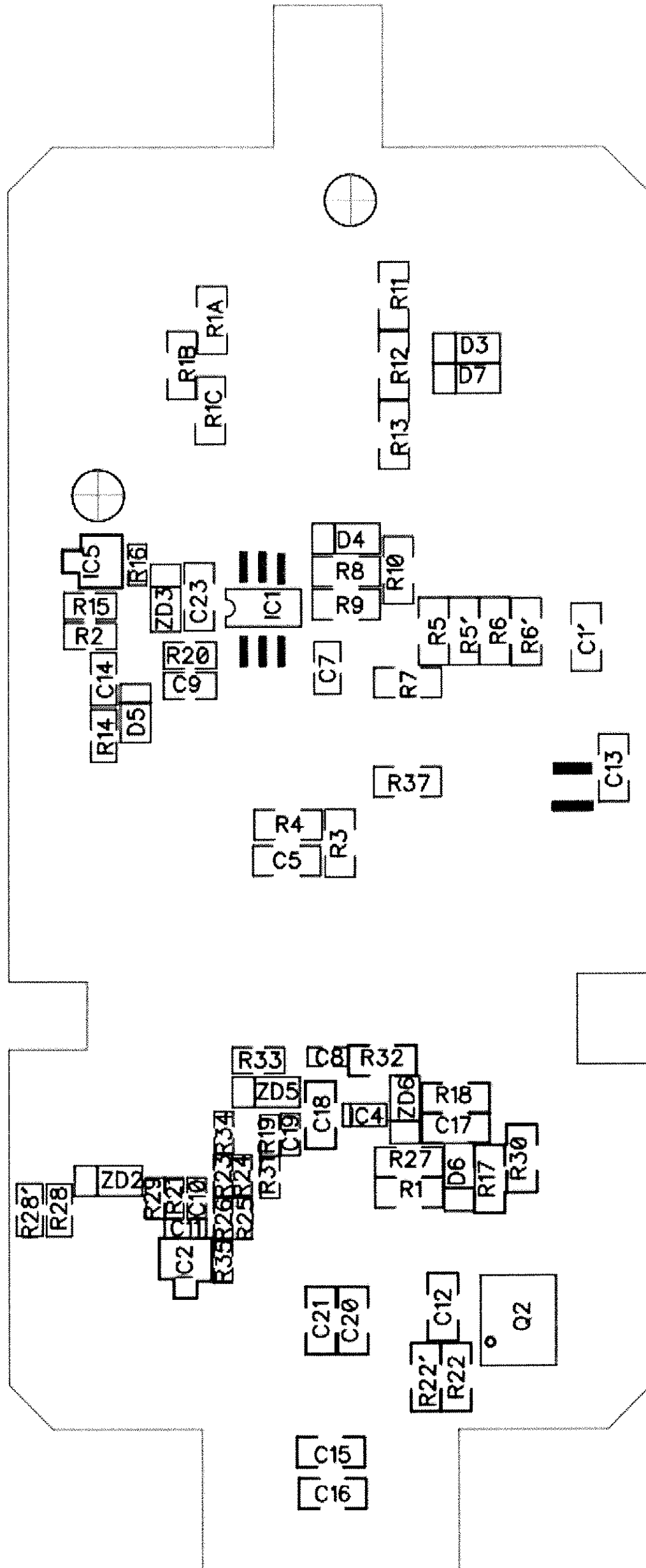




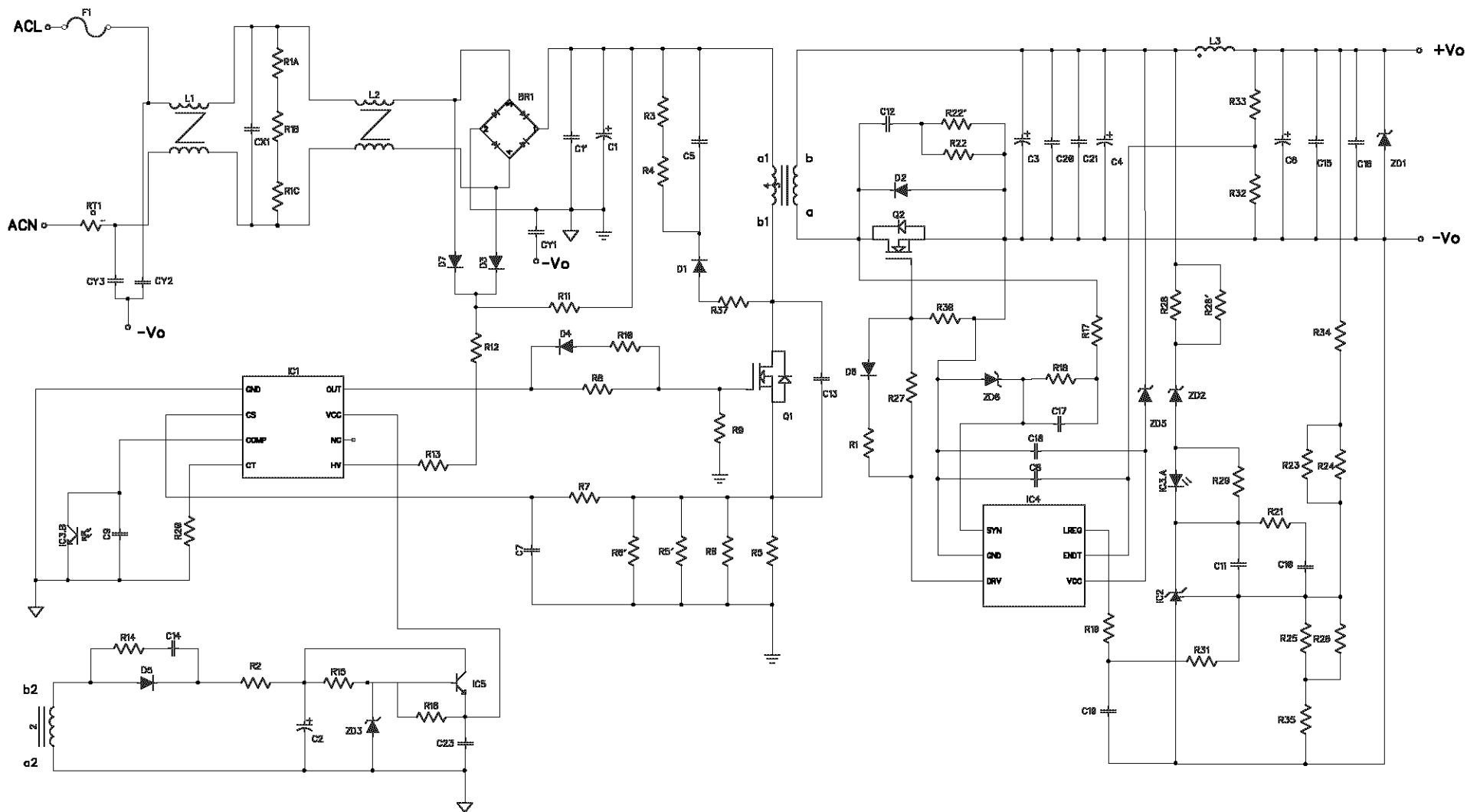




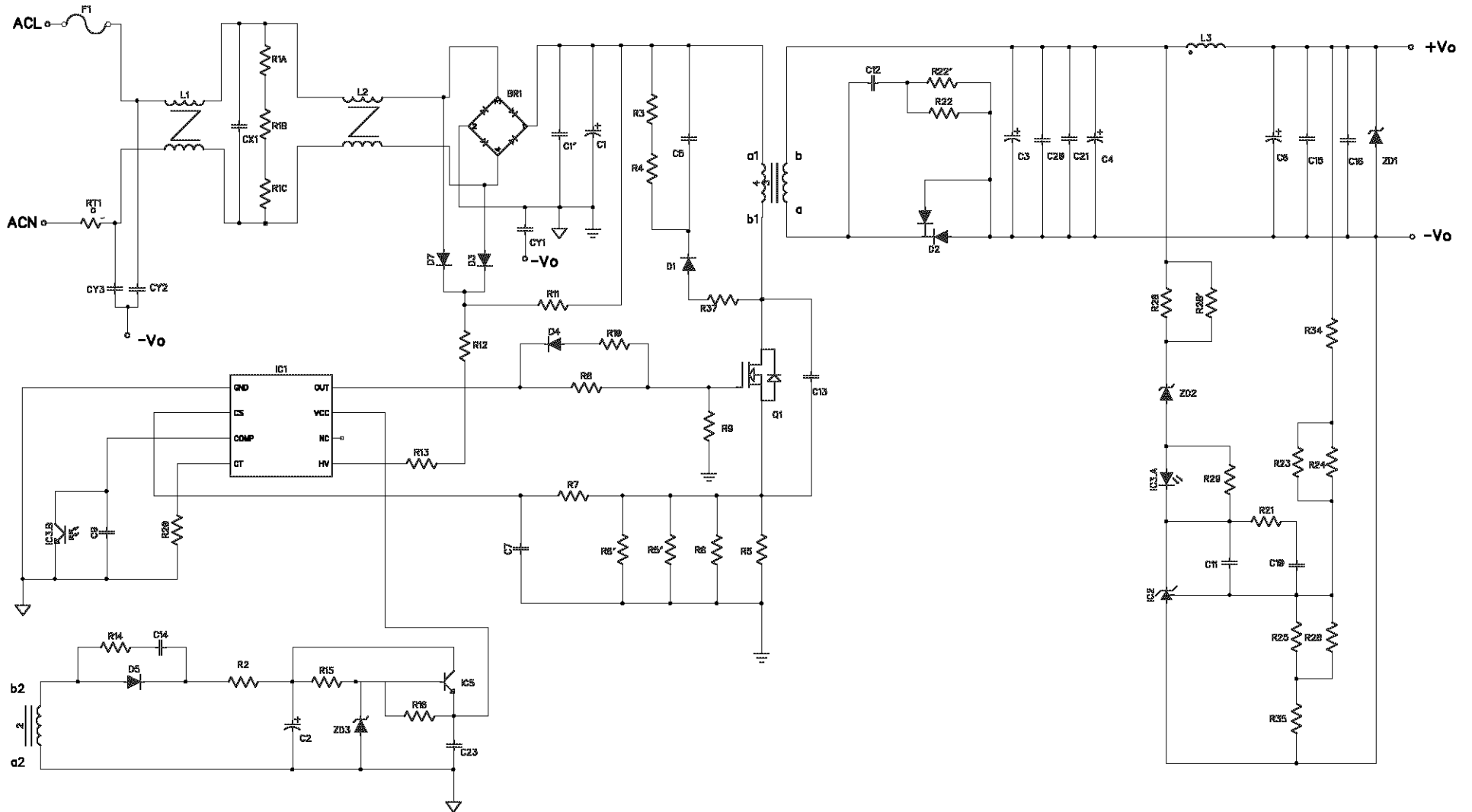




# ECE80



# ECE80

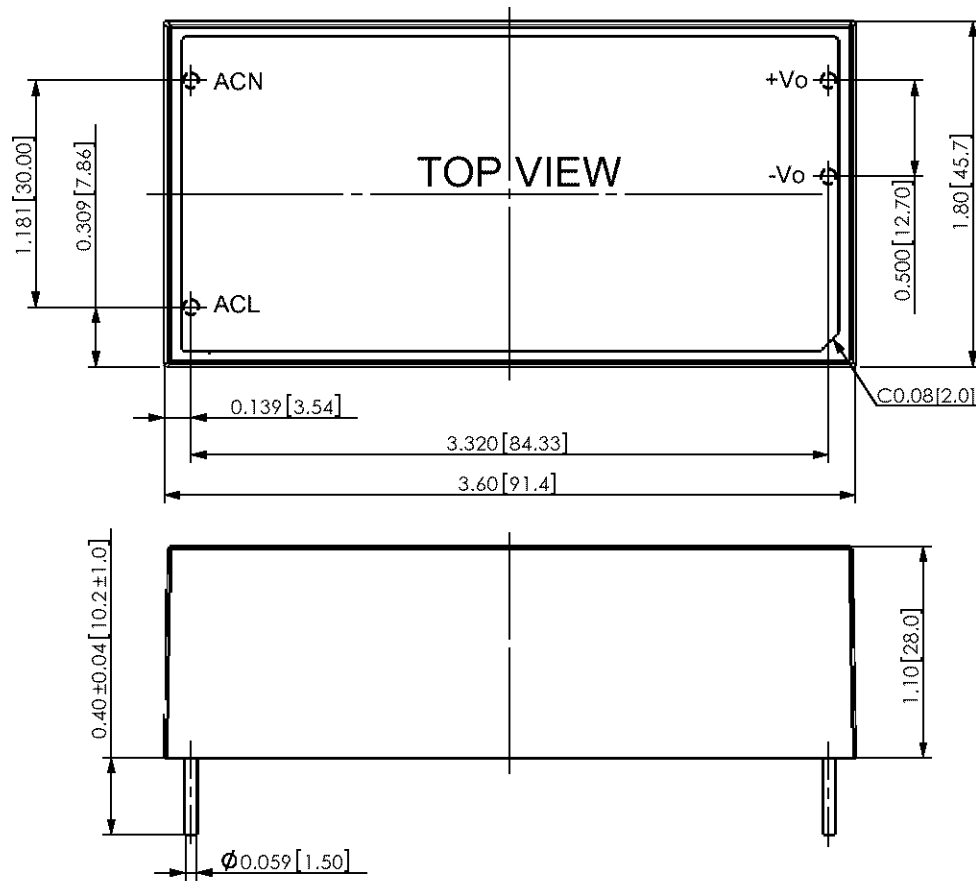


	日期	訂正說明

All Dimensions In Inches[mm]

Tolerance Inches:x.xx= ±0.02, x.xxx= ±0.010

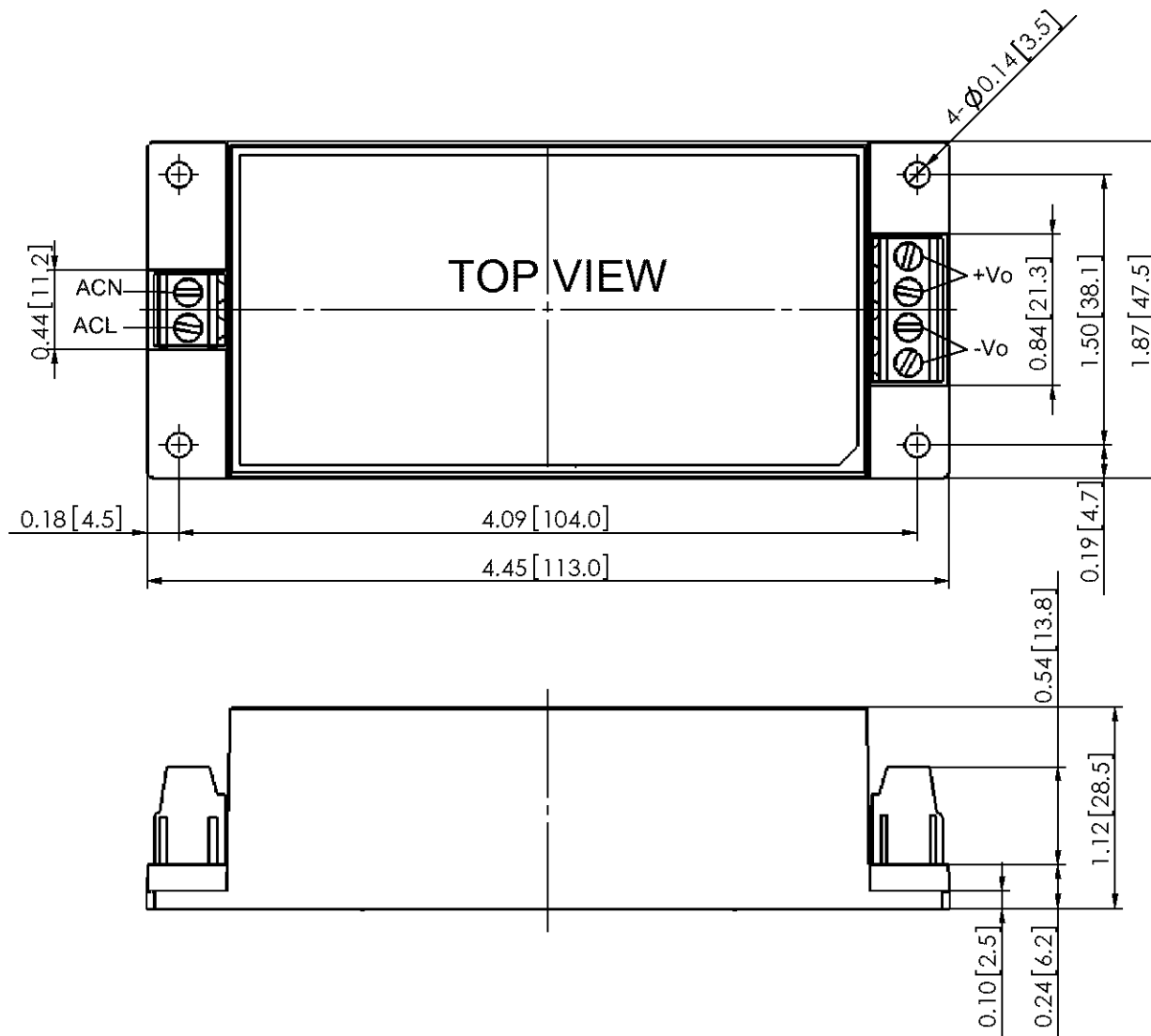
Millimeters:x.x= ±0.5, x.xx=±0.25



尺寸公差	核准	品管	審核	製圖	尺寸	表面	-	<b>CINCON ELECTRONICS---DESIGN DRAWING</b>	
X					單位	材質	-	機種	ECE80
X.X					比例	版別	00	品名	成品圖
X.XX					日期	圖號	-	料號	-

All Dimensions In Inches[mm]  
 Tolerance Inches:x.xx= ±0.02, x.xxx= ±0.010  
 Millimeters:x.x= ±0.5, x.xx=±0.25

	日期	訂正說明



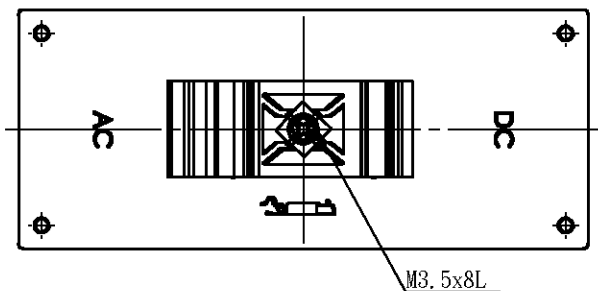
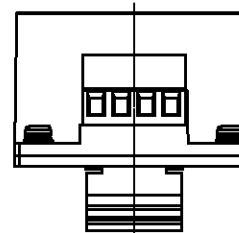
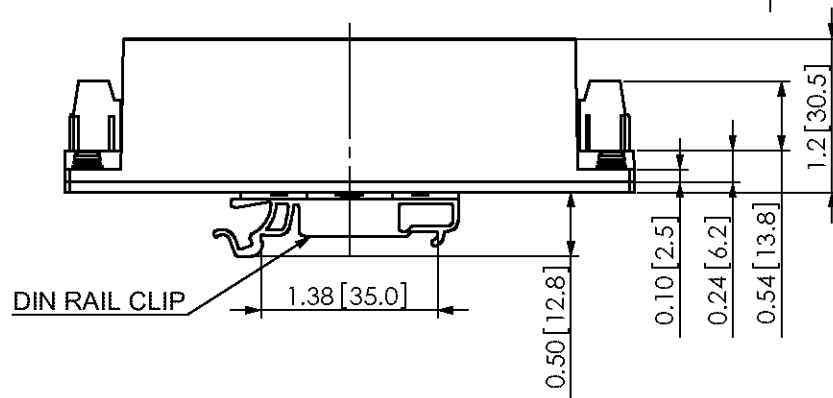
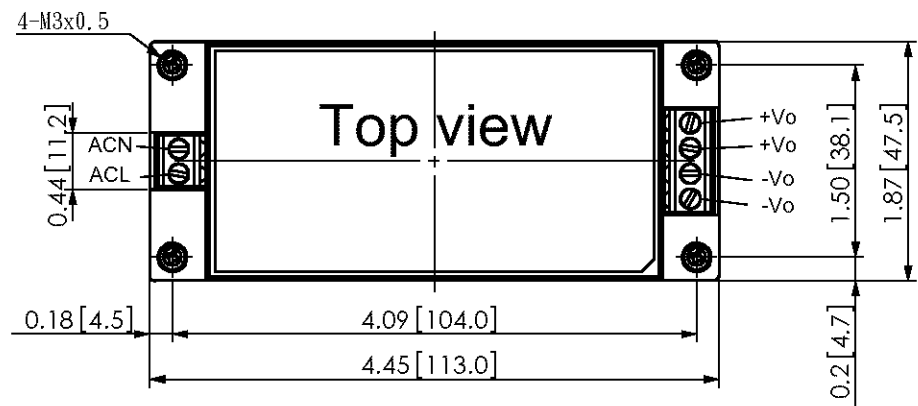
尺寸公差	核准	品管	審核	製圖	尺寸	表面	-	<b>CINCON ELECTRONICS---DESIGN DRAWING</b>	
X					單位	材質	-	機種	ECE80-S
X.X					比例	版別	00	品名	成品圖
X.XX					日期	圖號	-	料號	-



	日期	訂正說明

All Dimensions In Inches[mm]

Tolerance Inches: x.xxx = ± 0.02, x.xxx= ± 0.010  
 Millimeters: x.x = ± 0.5, x.xx=± 0.25



尺寸公差	核准	品管	審核	製圖	尺寸	表面	-	<b>CINCON ELECTRONICS---DESIGN DRAWING</b>	
X					單位	材質	-	機種	ECE80-SD
X.X					比例	版別	00	品名	成品圖
X.XX					日期	圖號	-	料號	-

## Test Record

**Test Record No. 1**

The manufacturer submitted representative production samples of ECE80USXX Series.

The following tests were conducted:

Test	Testing Location/Comments
Guide Information Page - Maximum Output Voltage, Current, and Volt Ampere Measurement (1.2.2.1)	
Input: Single-Phase (1.6.2)	
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)	
Capacitance Discharge (2.1.1.7)	
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)	
Limited Current Circuit Measurement (2.4.1, 2.4.2)	
Humidity (2.9.1, 2.9.2, 5.2.2)	
Determination of Working Voltage; Working Voltage Measurement (2.10.2)	
Transformer and Wire /Insulation Electric Strength (2.10.5.13)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Ball Pressure (4.5.5, 4.5)	
Touch Current (Single-Phase; TN/TT System) (5.1, Annex D)	
Electric Strength (5.2.2)	
Component Failure (5.3.1, 5.3.4, 5.3.7)	
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)	
Power Supply Output Short-Circuit/Overload (5.3.7)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as a part of this Test Record. NOTE: These supplements are only available to the Applicant via the CDA system.

Type	Supplement Id	Description
Datasheet	2-01	Test Record