

TEST REPORT IEC 61800-5-1

Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy

Report Number.....: EED31P804323

Tested by (name + signature).....: Eden Chen

Reviewed by (name + signature)....: Leo Zeng

Approved by (name + signature)....: King Li

Date of issue.....: Apr. 11, 2023

Total number of pages.....: 44 pages

Name of Testing Laboratory
preparing the Report.....: Centre Testing International Group Co., Ltd.

Applicant's name.....: China Leadshine Technology Co., Ltd.

Address.....: 11/F, Block A3, iPark No.1001 Xueyuan Blvd., Nanshan District
Shenzhen, China.

Test specification:

Standard.....: IEC 61800-5-1: 2007; AMD1:2016

Test procedure.....: CE-LVD

Non-standard test method.....: N/A

Test Report Form No.....: IEC61800_5_1C

Test Report Form(s) Originator.....: SGS Fimko Ltd.

Master TRF.....: Dated 2018-05-18

Test item description.....: AC Servo Drive

Trade Mark.....:



雷赛智能
Leadshine



Leadshine®

Manufacturer.....: China Leadshine Technology Co., Ltd.
11/F, Block A3, iPark No.1001 Xueyuan Blvd., Nanshan District
Shenzhen, China.

Model/Type reference.....: L7EC-100S, L7EC-100G, L7EC-100S-**, L7EC-100G-**,
L7EC-400S, L7EC-400G, L7EC-400S-**, L7EC-400G-**, EL7-
EC400*,
L7EC-750S, L7EC-750G, L7EC-750S-**, L7EC-100G-**, EL7-
EC750*,
L7EC-1000S, L7EC-1000G, L7EC-1000S-**, L7EC-1000G-**,
EL7-EC1000*, (Remark: "*" may be any letter from A to Z,
represent industry requirement)

Ratings..... :	Input: 1PH, 230Vac , 50/60Hz; Output: 3PH;0-230Vac,1,6A,100W(L7EC-100S,L7EC-100G,L7EC-100S-**,L7EC-100G-**); 0-230Vac, 3,5A, 400W(L7EC-400S, L7EC-400G,L7EC-400S-**,L7EC-400G-**, EL7-EC400*); 0-230Vac, 5,5A, 750W(L7EC-750S, L7EC-750G,L7EC-750S-**,L7EC-100G-**, EL7-EC750*); 0-230Vac, 7,0A, 1000W (L7EC-1000S,L7EC-1000G,L7EC-1000S-**,L7EC-1000G-**, EL7-EC1000*); **"may be any letter from A to Z,represent industry requirement
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Check No.: 4315300323

List of Attachments (including a total number of pages in each attachment):**Attachment No. 1:**

European Group Differences and National Differences, 1 page

Attachment No. 2:

Photos, 15 pages

Summary of testing:**Tests performed (name of test and test clause):**

All applicable tests as described in the compliance checklist were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China

Unless otherwise specified, all tests were carried out on the representative model L7EC-1000S.

Testing location:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China

Summary of compliance with National Differences (List of countries addressed):**List of countries addressed**

-- European Group Difference and National Differences

☒ The product fulfils the requirements of EN 61800-5-1:2007+A1:2017.

Copy of marking plate:

On the enclosure:

**Leadshine**[®]

AC Servo Drive

Model: L7EC-1000S

Input: 1PH 230Vac 50/60 Hz

Output: 0~230V 7.0A Power: 1000W

CE

Leadshine Technology Co.,Ltd

S/N:
www.leisai.com

Ver:

Marking of L7EC-1000S

	危险 DANGER	请务必按使用说明书指示操作，一定要接好接地端子。 Read the manual and follow the safety instruction before using, NEVER fail to connect Protective Earth(PE) terminal!
	高压注意 Hazardous Voltage	断电后10分钟内不要触碰端子，否则可能导致触电。 Do NOT touch the terminals within 10 minutes after disconnecting the power. Risk of electric shock!
	高温注意 High Temperature	接通电源后请勿触碰散热器，否则可能导致烫伤或触电。 Do NOT touch the heat sink when power is ON. Risk of burn!
  		

Marking on the enclosure

Remark:

- 1, The marking of other models is identical with above except for model designation, output current, output power, S/N number and version number.
- 2, The above mark is the minimum requirements of the safety standard. For the final production, the additional marks which do not give rise to misunderstanding may be added.

Test item particulars..... :															
Equipment under test	<input type="checkbox"/> PDS <input type="checkbox"/> CDM <input checked="" type="checkbox"/> BDM <input type="checkbox"/> Other:														
Equipment location	<input type="checkbox"/> stand alone <input checked="" type="checkbox"/> for building-in (open type)														
Mains supply overvoltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV														
Reduction of OVC for basic insulation used	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, by: protect earth														
Supply earthing systems and system voltage (V) :	<table border="0"> <tr> <td>Supply earthing system</td> <td>System voltage</td> </tr> <tr> <td><input checked="" type="checkbox"/> TN-S, TN-C, TN-CS, TT (not corner earthed)</td> <td>230VAC</td> </tr> <tr> <td><input type="checkbox"/> TN-S, TT (corner earthed)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> TN-C (middle point earthed)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> IT (not corner referenced)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> IT (corner referenced)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> other:</td> <td></td> </tr> </table>	Supply earthing system	System voltage	<input checked="" type="checkbox"/> TN-S, TN-C, TN-CS, TT (not corner earthed)	230VAC	<input type="checkbox"/> TN-S, TT (corner earthed)		<input type="checkbox"/> TN-C (middle point earthed)		<input type="checkbox"/> IT (not corner referenced)		<input type="checkbox"/> IT (corner referenced)		<input type="checkbox"/> other:	
Supply earthing system	System voltage														
<input checked="" type="checkbox"/> TN-S, TN-C, TN-CS, TT (not corner earthed)	230VAC														
<input type="checkbox"/> TN-S, TT (corner earthed)															
<input type="checkbox"/> TN-C (middle point earthed)															
<input type="checkbox"/> IT (not corner referenced)															
<input type="checkbox"/> IT (corner referenced)															
<input type="checkbox"/> other:															
DVC D circuits/terminals (other than mains)	No such parts														
DVC C circuits/terminals (other than mains)	L1, L2, R, S, T, P+, B1, B2, N1, U, V, W port and internal circuits which is connected are DVC C.														
DVC B circuits/terminals	No such parts														
DVC A circuits/terminals	CN1, CN2, CN3, CN4, CN5, CN6, CN7 ports and LED display circuit														
Potential free circuits/terminals (voltage, OVC) :	OVC II														
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class 0 <input type="checkbox"/> Class III														
Pollution degree	<input type="checkbox"/> PD 1: <input checked="" type="checkbox"/> PD 2: <input type="checkbox"/> PD 3: <input type="checkbox"/> PD 4:														
IP protection classes	IP20														
Ambient temperature during operation (°C) with/without derating	55														
Liquid cooling temperature during operation (°C) with/without derating	Not liquid cooling														
Maximum operation altitude (m)	1000														
Altitude of test laboratory (m)	<500														
Other particulars..... :	N/A														

Motor overload and overtemperature protection ..:

- ☐ Thermal or electronic overload relay
- ☐ Electronic motor overload protection with thermal memory retention
- ☐ Electronic motor overload protection with speed sensitivity
- ☐ Monitoring and automatic reduction of motor current based on thermal sensor in or on motor
- ☐ Embedded motor thermal protection disconnecting the motor
- ☒ None

Possible test case verdicts:

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

Testing.....:

Date of receipt of test item.....: Oct. 15, 2021

Date (s) of performance of tests.....: Oct. 15, 2021 to Nov. 15, 2021

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
 "(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

When differences exist; they shall be identified in the General product information section.

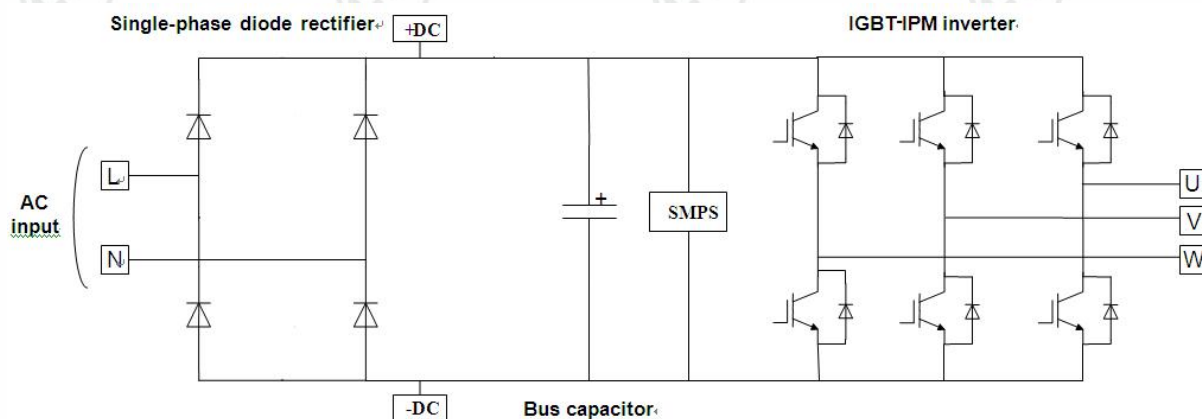
Name and address of factory (ies).....: China Leadshine Technology Co., Ltd.
 11/F, Block A3, iPark No.1001 Xueyuan Blvd.,
 Nanshan District Shenzhen, China.

General product information and other remarks:

Product Description:

It generates a variable output voltage and frequency required to run an AC motor over a range of desired speeds.

The AC Servo Drive circuits comprise of an input single-phase diode rectifier, DC link capacitors, a switch mode power supply (SMPS) and an IPM inverter stage.



A range of input/output connections is provided to enable the user to control the motor from a variety of control sources and to monitor the behaviour of the drive.

The AC voltage, usually of fixed frequency, supplied to the drive is rectified by a diode rectifier and smoothed by the DC bus capacitors to create a DC voltage.

The inverter stage then converts this DC voltage back into AC having specific voltage and frequency, as required to drive the motor.

The inverter is controlled by pulse width modulated (PWM) signals that are derived from a microprocessor control circuit.

The r.m.s. voltage of the fundamental of the output can be up to but not exceed the input voltage.

Technical Considerations:

The AC Servo Drive is an inverter for building-in class I equipment use within BDM (basic drive module) to adjust the speed of motor.

For installation, commissioning and maintenance, must be appeared below minimum safety information in manual:

Before installing, running-in and maintaining the AC Servo Drive, user must read through the User Manual carefully. In addition, do not installing, running-in and maintaining the Controller until you have fully understood safety precautions.

Hazardous voltage and electronic shock exists on each circuits and interface when AC Servo Drive is powered up or running and checking and maintaining can only be done after AC power is cut off and wait for at least 10 minutes.

For AC Servo Drive, installing, commissioning and maintaining by a trained and qualified professional person / qualified electrical engineer.

Maintenance personnel should take off all metal jewellery before carrying out maintenance or internal measurements. Suitable clothes and tools must be used.

The AC Servo Drive installation must be used with circuit breaker.

Location for indoor use, preventing the AC Servo Drive exposed under direct sunlight, dust, corrosive, flammable gases, oil mist, water vapor, dripping or salt etc, not install at the combustible, explosive, corrosive gas and liquid location.

The report base on Ref. No. EED31N810182, all test data come from the report of No. EED31N810182.

Model difference:

All models are identical except for model name and use different type of motor encoder.

After evaluation,

Operation altitude less than 1000 meters.

The operation ambient temperature 55℃ Max.

The AC Servo Drive should connect to protective earth, when it's installed on end system.

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	PROTECTION AGAINST ELECTRIC SHOCK, THERMAL, AND ENERGY HAZARDS		P
4.1	General		P
4.2	Fault conditions		P
4.3	Protection against electric shock		P
4.3.1	Decisive voltage classification		P
4.3.1.1	Use of decisive voltage class (DVC):	DVC C for L1, L2, R, S, T, P+, B1, B2, N1, U, V, W ports and internal circuits which is connected. DVC A for CN1 to CN7 ports and internal circuits which is connected.	P
4.3.1.2	Limits of DVC	>50V and < 1000 V r.m.s for DVC C ≤25V r.m.s or ≤60Vdc for DVC A	P
4.3.1.3	Requirements for protection	Functional insulation on opposite input live part. Basic insulation on live part and protective bonding or earth. Reinforce or double insulation between DVC C and DVC A.	P
4.3.1.4	Circuit evaluation		P
4.3.1.4.1	General		P
4.3.1.4.2	A.C. working voltage		P
4.3.1.4.3	D.C. working voltage		P
4.3.1.4.4	Pulsating working voltage		N/A
4.3.2	Protective separation:	Functional insulation on opposite input live part. Basic insulation on live part and protective bonding or earth. Reinforce or double insulation between DVC C and DVC A.	P
4.3.3	Protection against direct contact	Built-in product, overall should be considered in end use system.	P
4.3.3.1	General		P
4.3.3.2	Protection by means of insulation of live parts	Earthed chassis is separated from live parts by basic insulation. Reinforce or double insulation between DVC C and DVC A.	P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.3.3	Protection by means of enclosures and barriers	Build-in component consider in end system, according installation instruction will install closed electrical operation areas.	N/A
4.3.4	Protection in case of direct contact		N/A
4.3.4.1	General		N/A
4.3.4.2	Protection using DVC A	DVC C for L1, L2, R, S, T, P+, B1, B2, N1, U, V, W ports and internal circuits which is connected. DVC A for CN1 to CN7 ports and internal circuits which is connected.	N/A
4.3.4.3	Protection by means of protective impedance		N/A
4.3.4.4	Protection by means of using limited voltages		N/A
4.3.5	Protection against indirect contact		P
4.3.5.1	General	Defined as protective class I which meet requirements of 4.3.5.2, 4.3.5.3 and 4.3.5.3.2	P
4.3.5.2	Insulation between live parts and accessible conductive parts	See appended table 5.2.2.1	P
4.3.5.3	Protective bonding circuit		P
4.3.5.3.1	General	Except protective chassis, other Part circuits see sub-clause 4.3.4.3 to 4.3.4.4	P
4.3.5.3.2	Rating of protective bonding	See appended table 5.2.3.9 and sub-clause 4.3.5.4	P
4.3.5.3.3	Protective bonding impedance		N/A
4.3.5.4	Protective earthing conductor	A metal screw terminal connecting copper on PCB used for grounding of this product, test result refer to clause 5.2.3.9.	P
4.3.5.5	Means of connection for the protective earthing conductor		P
4.3.5.5.1	General		P
4.3.5.5.2	Touch current in case of failure of protective earthing conductor	See appended table 5.2.3.5	P
4.3.5.6	Special features in equipment for protective class II		N/A
4.3.6	Insulation		P
4.3.6.1	General		P
4.3.6.1.1	Influencing factors		P
4.3.6.1.2	Pollution degree	2	P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6.1.3	Overvoltage category	II (Combined with external breaker used)	P
4.3.6.1.4	Supply earthing systems	TN (TN-C, TN-S, TN-C-S) TT	P
4.3.6.1.5	Insulation voltages	2120 V crest value for temporary overvoltage. 2500 V for impulse voltage for OVC II	P
4.3.6.2	Insulation to the surroundings		P
4.3.6.2.1	General		P
4.3.6.2.2	Circuits connected directly to the supply mains	OVC II considered	P
4.3.6.2.3	Circuits not connected directly to the supply mains		N/A
4.3.6.2.4	Insulation between circuits	Considered, basic between protective earth and live part.	P
4.3.6.3	Functional insulation		P
4.3.6.4	Clearance distances	See appended table 5.2.2.1.	P
4.3.6.4.1	Determination	Altitude 1000 m max.	P
4.3.6.4.2	Electric field homogeneity		N/A
4.3.6.4.3	Clearance to conductive enclosures	See sub-clause 5.2.2.5.	P
4.3.6.5	Creepage distances	See appended table 5.2.2.1.	P
4.3.6.5.1	General		P
4.3.6.5.2	Materials	IIIb	P
4.3.6.6	Coating		N/A
4.3.6.7	PWB spacings for functional insulation	Comply with 4.3.6.4 and 4.3.6.5	N/A
4.3.6.8	Solid insulation	See appended table 4.3.6.8.	P
4.3.6.8.1	General		P
4.3.6.8.2	Requirements for electrical withstand capability		P
4.3.6.8.2.1	Basic or supplementary insulation		N/A
4.3.6.8.2.2	Double and reinforced insulation		P
4.3.6.8.2.3	Functional insulation		N/A
4.3.6.8.3	Thin sheet or tape material		P
4.3.6.8.3.1	General		P
4.3.6.8.3.2	Material thickness not less than 0,2 mm		N/A
4.3.6.8.3.3	Material thickness less than 0,2 mm		P
4.3.6.8.3.4	Compliance		P
4.3.6.8.4	Printed wiring boards (PWBs)		P
4.3.6.8.4.1	General		P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6.8.4.2	Use of coating materials		N/A
4.3.6.8.5	Wound components		P
4.3.6.8.6	Potting materials		N/A
4.3.6.9	Insulation requirements above 30 kHz	< 30 kHz	N/A
4.3.7	Enclosures		P
4.3.7.1	General	Earthed metal enclosure and plastic enclosure, see cl. 4.4.3, 5.2.2.5.3, 5.2.2.4.	P
4.3.7.2	Cast metal	6.4 mm thickness min. for heat sink	P
4.3.7.3	Sheet metal		N/A
4.3.8	Wiring and connections		P
4.3.8.1	General		P
4.3.8.2	Routing		N/A
4.3.8.3	Colour coding	Built-in component considered in the end system.	N/A
4.3.8.4	Splices and connections		P
4.3.8.5	Accessible connections		P
4.3.8.6	Interconnections between parts of the PDS		N/A
4.3.8.7	Supply connections		N/A
4.3.8.8	Terminals		P
4.3.8.8.1	Construction requirements		P
4.3.8.8.2	Connecting capacity		P
4.3.8.8.3	Connection		P
4.3.8.8.4	Wire bending space for wires 10 mm ² and greater	Built-in component considered in the end system	N/A
4.3.9	Output short circuit requirements	See appended table 5.2.3.6	P
4.3.10	Residual current-operated protective (RCD) or monitoring (RCM) device compatibility	Built-in component considered in the end system	N/A
4.3.11	Capacitor discharge	Built-in component considered in the end system	N/A
4.3.12	Access conditions for high-voltage PDS		N/A
4.4	Protection against thermal hazards		P
4.4.1	Minimizing the risk of ignition	See appended table 1.	P
4.4.2	Insulating materials		P
4.4.2.1	General	See appended table 5.2.3.8.	P
4.4.2.2	Material requirements	See cl. 5.2.5.1, 5.2.5.2 and appended table 1.	P
4.4.3	Flammability of enclosure materials	See appended table 1.	P
4.4.4	Temperature limits		P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.4.1	Internal parts		P
4.4.4.2	External parts of CDM		N/A
4.4.5	Specific requirements for liquid cooled PDS	Not liquid cooled	N/A
4.4.5.1	Coolant	No such part	N/A
4.4.5.2	Design requirements		N/A
4.4.5.2.1	Corrosion resistance		N/A
4.4.5.2.2	Tubing, joints and seals		N/A
4.4.5.2.3	Provision for condensation		N/A
4.4.5.2.4	Leakage of coolant		N/A
4.4.5.2.5	Loss of coolant		N/A
4.4.5.2.6	Conductivity of coolant		N/A
4.4.5.2.7	Insulation requirements for coolant hoses		N/A
4.4.6	Motor overload and over temperature protection		N/A
4.4.6.1	Means of protection		N/A
4.4.6.2	CDM/BDM with electronic motor overload protection		N/A
4.4.6.3	CDM/BDM with electronic motor overload protection with thermal memory retention		N/A
4.4.6.4	CDM/BDM with electronic motor overload protection which is speed sensitive		N/A
4.4.6.5	CDM/BDM providing monitoring and automatic reduction of motor current by means of thermal sensors		N/A
4.5	Protection against energy hazards		P
4.5.1	Electrical energy hazards	See clause 4.3.11, 5.2.3.7 and 4.2, 4.3.6.4, 5.2.2.2, 5.2.3.6, 5.2.4	P
4.5.2	Mechanical energy hazards	Built-in component considered in the end system	N/A
4.5.2.1	General		N/A
4.5.2.2	Critical torsional speed		N/A
4.5.2.3	Transient torque analysis		N/A
4.5.3	Acoustic noise emission		N/A
4.6	Protection against environmental stresses	Built-in component considered in the end system	N/A
5	TEST REQUIREMENTS		P
5.1	General		P
5.1.1	Test objectives and classification	Type tests	P
5.1.2	Selection of test samples	See product general information.	P
5.1.3	Sequence of tests		P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.4	Earthing conditions	Neutral to earth; line to earth; neutral to earth through high impedance; isolated (not earthed)	P
5.1.5	Compliance	Verified by suitable examination, visual inspection, and/or measurement.	P
5.1.6	Test Overview		
5.2	Test specifications		P
5.2.1	Visual inspections (type test, sample test and routine test)	Type tests	P
5.2.2	Mechanical tests		P
5.2.2.1	Clearance and creepage distances (type test)	See appended table 5.2.2.1.	P
5.2.2.2	PWB short-circuit test (type test)	See appended table 5.2.2.2.	P
5.2.2.3	Non-accessibility test (type test)		N/A
5.2.2.4	Enclosure integrity test (type test)		N/A
5.2.2.5	Deformation tests	Built-in component considered in the end system	N/A
5.2.2.5.1	General		N/A
5.2.2.5.2	Deflection test (type test)		N/A
5.2.2.5.3	Impact test (type test), temperature (°C)		N/A
5.2.3	Electrical tests		P
5.2.3.1	Impulse voltage test (type test and sample test)	See appended table 5.2.3.1.	P
5.2.3.2	A.C. or d.c. voltage test (type and routine test)	See appended table 5.2.3.2.	P
5.2.3.2.1	Purpose of test		P
5.2.3.2.2	Value and type of test voltage		P
5.2.3.2.3	Performing the voltage test		P
5.2.3.2.4	Duration of the a.c. or d.c. voltage test		P
5.2.3.2.5	Verification of the a.c. or d.c. voltage test		P
5.2.3.3	Partial discharge test (type test, sample test)	See appended table 5.2.3.3.	N/A
5.2.3.4	Protective impedance (type test and routine test) :	0.82mA	P
5.2.3.5	Touch current measurement (type test)	See appended table 5.2.3.5.	P
5.2.3.6	Short-circuit test and Breakdown of components test (type tests)		P
5.2.3.6.1	General		P
5.2.3.6.2	Test configuration		P
5.2.3.6.2.1	Supply voltage and current		P
5.2.3.6.3	Short-circuit test	See appended table 5.2.3.6.3.	P

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.3.6.3.1	Load conditions		P
5.2.3.6.3.2	Short-circuit between phase terminals of power outputs		P
5.2.3.6.3.3	Short-circuit between phase terminals of power output and protective earth		P
5.2.3.6.4	Breakdown of components test	See appended table 5.2.3.6.4.	P
5.2.3.6.4.1	Load conditions		P
5.2.3.6.4.2	Application of short-circuit or open-circuit		P
5.2.3.6.5	Test sequence		P
5.2.3.6.6	Pass criteria		P
5.2.3.7	Capacitor discharge (type test)	Built-in component considered in the end system	N/A
5.2.3.8	Temperature rise test (type test)	See appended table 5.2.3.8.	P
5.2.3.9	Protective bonding (type test and routine test)	See appended table 5.2.3.9.	P
5.2.4	Abnormal operation tests	See appended table 5.2.4.	N/A
5.2.4.1	General		N/A
5.2.4.2	Test duration		N/A
5.2.4.3	Pass criteria		N/A
5.2.4.4	Loss of phase (type test)	See appended table 5.2.4.4.	N/A
5.2.4.5	Cooling failure tests (type tests)	See appended table 5.2.4.5.	N/A
5.2.4.5.1	General		N/A
5.2.4.5.2	Inoperative blower motor		N/A
5.2.4.5.3	Clogged filter		N/A
5.2.4.5.4	Loss of coolant		N/A
5.2.5	Material tests	Approved plastic enclosure used, see appended table 1	N/A
5.2.5.1	High current arcing ignition test (type test)		N/A
5.2.5.2	Glow-wire test (type test)		N/A
5.2.5.3	Hot wire ignition test (type test – alternative to Glow-wire test)		N/A
5.2.5.4	Flammability test (type test)		N/A
5.2.6	Environmental tests (type tests)	Built-in component considered in the end system	N/A
5.2.6.1	General		N/A
5.2.6.2	Acceptance criteria		N/A
5.2.6.3	Climatic tests		N/A
5.2.6.3.1	Dry heat test (steady state)		N/A
5.2.6.3.2	Damp heat test (steady state)		N/A
5.2.6.4	Vibration test (type test)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.7	Hydrostatic pressure test (type test and routine test)	No coolant or liquid.	N/A
5.2.8	Electronic motor overload protection test (type test)	See appended Table 5.2.8.	N/A
5.2.8.1	General requirements		N/A
5.2.8.2	Test set-up		N/A
5.2.8.3	Pass criteria		N/A
5.2.8.4	CDM/BDM electronic motor overload protection test (type test)		N/A
5.2.8.5	CDM/BDM electronic motor thermal memory retention shutdown test (type test)		N/A
5.2.8.6	CDM/BDM electronic motor thermal memory retention loss of power test (type test)		N/A
5.2.8.7	CDM/BDM electronic motor thermal speed sensitivity test (type test)		N/A
5.2.9	Circuit functionality evaluation (routine and/or sample test)		N/A
6	INFORMATION AND MARKING REQUIREMENTS		P
6.1	General		P
6.2	Information for selection	See appended table 6, part 6.2.	P
6.3	Information for installing and commissioning	See appended table 6, part 6.3.	P
6.3.1	General		P
6.3.2	Mechanical considerations		N/A
6.3.3	Environment		P
6.3.4	Handling and mounting		P
6.3.5	Motor and driven equipment		P
6.3.5.1	Motor selection		P
6.3.5.2	Motor integrated sensors		P
6.3.5.3	Critical torsional speeds		N/A
6.3.5.4	Transient torque analysis		N/A
6.3.6	Connections		P
6.3.6.1	General		P
6.3.6.2	Interconnection and wiring diagrams		P
6.3.6.3	Conductor (cable) selection		P
6.3.6.4	Terminal capacity and identification		P
6.3.6.5	Protection requirements		P
6.3.6.6	Earthing		P
6.3.6.7	Protective earthing conductor current		N/A
6.3.6.8	Special requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.3.7	Overcurrent and short-circuit protection		P
6.3.8	Motor overload protection and overtemperature protection		P
6.3.8.1	CDM/BDM not incorporating internal electronic motor overload and overtemperature protection		P
6.3.8.2	CDM/BDM incorporating internal electronic motor overload and overtemperature protection		N/A
6.3.9	Commissioning		P
6.4	Information for use	See appended table 6, part 6.4.	P
6.4.1	General		P
6.4.2	Adjustment		P
6.4.3	Labels, signs and signals		P
6.4.3.1	General		P
6.4.3.2	Isolators	Built-in component considered in the end system	N/A
6.4.3.3	Visual and audible signals		P
6.4.3.4	Hot surfaces		P
6.4.3.5	Equipment marking		P
6.5	Information for maintenance	See appended table 6, part 6.5.	P
6.5.1	General		P
6.5.2	Capacitor discharge		N/A
6.5.3	Auto restart/bypass connection		P
6.5.4	PT/CT connection		N/A
6.5.5	Other hazards		N/A
Annex A	Examples of protection in case of direct contact		
Annex B	Examples of overvoltage category reduction		
Annex C	Measurement of clearance and creepage distances		P
Annex D	Altitude correction for clearances		
Annex E	Clearance and creepage distance determination for frequencies greater than 30 kHz		
Annex F	Cross-sections of round conductors		
Annex G	Guidelines for RCD compatibility		
Annex H	Symbols referred to in this part of IEC 61800		

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Clause	Requirement + Test	Result - Remark	Verdict

1	TABLE: List of materials and components separately evaluated					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity	
General--						
PCB(all)	EXPRESS Electronics (Qing Yuan) Ltd.	FR-4	V-0 130°C	EN61800-5-1	Test with appliance UL(E123995)	
Alt.	Shenzhen Shen kai Electronics Co., LTD	FR4	V-0 130°C	EN61800-5-1	Test with appliance UL(E319204)	
Alt.	Huizhou Glorysky Electronics Co., Ltd	FR4	V-0,130°C	EN61800-5-1	Test with appliance UL(E257384)	
Alt.	Shenzhen Jove Enterprise Ltd .	FR4	V-0 130°C	EN61800-5-1	Test with appliance UL(E232940)	
Plastic enclosure	Interchangeable	Interchangeable	V-0	EN61800-5-1	Test with appliance	
Heat-shrinkable tubing	Interchangeable	Interchangeable	600V,105°C, VW-1	EN61800-5-1	Test with appliance	
Terminal block (CN8)	ANHUI SUNCHU INTELLIGENT TECHNOLOGY CO LTD	SC-T3005008PBAX	300Vac, 16A	EN61800-5-1	Test with appliance UL (E505631)	
Alt.	Interchangeable	Interchangeable	300Vac, 16A	EN61800-5-1	Test with appliance	
U31	HANGZHOU SILAN MICROELECTRONICS CO.,LTD	SDM30G60FC	600V/30A	EN61800-5-1	Test with appliance UL (E505071)	
Rectifier(D34)	HY ELECTRONIC (CAYMAN) LTD TAIWAN BRANCH	GBJ3510	35A, 1000V	EN61800-5-1	Test with appliance UL (E217139)	
Y capacitor (C214, C217, C218, C222)	JYH CHUNG ELECTRONICS CO LTD	JY	85°C, 4700pF, 250Vac	IEC 60384-14	VDE (123326)	
Varistor (RV1)	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR14621KSY	620Vac, 85°C	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 Annex Q	VDE (005944)	
Varistor (RV2)	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR10102KSY	1000Vac, 85°C	IEC 61051-1 IEC 61051-2 IEC 61051-2-2 Annex Q	VDE (005944)	

IEC 61800-5-1					
Clause	Requirement + Test			Result - Remark	Verdict
Relay (JK1)	XIAMEN HONGFA ELECTROACOUSTIC CO LTD	HF32F-G/012-HS	10A/250Vac/12VDC/105°C	EN 61810-1	VDE (40012204)
Relay (JK1) (Alternative)	Interchangeable	Interchangeable	10A/250Vac/12VDC/105°C	EN 61810-1	VDE
Relay (JK2)	XIAMEN HONGFA ELECTROACOUSTIC CO LTD	HF115F/012-2ZS4AF	8A/250Vac/12VDC/105°C	EN 61810-1	VDE (116934)
Relay (JK2) (Alternative)	Interchangeable	Interchangeable	8A/250Vac/12VDC/105°C	EN 61810-1	VDE
Isolation opto-coupler (U33,U38,U41 ,U43,U45,U48, U49,U51)	Lite-On Technology Corporation	LTV-817S-TA1-B	VISO 5000Vrms	EN 60065 EN 60950-1 EN 60747-5-5	VDE (40015248)
Isolation opto-coupler (U35)	Lite-On Technology Corporation	LTV-814S-TP-B	VISO 5000Vrms	EN 60065 EN 60950-1 EN 60747-5-5	VDE (40015248)
Isolation opto-coupler (U10)	Lite-On Technology Corporation	LTV-063L	VISO 3750Vrms	EN 60065 EN 60950-1 EN 60747-5-5	VDE (138213)
Opto-coupler (U32)	SILICON LABORATORIES INC	Si8660BD-B-IS WB	External: 8.0mm DTI: 0.014mm	VDE V 0884-10 UL1577	VDE (40018443)
Alternative	Suzhou Novosense Microelectronics Co.,Ltd	NSI8260W0-DSWR	VISO 5000Vrms	DIN VDE V 0884-11:2017-01	VDE 40052820
Opto-coupler (U40)	SILICON LABORATORIES INC	Si8261BCD-C-IS	External: 8.3mm DTI: 0.016mm	VDE V 0884-10 UL1577	VDE (40037519)
Alternative	Suzhou Novosense Microelectronics Co.,Ltd	NSI6801C-DSWFR	VISO 5700Vrms	DIN VDE V 0884-11:2017-01	VDE 40052820
Transformer T1	SICHUAN ZHONGGUANG LIGHTNING PROTECTION TECHNOLOGIES CO LTD	ZGTS-EFD20S2	130°C	EN 61800-5-1	Tested with appliance
Alt.	Interchangeable	Interchangeable	155°C	EN 61800-5-1	Tested with appliance
-Magnetic wire	ELEKTRISOLA HANGZHOU CO LTD	P180 G2 MW-82	155°C	EN 61800-5-1	Tested with appliance
-Margin tape	P LEO & CO LTD	1H860(f)	130°C	EN 61800-5-1	Tested with appliance
-insulation tape	P LEO & CO LTD	1K7170 TAN	220°C	EN 61800-5-1	Tested with appliance
-insulation tube	GREAT HOLDING INDUSTRIAL CO LTD	Teflon tube T	200°C	EN 61800-5-1	Tested with appliance

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Clause	Requirement + Test			Result - Remark	Verdict
-Bobbin	SUMITOMO BAKELITE CO LTD	94V-0 PM-9630 (t>=0.16mm)	150°C, 94V-0, t>=0.16mm	EN 61800-5-1	Tested with appliance
Brake resistor (P+, Br)	Anhui Laifu Electronic Technology Co., Ltd	RXLB-1A-75W 100R J	50Ω±5%,75W	EN 61800-5-1	Tested with appliance
Functional insulation					
--	--	--	--	--	--
Basic/supplementary insulation					
--	--	--	--	--	--
Reinforced insulation					
--	--	--	--	--	--
Supplementary information: The flammable resistance should be considered in the end system according standard requirements.					

5.2.2.1	TABLE: General selection and information of supply earthing systems for clearance distances										-
Network systems	TN-S, TN-C, TN-CS, TT (not corner earthed)		TN-S, TT (corner earthed)		TN-C (middle point earthed)		IT (not corner referenced)		IT (corner referenced)		
Rated voltage (V)	230		N/A		N/A		N/A		N/A		
Max. altitude (m)	1000		N/A		N/A		N/A		N/A		
System voltage for impulse / TOV (V)	230		N/A		N/A		N/A		N/A		
	BI/SI	RI	BI/SI	RI	BI/SI	RI	BI/SI	RI	BI/SI	RI	
Rated Impulse voltage (kV)	2,5	4,0	--	--	--	--	--	--	--	--	
Temporary overvoltage (V rms / V peak)	2034/ 2876	3300/ 4667	--	--	--	--	--	--	--	--	
Clearance (mm)	1,5	3,0	--	--	--	--	--	--	--	--	
Test impulse voltage for clearance (kV)	2,5	4,0	--	--	--	--	--	--	--	--	
Supplementary information: PD 2, OVC II considered.											

5.2.2.1	TABLE: Working voltage measurements for clearance and creepage distances										-
Condition	Between	TN-S, TN-C, TN-CS, TT (not corner earthed)		TN-S, TT (corner earthed)		TN-C (middle point earthed)		IT (not corner referenced)		IT (corner referenced)	
		peak	rms	peak	rms	peak	rms	peak	rms	peak	rms

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Clause		Requirement + Test					Result - Remark				Verdict
1	Live parts and protective earth(BI)	325	230	--	--	--	--	--	--	--	--
2	Live parts and secondary circuit(RI)	572	256	--	--	--	--	--	--	--	--
3	Different polarities(FI)	325	230	--	--	--	--	--	--	--	--
IT network, simulated impedance (Ω)..... :					N/A						
Supplementary information: N/A											
Condition #:											

5.2.2.1	TABLE: Clearances and creepage distances							P
clearance cl and creepage distance cr at/between:	PWB layer	CTI (V)	U peak (V)	U rms (V)	Req. cl (mm)	Meas. cl (mm)	Req. cr (mm)	Meas. cr (mm)
Sub-assembly / PWB / part								
General								
--	--	--	--	--	--	--	--	--
Functional insulation								
Minimum distance of Among L1, L2 trace	--	<400	325	230	1,5	2,5	2,3	2,5
L1, L2 to PE	--	<400	325	230	1,5	2,8	2,3	2,8
P+, Br to PE	--	<400	325	230	1,5	2,8	2,3	2,6
W to PE	--	<400	325	230	1,5	2,5	2,3	2,5
Basic / supplementary insulation								
Primary circuit to earthing point on PWB	--	<400	325	230	1,5	2,6	2,3	2,6
T1 Primary winding to Core	--	<400	572	256	1,5	3,5	2,7	3,5
T1 Secondary winding to Core	--	<400	572	256	1,5	3,5	2,7	3,5
Live parts to accessible metal enclosure	--	<400	325	230	1,5	2,4	2,3	2,4
Reinforced insulation								
Separation of Optocoupler (U33, U35, U31, U43, U45, U48 and U49) on PCB	--	<400	360	230	3,0	5,0	4,6	5,0
Separation of IC (U36, U39, U32) on PCB	--	<400	360	230	3,0	5,0	4,6	5,0
T1 Primary winding to secondary Winding	--	<400	572	255	3,0	6,0	5,4	6,0
Live parts to accessible plastic enclosure	--	<400	325	230	3,0	6,0	4,6	6,0
After deflection and impact test:								

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Clause	Requirement + Test					Result - Remark		Verdict
--	--	--	--	--	--	--	--	--
Supplementary information: Altitude: 1000m								

4.3.6.8 5.2.3.1 5.2.3.2 5.2.3.3	TABLE: Solid insulation Impulse voltage test A.C. or d.c. voltage test Partial discharge test					P
Test voltage applied between:		DTI (mm)	Impulse test (kV, circuit)	Electric strength test (VAC, VDC, s)	Partial discharge test (V)	Result
Functional insulation (circuit characteristics)						
--		--	--	--	--	--
Basic / supplementary insulation						
Between Live parts and protective earth / chassis on terminal		N/A	4000	1500	N/A	P
Reinforced insulation						
Between Live parts and plastic enclosure		1,8 Min.	6000	3000	N/A	P
Between live part and interface CN1 to CN7 ports		N/A	2500	3000	N/A	P
One insulation tape(T1)		0,10	2500	3000	N/A	P
Margin tape(T1)		0,24	2500	3000	N/A	P
After deflection and impact test:						
--		--	--	--	--	N/A
After dry heat test:						
--		--	--	--	--	N/A
After damp heat test:						
--		--	--	--	--	N/A
After vibration test:						
--		--	--	--	--	N/A
After hydrostatic pressure test:						
--		--	--	--	--	N/A
Supplementary information: /						

5.2.3.5	TABLE: Touch current measurement	P
Single phase equipment		

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Clause	Requirement + Test				Result - Remark		Verdict	
L – N TN-S, TN-C, TN-CS, TT (not corner earthed) Figure 6	L – L TN-C, TT (middle point earthed) Figure 7	L – L TN, TT (not corner earthed) Figure 8	L – N IT (not corner referenced) Figure 9	L – N IT (corner referenced) Figure 9	L – L IT (not corner referenced) Figure 10	L – L IT (corner referenced) Figure 10	Limit for 50 Hz (mA)	Limit for 60 Hz (mA)
Live parts/ protective earth	1,8	N/A	N/A	N/A	N/A	N/A	3,5	3,5
Three-phase equipment								
TN-S, TN-C, TN-CS, TT (not corner earthed) Figure 11	IT (star point referenced) Figure 12	IT (corner referenced) Figure 12	TN, TT (corner earthed) Figure 13	TN, TT (middle point earthed) Figure 14			Limit for 50 Hz (mA)	Limit for 60 Hz (mA)
N/A	N/A	N/A	N/A	N/A	N/A		3,5	3,5
Supplementary information: Measurements have been carried out according to figures of IEC 60990.								

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Clause	Requirement + Test	Result - Remark	Verdict

5.2.3.6.3 5.2.3.6.4 5.2.4.4 5.2.4.5 5.2.8	TABLE: Short-circuit test Breakdown of components test Loss of phase test Cooling failure tests Electronic motor overload protection test					P
Tested item	Fault (SC, OC, OL)	Supply voltage (V)	PSCC (kA)	Test time (min.)	Test environment (ambient, fuse etc.) and observation	Result
Output U & V	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
Output V & W	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
Output U & W	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
D29	SC	230	1	10	Fuse open, unrecoverable, no hazard	P
D33	SC	230	1	10	Normal operation, no damage, no hazard.	P
D40	SC	230	1	10	Fuse open, unrecoverable, no hazard	P
D34 (+, -)	SC	230	1	10	Fuse open, unrecoverable, no hazard	P
D34 (AC, AC)	SC	230	1	10	Fuse open, unrecoverable, no hazard	P
T1 PIN 1-3	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
T1 PIN 5-6	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
T1 PIN 7-9	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
T1 PIN 7-11	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
T1 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U41 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U35 PIN 3-4	SC	230	1	10	Unit damage immediately, no damage, no hazard.	P
U35 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U48 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U48 PIN 3-4	SC	230	1	10	Normal operation, no damage, no hazard.	P
U49 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U49 PIN 3-4	SC	230	1	10	Normal operation, no damage, no hazard.	P
E16	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P

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Clause	Requirement + Test				Result - Remark	Verdict
U33 PIN 1-2	SC	230	1	10	Unit shutdown immediately, recoverable, no damage, no hazard.	P
U49 PIN 3-4	SC	230	1	10	Normal operation, no damage, no hazard.	P
Supplementary information: /						

5.2.3.8	TABLE: Temperature rise test, thermocouple method							P
	Supply voltage (V)..... :	230	--	--	--	--	--	—
	Supply frequency (Hz) :	50	--	--	--	--	--	—
	Load (V, A) :	--	--	--	--	--	--	—
	Ambient (°C):	55	--	--	--	--	--	—
Thermocouple Location		Temperature measured (°C)						Limit (°C)
Materials, components and internal parts								
Terminal block (CN8 ,near L2)		58.3	--	--	--	--	--	Ref.
Terminal block (CN8,near V)		57.1	--	--	--	--	--	Ref.
Relay, JK1		73.6	--	--	--	--	--	105
Relay, JK2		69.4	--	--	--	--	--	105
Varistor, RV1		60.5	--	--	--	--	--	85
Varistor, RV2		58.8	--	--	--	--	--	85
E Capacitor, E12		67.4	--	--	--	--	--	105
E Capacitor, E13		62.5	--	--	--	--	--	105
Rectifier D34 body		65.9	--	--	--	--	--	Ref.
U31		70.5	--	--	--	--	--	ref.
Y capacitor, C214		57.9	--	--	--	--	--	85
Y capacitor, C217		58.3	--	--	--	--	--	85
Y capacitor, C218		58.1	--	--	--	--	--	85
Y capacitor, C222		58.8	--	--	--	--	--	85
PCB under U31		71.8	--	--	--	--	--	130
PCB under T1		60.2	--	--	--	--	--	130
T1 Bobbin		59.2	--	--	--	--	--	Ref.
T1 primary winding		59.9	--	--	--	--	--	135
T1 secondary winding		60.3	--	--	--	--	--	135
Optocoupler U41		64.6	--	--	--	--	--	115
Optocoupler U49		66.8	--	--	--	--	--	115
Optocoupler U48		65.3	--	--	--	--	--	115
Optocoupler U35		63.6	--	--	--	--	--	115
Optocoupler U33		64.1	--	--	--	--	--	115

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Clause	Requirement + Test			Result - Remark			Verdict
Optocoupler U45	70.7	--	--	--	--	--	115
Key on display board	57	--	--	--	--	--	75
Plastic enclosure near E12	63	--	--	--	--	--	Ref.
Metal enclosure near U31	62.6	--	--	--	--	--	Ref.
Metal enclosure near T1	57	--	--	--	--	--	Ref.
Supplementary information: /							

5.2.3.8	TABLE: Temperature rise test, resistance method							N/A
	Test voltage (V).....:							—
	Supply frequency (Hz)							—
	Load (V, A)							—
Winding		t1 (°C)	r1 (Ω)	t2 (°C)	r2 (Ω)	T (°C)	Limit Tmax (°C)	Insulation class
Supplementary information:								

5.2.3.9	TABLE: Protective bonding					P
Points of application		Current (A)	Voltage (V)	Resistance (mΩ)	Test time (min)	Result
Between PE pin and metal enclosure		30	12	9	1	P
After dry heat test:						
--		--	--	--	--	N/A
After damp heat test:						
--		--	--	--	--	N/A
After vibration test:						
--		--	--	--	--	N/A
Supplementary information: /						

5.2.5	TABLE: Material test			N/A
Object / Part No. / Material	Manufacturer / trademark / type designation	Test procedure		Result
--	--	--		N/A
Supplementary information: /				

6	TABLE: Information and marking requirements					P
		Product	Package	Installation	User	Maintenance

IEC 61800-5-1					
Clause	Requirement + Test	Result - Remark			Verdict
6.2	Information for selection				
- Name or trademark of the manufacturer, supplier or importer	P	P	P	P	P
- Catalogue number or equivalent	P	P	P	P	P
- Input voltage rating	P	-	P	P	P
- Input current rating	P	-	P	-	P
- Input power rating	P	-	P	-	P
- Input frequency	P	-	P	-	P
- Input number of phases	P	-	P	-	P
- Output voltage rating	P	-	P	P	P
- Output current rating	P	-	P	-	P
- Output power rating	P	-	P	-	P
- Output frequency	P	-	P	-	P
- Output number of phases	P	-	P	-	P
- Protective class	See 6.3.6.6.				
- Type of electrical supply system	See 6.3.3.				
- Prospective short-circuit current and protective device characteristics	See 6.3.7.				
- Field supply requirements (if any)	See 6.3.3.				
- Coolant type and design pressure	-	-	N/A	-	N/A
- IP rating	N/A	-	P	-	P
- Operating and storage environment	See 6.3.3.				
- Reference to relevant standards	-	-	P	-	-
- Date code or serial number	P	-	-	-	-
- Reference to instructions	-	-	P	P	P
6.3	Information for installation and comissioning				
6.3.2: Mechanical considerations	-	N/A	N/A	-	N/A
- Dimensional drawing (SI units)	-	-	N/A	-	N/A
- Mass (SI units)	-	N/A	N/A	-	N/A
- Mounting drawing (SI units)	-	-	N/A	-	N/A
6.3.3: Environment (operation, transport, storage)	-	-	P	-	P
- Temperature	-	-	P	-	P
- Humidity	-	-	P	-	P
- Altitude	-	-	P	-	P
- Pollution	-	-	P	-	P
- Ultra violet light	-	-	P	-	P
- Type of electrical supply system	-	-	TN	-	-
- Field supply requirements (if any)	-	-	N/A	-	-
- Other	-	-	P	-	-
6.3.4: Handling and mounting	-	P	P	-	P

IEC 61800-5-1					
Clause	Requirement + Test		Result - Remark		Verdict
- Packing and unpacking	-	P	P	-	P
- Moving	-	N/A	N/A	-	N/A
- Lifting	-	N/A	N/A	-	N/A
- Strength and rigidity of mounting surface	-	N/A	N/A	-	N/A
- Fastening	-	P	P	-	P
- Provision of adequate access for operation, adjustment and maintenance	-	N/A	N/A	-	N/A
- Warning regarding combustibility if mounting surface exceeds 90 °C	-	-	N/A	-	-
6.3.5: Motor and driven equipment			P	P	P
6.3.5.1: Motor selection	-	-	P	P	P
6.3.5.2: Motor integrated sensors	-	-	P	P	P
6.3.5.3: Critical torsional speeds	-	-	N/A	N/A	N/A
6.3.5.4: Transient torque analysis	-	-	N/A	N/A	N/A
6.3.6: Connections	P	-	P	P	P
6.3.6.1: General	-	-	P	-	P
6.3.6.2: Interconnection and wiring diagrams ..	-	-	P	-	P
6.3.6.3: Conductor (cable) selection	-	-	P	-	P
6.3.6.4: Terminal capacity and identification ...	P	-	P	-	P
6.3.6.5: Protection requirements	-	-	P	P	P
- Protective class 0	N/A	-	N/A	N/A	N/A
- Interface details	-	-	P	-	P
- Terminals with protective separation	-	-	P	P	P
6.3.6.6: Earthing	-	-	P	-	P
- High-voltage PDS: Earthing switch	-	-	N/A	-	N/A
- Symbol IEC 60417-5019, PE or green-yellow	P	-	-	-	-
- Symbol IEC 6417-5172 for Class II	N/A	-	-	-	-
6.3.6.7: Protective earthing conductor current	N/A	-	N/A	N/A	N/A
- Symbol ISO 7000-0434 and instruction.....	N/A	-	N/A	-	N/A
- RCD compatibility	-	-	N/A	-	N/A
- RCD/RCM caution notice and marking ISO 7000-0434	N/A	-	-	N/A	-
6.3.6.8: Special requirements	-	-	N/A	-	N/A
6.3.7: Overcurrent or short-circuit protection ..	-	-	P	-	P
- Electronic power output short-circuit protection circuitry conditions	-	-	P	-	-
6.3.8: Motor overload protection and overtemperature protection	-	-	P	-	
6.3.8.1: CDM/BDM not incorporating internal electronic motor overload and overtemperature protection	-	-	P	-	-

IEC 61800-5-1					
Clause	Requirement + Test		Result - Remark		Verdict
6.3.8.2: CDM/BDM incorporating internal electronic motor overload and overtemperature protection.....	-	-	P	-	P
6.3.9: Commissioning	-	-	P	-	-
6.4	Information for use				
6.4.1: General	-	-	P	-	P
6.4.2: Adjustment	-	-	P	P	P
6.4.3: Labels, signs, and signals	P	-	P	P	P
6.4.3.1: General	P	-	P	P	P
6.4.3.2: Isolators	N/A	-	-	-	-
6.4.3.3: Visual and audible signals	P	-	-	P	-
6.4.3.4: Hot surfaces, symbol IEC 60417-5041	P	-	-	P	-
6.4.3.5: Equipment marking	P	-	P	P	P
- Control devices	N/A	-	P	P	P
- Indicating devices	N/A	-	N/A	N/A	N/A
- Replaceable fuses	N/A	-	N/A	N/A	N/A
- Movable connectors	N/A	-	N/A	N/A	N/A
- Test points	N/A	-	N/A	N/A	N/A
- Polarized devices	N/A	-	N/A	N/A	N/A
- Pre-set controls	N/A	-	N/A	N/A	N/A
6.5	Information for maintenance				
6.5.1: General.....	-	-	-	P	P
- Maintenance procedures.....	-	-	-	-	P
- Maintenance schedules.....	-	-	-	P	P
- Safety precautions	-	-	-	-	P
- Location of live parts accessible during maintenance	-	-	-	-	P
- Adjustment procedures	-	-	P	P	P
- Repair and replacement procedures	-	-	-	-	P
- Other relevant information (e.g. special tools list)	-	-	-	P	P
6.5.2: Capacitor discharge	N/A	-	N/A	-	N/A
6.5.3: Auto restart/bypass connection	-	-	P	P	P
6.5.4: Potential Transformer (PT) / Current Transformer (CT) connection	N/A	-	N/A	-	N/A
6.5.5: Other hazards	N/A	-	-	-	N/A
Supplementary information: /					

IEC 61800-5-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Attachment No.: 1: National Differences for (country name) or Group Differences	P
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	CENELEC COMMON MODIFICATIONS (EN)	P
	No group differences available	-

Attachment No.: 2 Photos

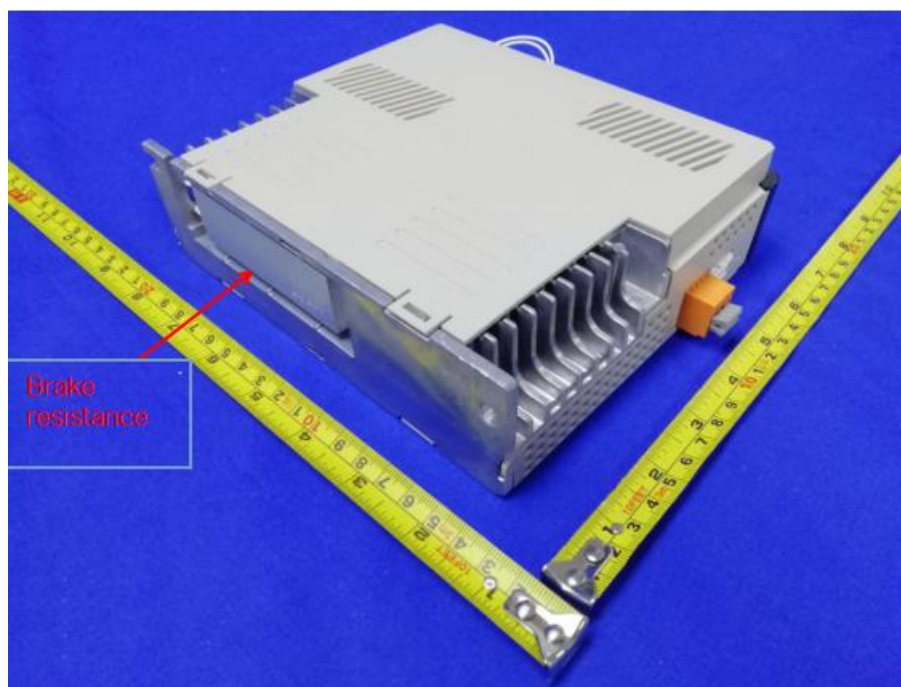


Fig. 1 - overall view of 7EC-1000S



Fig. 2 - overall view of 7EC-1000S



Fig. 3 - side view



Fig. 4 - Earthing screw



Fig. 5 - Detached view



Fig. 6 - Detached view



Fig. 7 - PCB

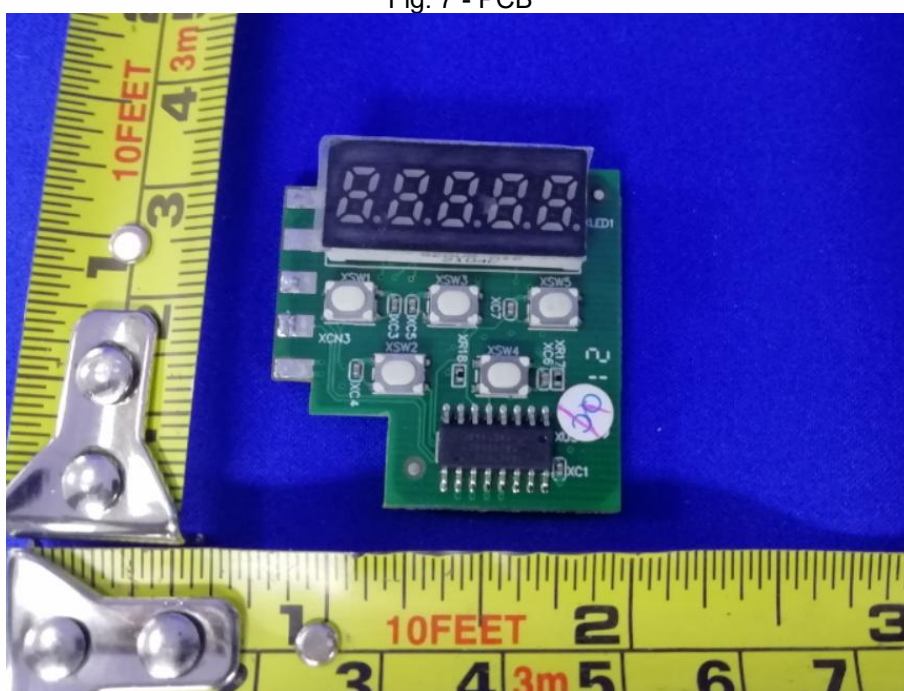


Fig. 8 - PCB

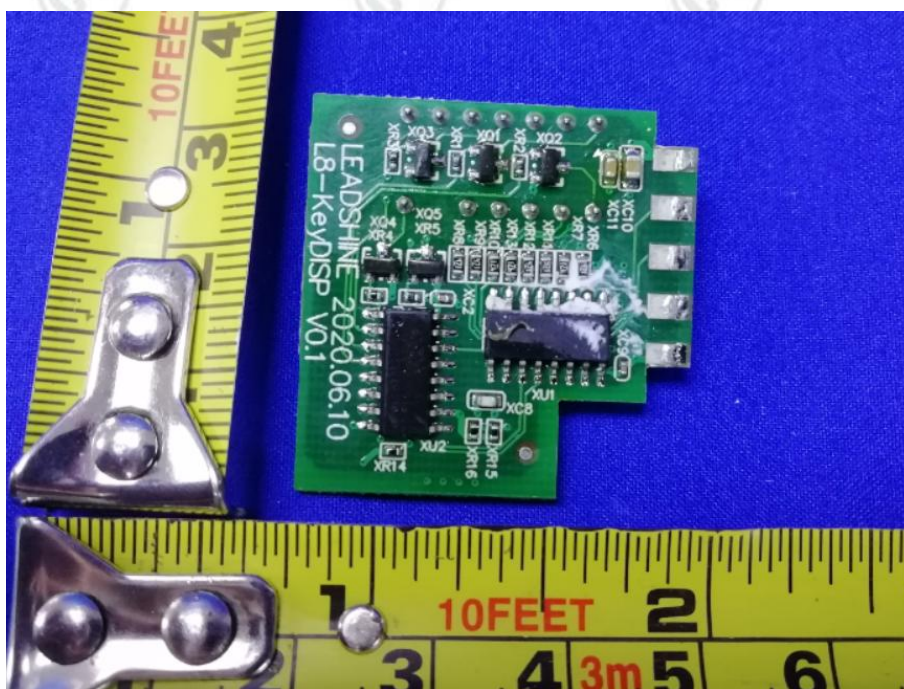


Fig. 9 - PCB

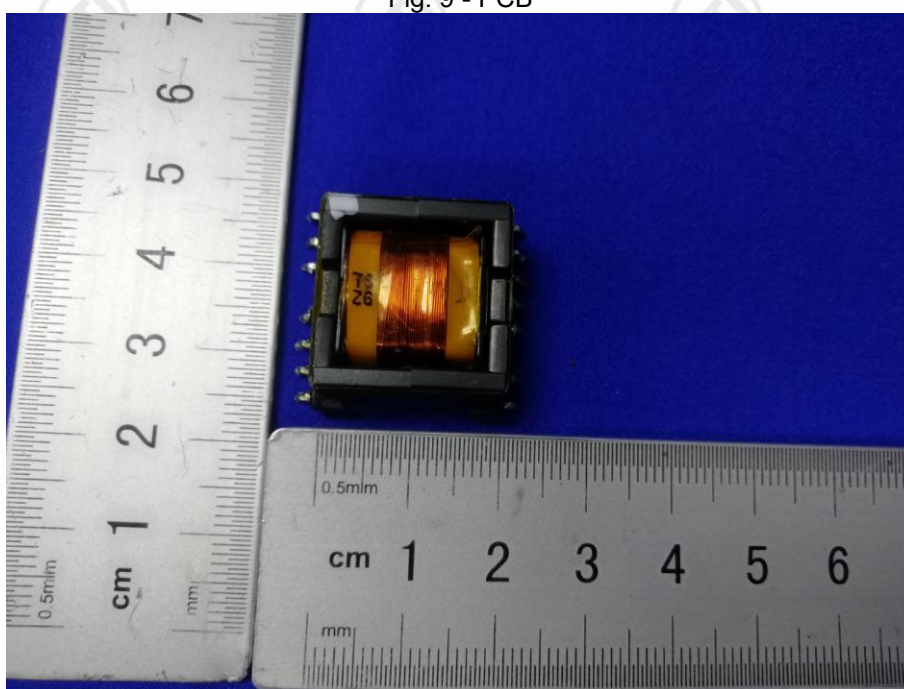


Fig. 9 - Overview of transformer T1

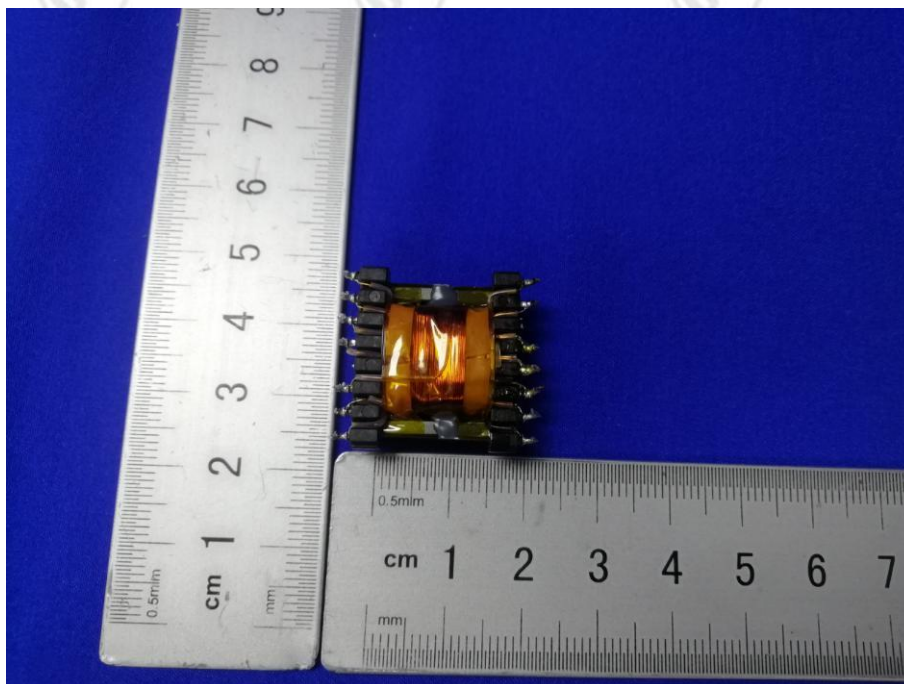


Fig. 10 - Overview of transformer T1

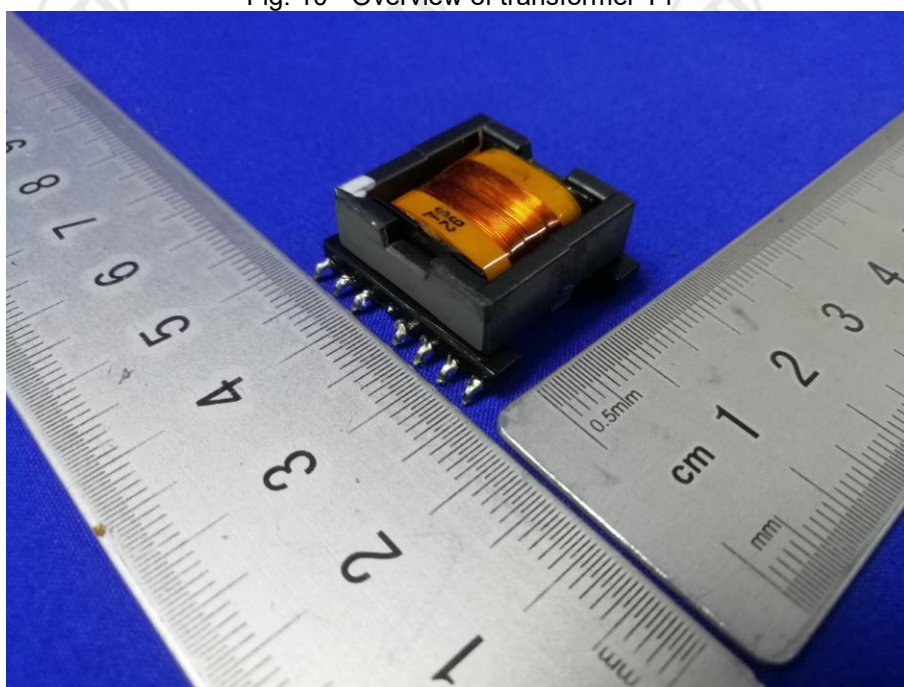


Fig. 11 -View of detached external insulation tape

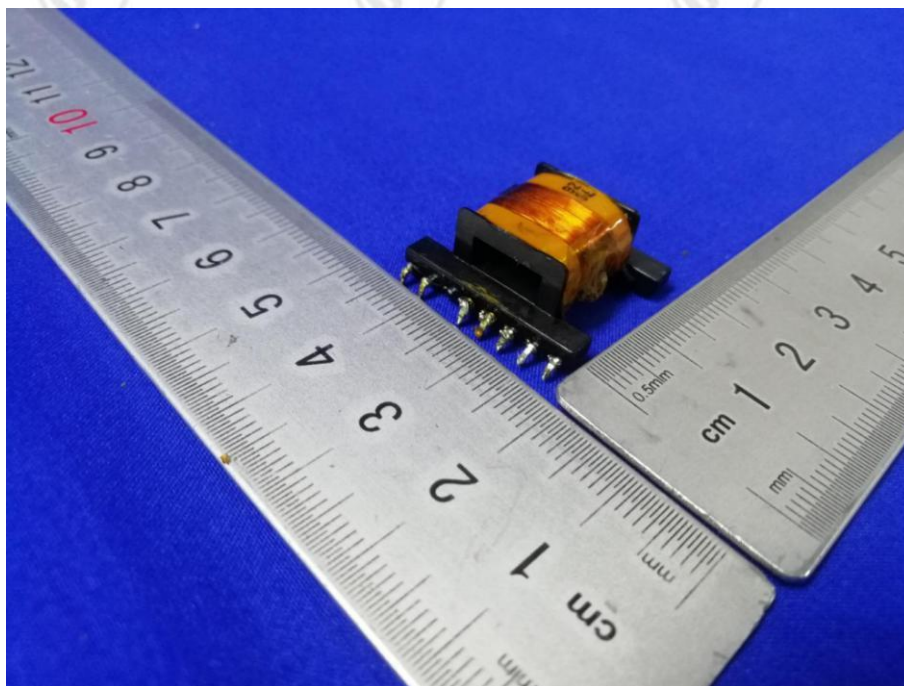


Fig. 12 - View of detached core

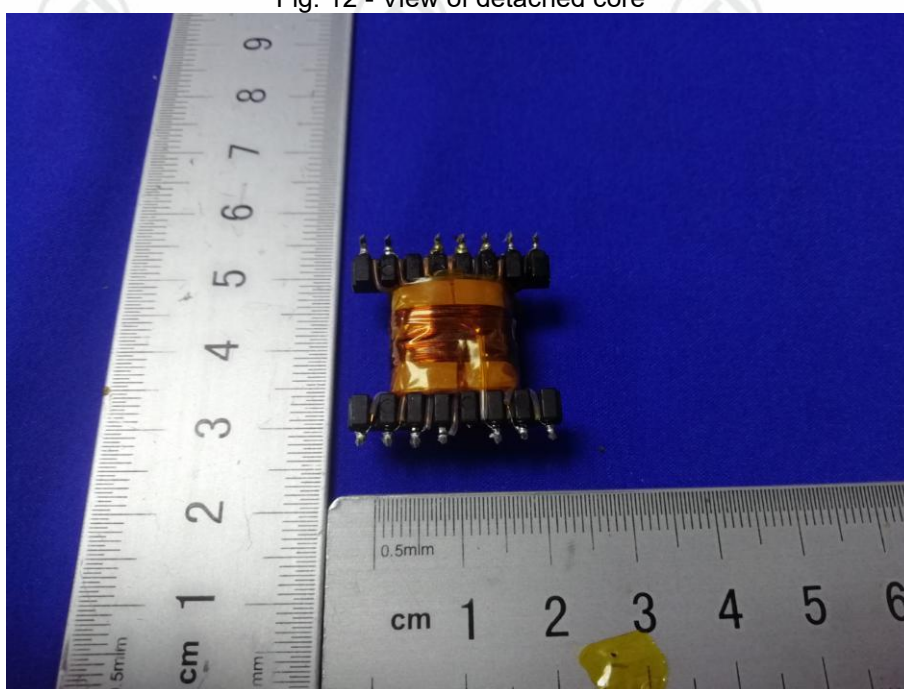


Fig. 13 - Internal view of transformer T1

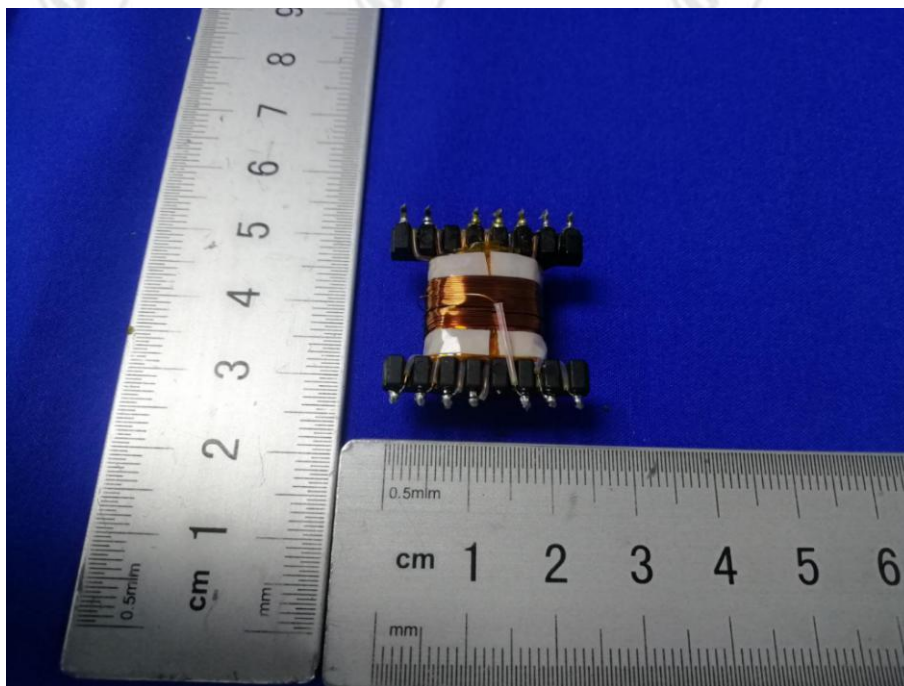


Fig. 14 - primary winding

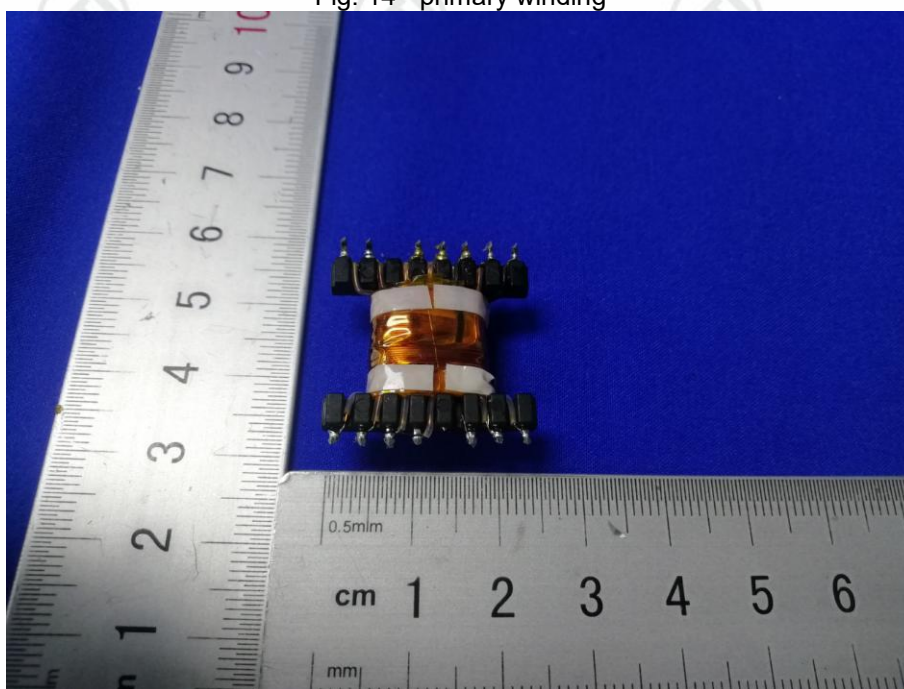


Fig. 15 - Internal view of transformer T1

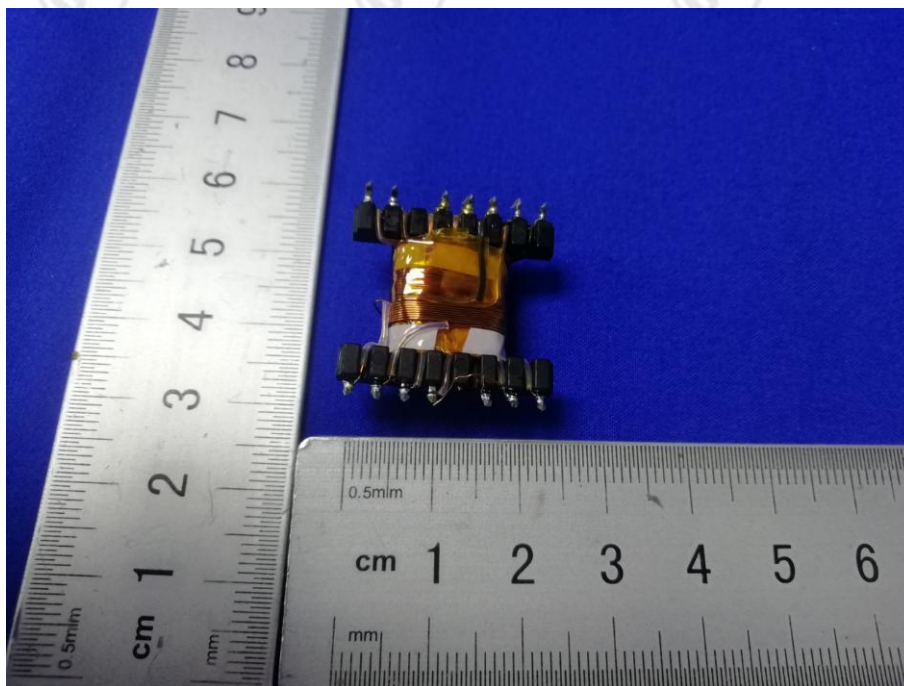


Fig. 15 - primary winding of transformer T1

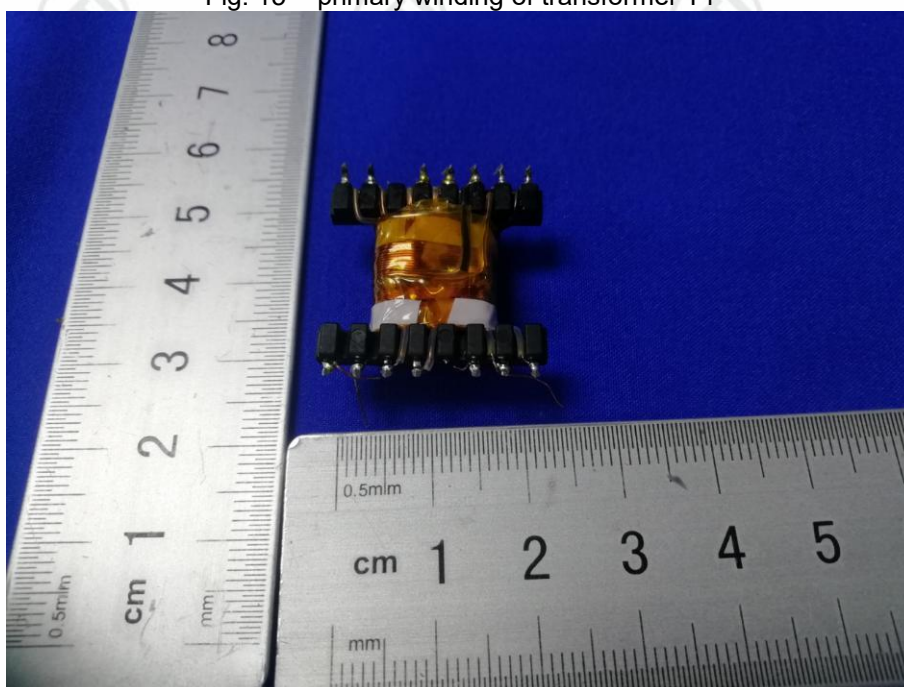


Fig. 16 - Internal view of transformer T1

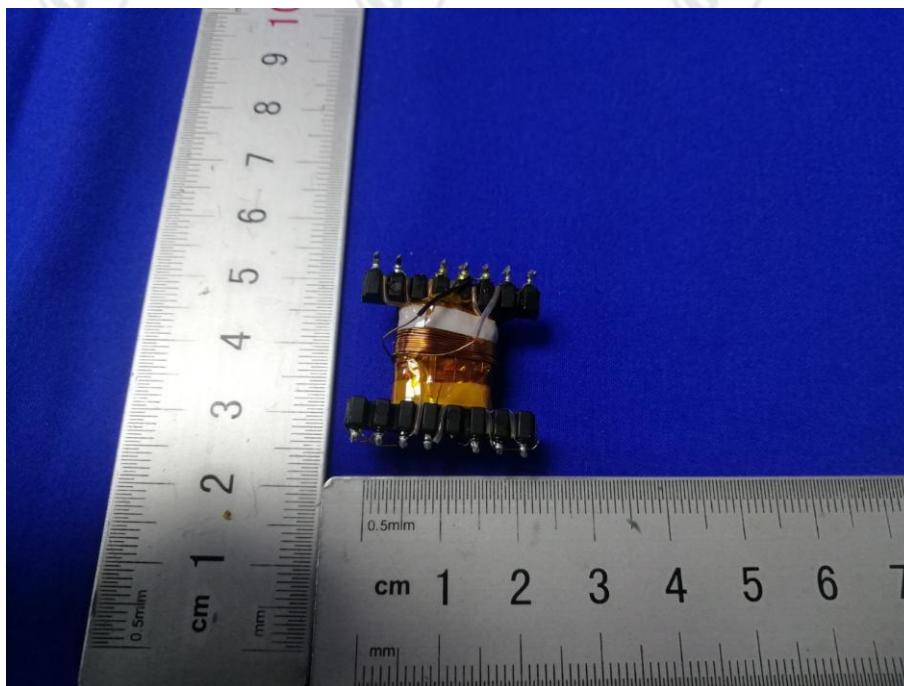


Fig. 17 - Secondary winding of transformer T1

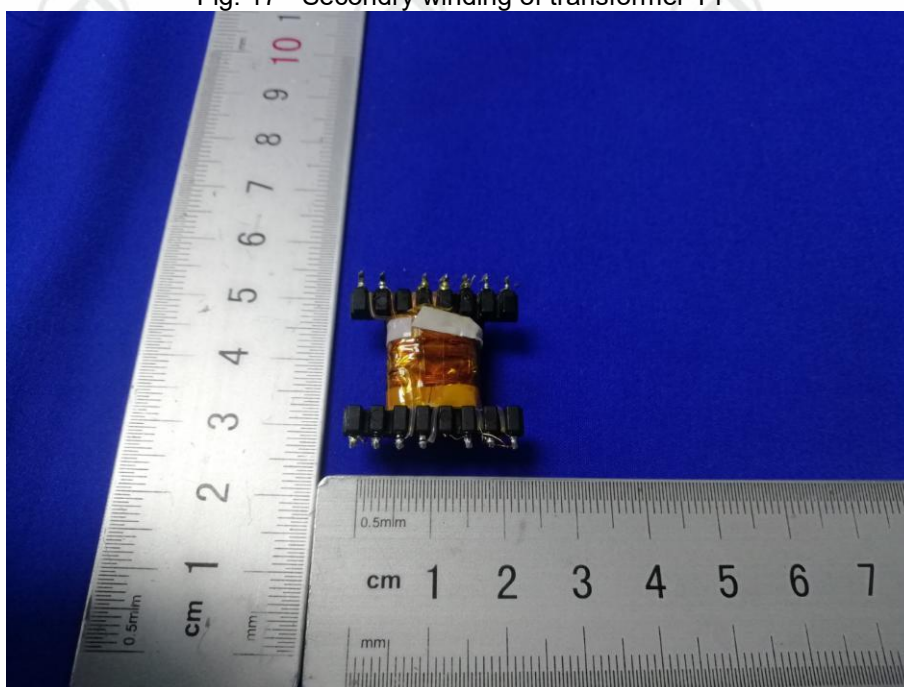


Fig. 18 - Internal view of transformer T1

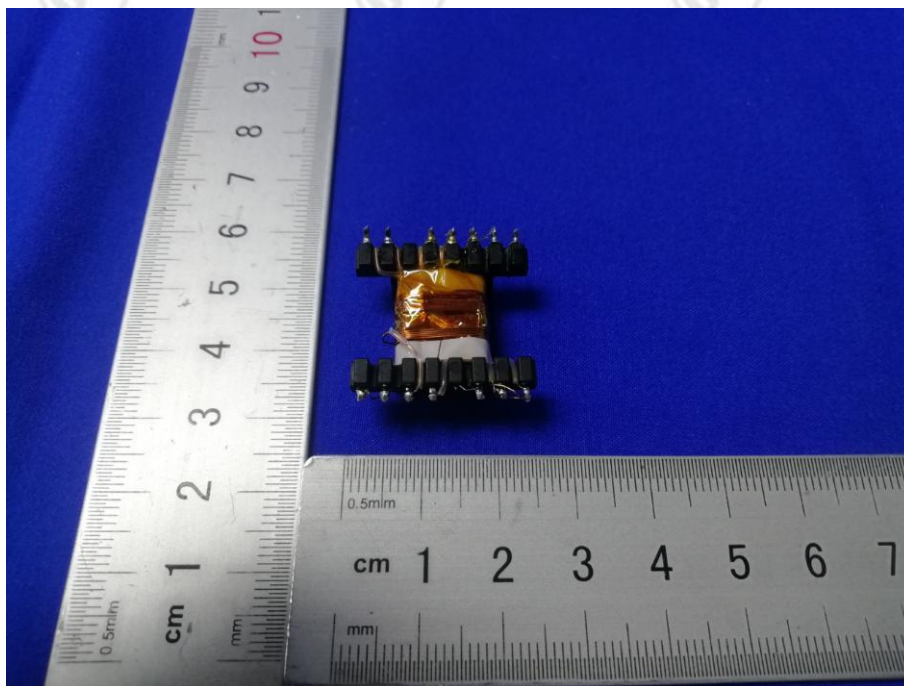


Fig. 19 - Secondary winding of transformer T1

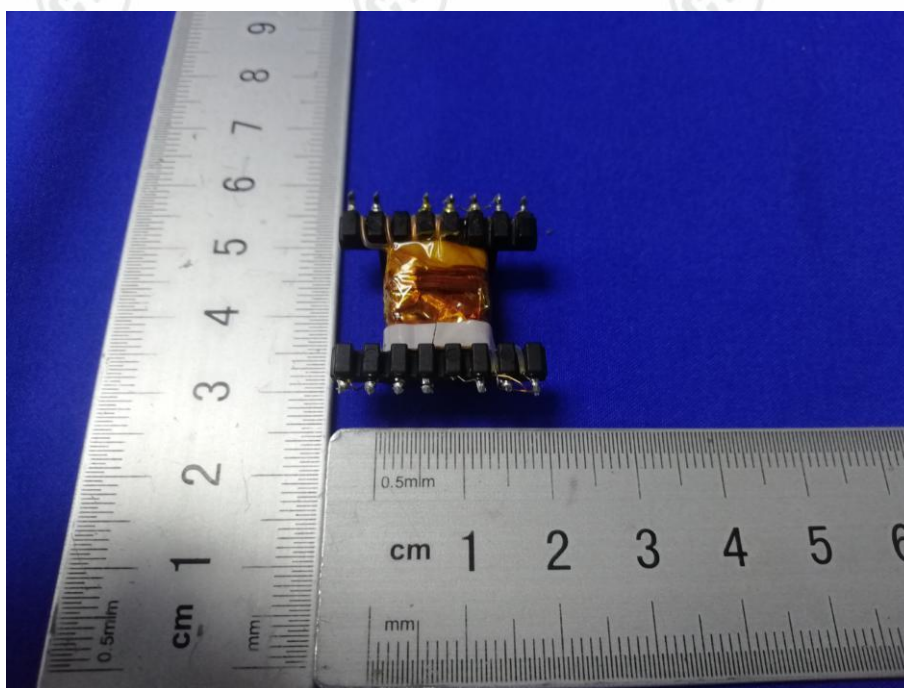


Fig. 20 - Internal view of transformer T1

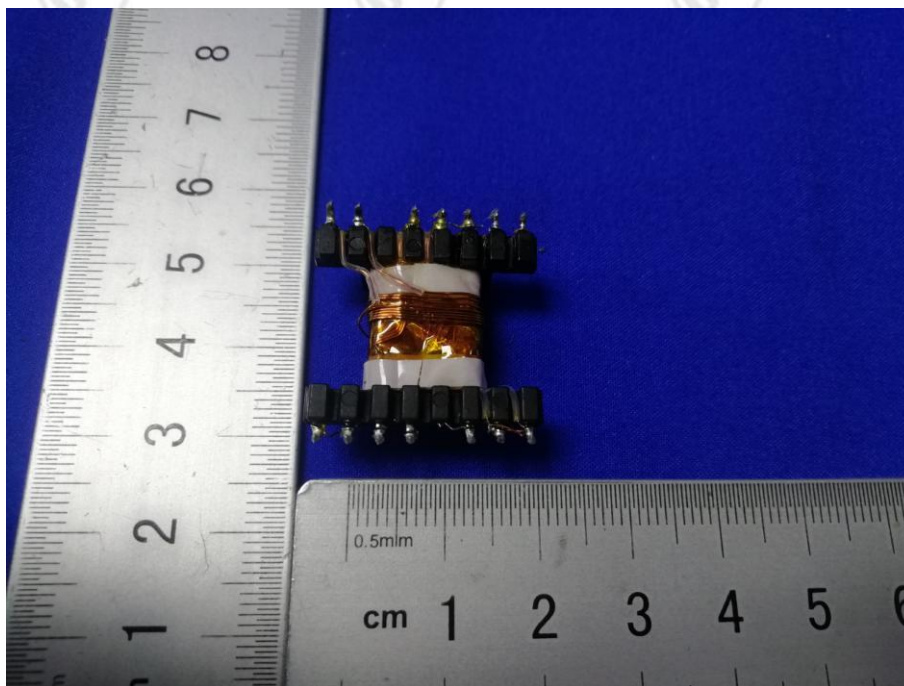


Fig. 21 - Secondary winding of transformer T1

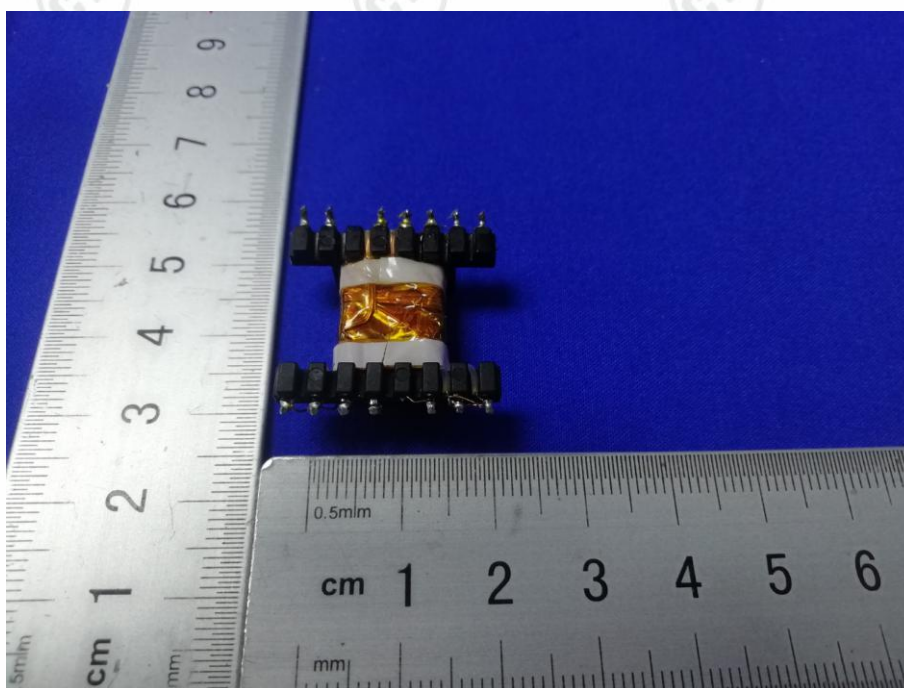


Fig. 22 - Internal view of transformer T1

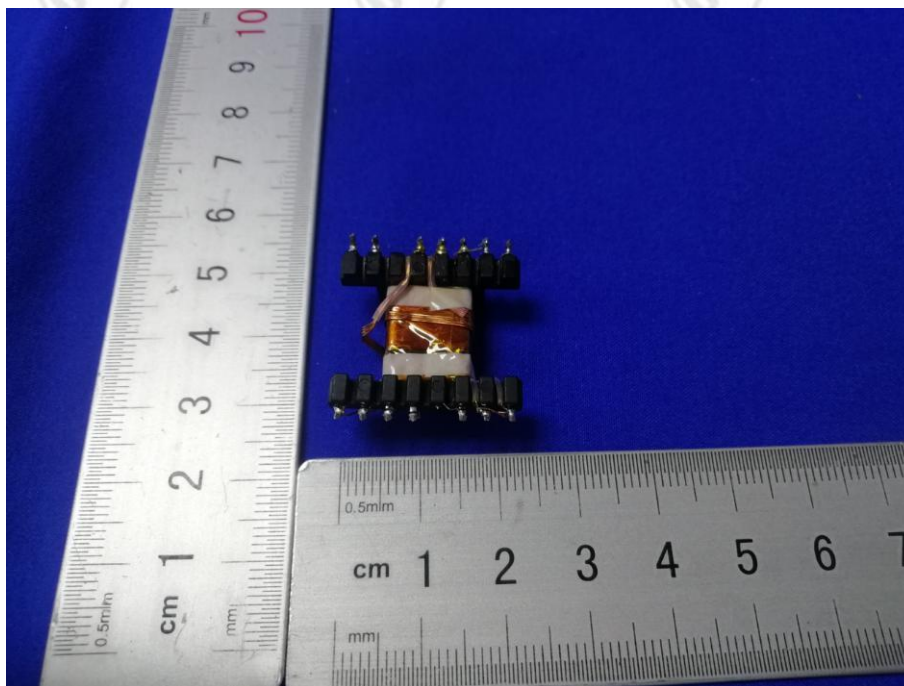


Fig. 23 - Secondary winding of transformer T1

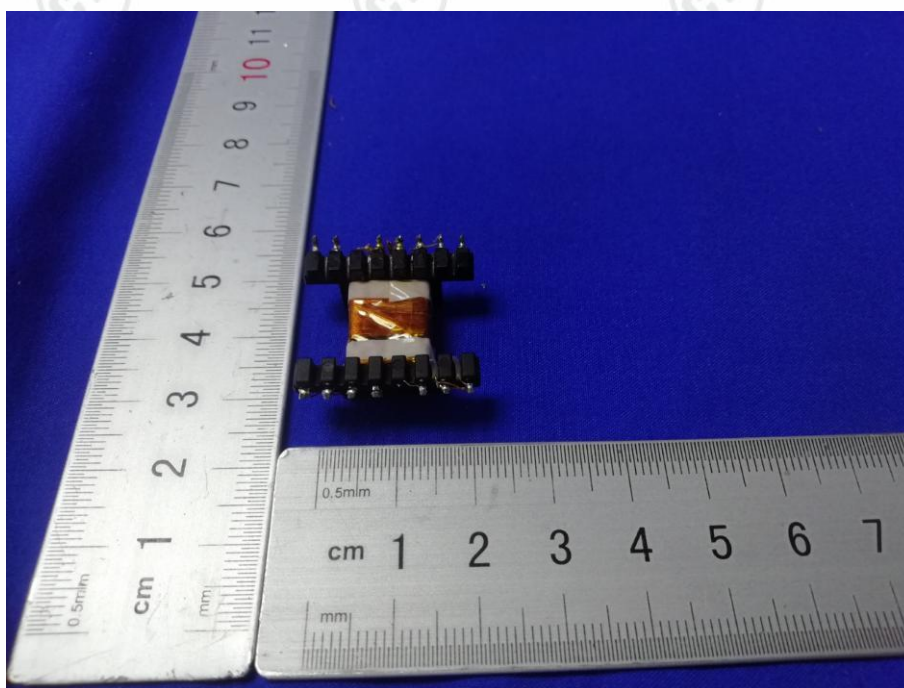


Fig. 24 - Internal view of transformer T1

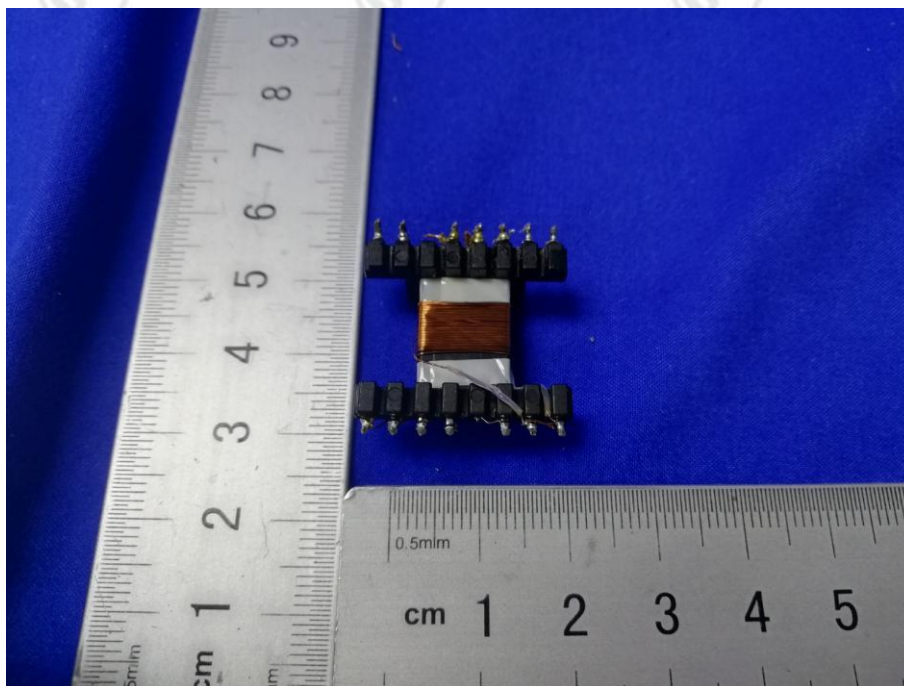


Fig. 25 - Primary winding of transformer T1

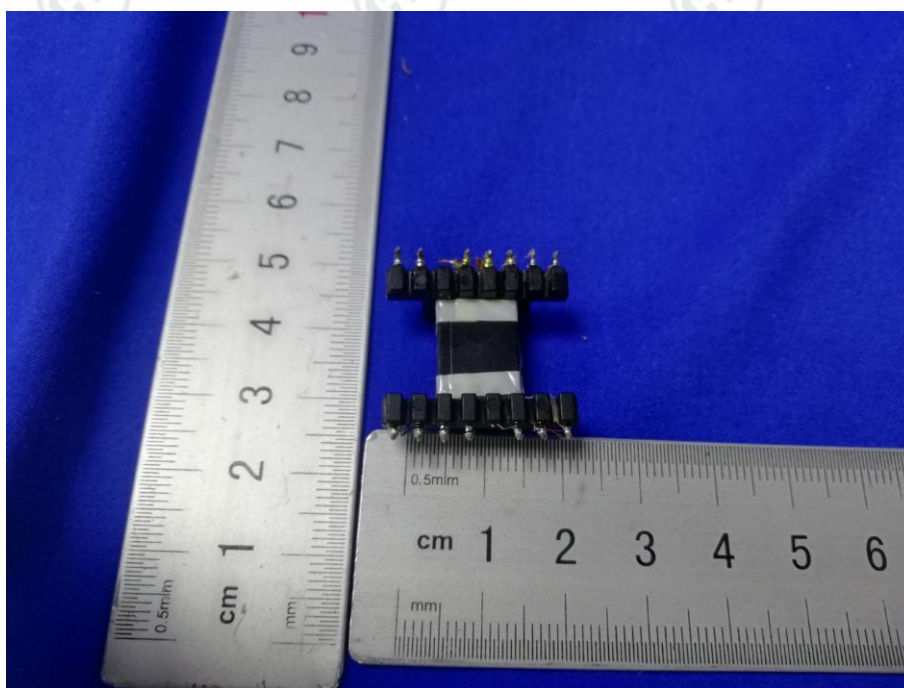
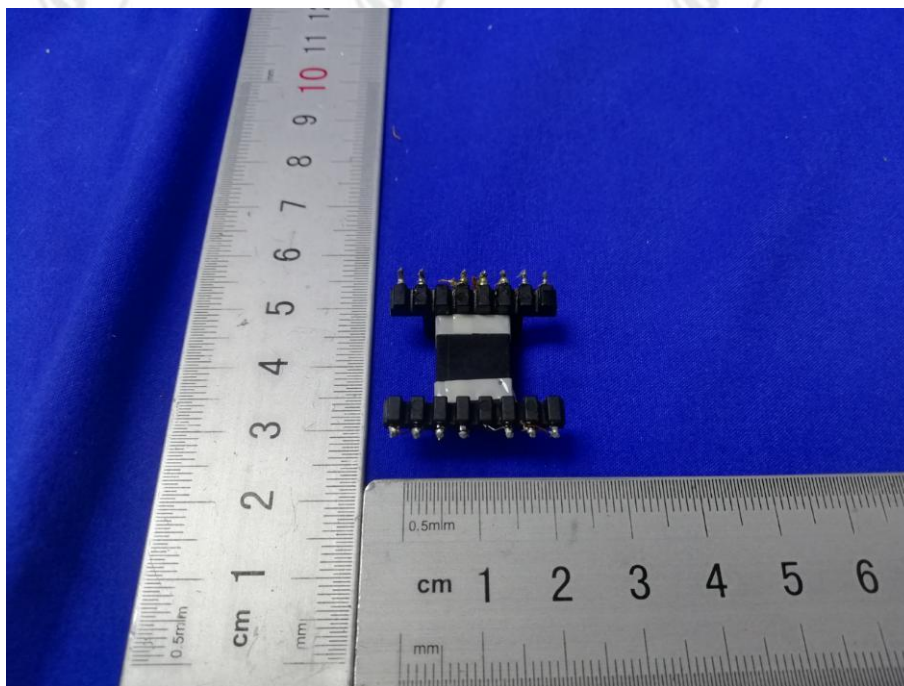


Fig. 26 - Bobbin of transformer T1



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***** End of Report *****