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The following material resulting from the investigation under the above numbers is enclosed.

Issue Date	Vol	Sec	Pages	Revised Date
	1		New Index Page(s) 2	2019/05/30
	1		Revised Index Page(s) 1	2019/05/30
	1		Revised Appendix A2	2019/05/30
2014/01/17	1	1	New Description Page(s) 1A,2A	2019/05/30
2014/01/17	1	1	Revised Description Page(s) 1,2,3,4,5,6,7,8,9,10,11,12B,13,13A ,14,14A,17,17A,18,18A,18B,19,19A,20,21,22,23	2019/05/30
2014/01/17	1	1	Revised Illustration(s) 9,13,14,15	2019/05/30
2015/06/01	1	2	Revised Description Page(s) 1,2,5,6,7,8,9,10,10A,11,12,12A,13, 13A,14,14A,15,15A,15B,16,16A,17,17A,18,18A,19,19A	2019/05/30
2019/05/30	1	3	Add New Proc/Report Sect	

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Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

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Table I

Model Designation	Report Date	Section	USL	CNL
*	*	*	*	*
*Open Type, Power Conversion Equipment, AC Servo Driver, Models ProNet-E-02B-UL, ProNet-E-04B-UL, ProNet-E-08B-UL, EHD-3EDMB, EHD-3EDEB, EHD-5ZDMB, EHD-5ZDEB, EHD2-3EDEB, EHD2-3EDMB, EHMA-210DPB and EHD2-5ZDMB.	2015-06-02	2	X	X

USL indicates Investigation to United States Standard - UL 508C, Power Conversion Equipment.

* CNL indicates Investigation to CAN/CSA-C22.2 No. 274-17, Industrial Control Equipment.

Table II

USL indicates these products were investigated under the Standard for Power Conversion Equipment, UL 61800-5-1.

CNL indicates these products were investigated under the Standard for Industrial Control Equipment, CSA C22.2 No. 274-17, 2nd Edition.

Model Designation	Report Date	Section	USL	CNL
Open Type, Power Conversion Equipment, AC Servo Driver, Series ProNet, Models: ProNet-E-04A-UL, ProNet-E-10A-UL, ProNet-E-20A-UL, PRONET-A5A##-*, PRONET-A5A##-UL, PRONET-A5A##-EC-*, PRONET-A5A##-EC-UL, PRONET-01A##-*, PRONET-01A##-UL, PRONET-01A##-EC-*, PRONET-01A##-EC-UL, PRONET-02A##-*, PRONET-02A##-UL, PRONET-02A##-EC-*, PRONET-02A##-EC-UL, PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-*, PRONET-04A##-EC-UL, PRONET-08A##-*, PRONET-08A##-UL, PRONET-08A##-EC-*, PRONET-08A##-EC-UL, PRONET-10A##-*, PRONET-10A##-UL, PRONET-10A##-EC-*, PRONET-10A##-EC-UL, PRONET-15A##-*, PRONET-15A##-UL, PRONET-15A##-EC-*, PRONET-15A##-EC-UL, PRONET-20A##-*, PRONET-20A##-UL, PRONET-20A##-EC-* and PRONET-20A##-EC-UL, "#" stands for A-Z to indicate encoder soft edition, "-*" stands for null to indicate general manufacture, "-*" stands for 0-9 or A-Z or any other form to indicate client number.	2014-01-17	1	X	X
Open Type, Power Conversion Equipment, AC Servo Driver, Models ProNet-E-30A-UL, PRONET-30A##-*, PRONET-30A##-UL, PRONET-30A##-EC-*, PRONET-30A##-EC-UL, ProNet-E-50A-UL, PRONET-50A##-*, PRONET-50A##-UL, , PRONET-50A##-EC-*, PRONET-50A##-EC-UL, "#" stands for A-Z to indicate encoder soft edition; "-*" stands for null to indicate general manufacture; "-*" stands for 0-9 or A-Z or any other form to indicate client number.	2019-05-30	3	X	X

Solid State Overload Protection - A diagnostic test shall be performed to indicate the overload protective circuitry. Will shut the unit down when the overcurrent level reaches rated tripping current. The test is to be simulated by applying simulated voltage to printed wiring board assemblies involved with the overload protective function. Simulated voltage values shall be specified by manufacture.

Section	Model	Simulated voltage values
*1	**All models except for accessories**	Specified by Manufacture
*2	**All models except for accessories**	Specified by Manufacture
3	**All models except for accessories**	**Specified by Manufacture**

Solid State Short Circuit Protection - A diagnostic test shall be performed to indicate the short circuit protection will shut the unit down when the overcurrent level reaches rated tripping current. The test is to be simulated by applying simulated voltage to printed wiring board assemblies involved with the short circuit protective functions. Simulated voltage values shall be specified by manufacture.

Section	Model	Simulated voltage values
1	**All models except for accessories**	Specified by Manufacture
2	**All models except for accessories**	Specified by Manufacture
3	**All models except for accessories**	**Specified by Manufacture**

DESCRIPTION

PRODUCT COVERED:

* USL, CNL - Open Type, Power Conversion Equipment, AC Servo Driver, Series ProNet:
*****
Models: ProNet-E-04A-UL, ProNet-E-10A-UL **and** ProNet-E-20A-UL.

Models: PRONET-A5A##-*, PRONET-A5A##-UL, PRONET-A5A##-EC-*, PRONET-A5A##-EC-UL, PRONET-01A##-*, PRONET-01A##-UL, PRONET-01A##-EC-*, PRONET-01A##-EC-UL, PRONET-02A##-*, PRONET-02A##-UL, PRONET-02A##-EC-*, PRONET-02A##-EC-UL, PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-*, PRONET-04A##-EC-UL, PRONET-08A##-*, PRONET-08A##-UL, PRONET-08A##-EC-*, PRONET-08A##-EC-UL, PRONET-10A##-*, PRONET-10A##-UL, PRONET-10A##-EC-*, PRONET-10A##-EC-UL, PRONET-15A##-*, PRONET-15A##-UL, PRONET-15A##-EC-*, PRONET-15A##-EC-UL, PRONET-20A##-*, PRONET-20A##-UL, PRONET-20A##-EC-* and PRONET-20A##-EC-UL, "#" stands for A-Z to indicate encoder soft edition, "-*" stands for null to indicate general manufacture, "-*" stands for 0-9 or A-Z or any other form to indicate client number.

Servo motor –

AC Servo driver	Intended servo motor
PRONET-A5A##-*, PRONET-A5A##-UL, PRONET-A5A##-EC-*, PRONET-A5A##-EC-UL	**EM3A-A5A-x$F#&&&-***
PRONET-01A##-*, PRONET-01A##-UL PRONET-01A##-EC-*, PRONET-01A##-EC-UL	**EM3A-01A-x$F#&&&-***
PRONET-02A##-*, PRONET-02A##-UL, PRONET-02A##-EC-*, PRONET-02A##-EC-UL	**EM3A-02A-x$F#&&&-*, EMJ-02APB&&-UL**
ProNet-E-04A-UL, **PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-*, PRONET-04A##-EC-UL**	**EMJ-04APB&&-UL, EM3A-04A-x$F#&&&-***
PRONET-08A##-*, PRONET-08A##-UL, PRONET-08A##-EC-*, PRONET-08A##-EC-UL	**EMJ-08APB&&-UL, EM3A-08A-x$F#&&&-***
ProNet-E-10A-UL, **PRONET-10A##-*, PRONET-10A##-UL, PRONET-10A##-EC-*, PRONET-10A##-EC-UL**	**EMG-10APB&&-UL, EMJ-10APB&&-UL, EM3A-10A-x$F#&&&-***
PRONET-15A##-*, PRONET-15A##-UL, PRONET-15A##-EC-*, PRONET-15A##-EC-UL	**EMG-15APB&&-UL, EM3A-15A-x$F#&&&-***
ProNet-E-20A-UL, **PRONET-20A##-*, PRONET-20A##-UL, PRONET-20A##-EC-*, PRONET-20A##-EC-UL**	**EMG-20APB&&-UL, EM3A-20A-x$F#&&&-***
*	*
	*
*	*
*	

GENERAL:

The series ProNet are open type, Single or three phase input and three phase output, variable voltage and variable frequency (VVVF) motor drives intended to be used in industrial control applications for pollution degree 2 environments. They provide variable speed control to motor and provide solid state overload protection.

RATINGS:

Environmental –

Maximum Surrounding Air Temperature: 55 °C

Enclosure: Open Type

Pollution Degree: 2

Electrical -

Model	Electrical rating							
	Input				Output (Three Phase)			
	Voltage (Vac)@@	Phase	Current (A)	Frequency (Hz)	Voltage (Vac)	Current (A)	Frequency (Hz)	Power HP(KW)
PRONET-A5A##-* PRONET-A5A##-UL, PRONET-A5A##-EC-*, PRONET-A5A##-EC-UL	**170-250&&**	**Single**	**0.45**	**50/60**	**0-200**	**0.6**	**0-500**	**0.05**
PRONET-01A##-* PRONET-01A##-UL, PRONET-01A##-EC-*, PRONET-01A##-EC-UL	**170-250&&**	**Single**	**0.9**	**50/60**	**0-200**	**1.1**	**0-500**	**0.1**
PRONET-02A##-* PRONET-02A##-UL, PRONET-02A##-EC-*, PRONET-02A##-EC-UL	**170-250&&**	**Single**	**1.8**	**50/60**	**0-200**	**1.8**	**0-500**	**0.2**
ProNet-E-04A-UL **PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-*, PRONET-04A##-EC-UL**	170-250**&&**	Single	3.7	50/60	0-200	**3.3**	0-**500**	1/2 (0.4)
*	*	*	*	*	*	*	*	*
PRONET-08A##-* PRONET-08A##-UL, PRONET-08A##-EC-*, PRONET-08A##-EC-UL	**&#**	**Three**	**3.2**	**50/60**	**0-200**	**4.0**	**0-500**	**0.75**

(Cont'd)

Model	Electrical rating							
	Input				Output (Three Phase)			
	Voltage (Vac)@@	Phase	Current (A)	Frequency (Hz)	Voltage (Vac)	Current (A)	Frequency (Hz)	Power HP(KW)
ProNet-E-10A-UL PRONET-10A##-* PRONET-10A##-UL, PRONET-10A##-EC-*, PRONET-10A##-EC-UL	&#	Three	4.8	50/60	0-200	6.0	0-500	1 (1)
*	*	*	*	*		*	*	*
PRONET-15A##-* PRONET-15A##-UL, PRONET-15A##-EC-*, PRONET-15A##-EC-UL	&#	Three	7.2	50/60	0-200	9.3	0-417	1.5
ProNet-E-20A-UL PRONET-20A##-* PRONET-20A##-UL, PRONET-20A##-EC-*, PRONET-20A##-EC-UL	&#	Three	9.6	50/60	0-200	12	0-417	2 (2)

Note:

@@ - Any value or range within 170-250Vac or 170Y/98~250Y/144Vac as marked input voltage is permitted.

&& - Center earthed system

&# - 170Y/98~250Y/144Vac

Short Circuit Rating – 250 Vac, 35 kA

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

* USL indicates these products were investigated under the Standard for Power Conversion Equipment, UL**61800-5-1.**

* CNL indicates these products were investigated under the Standard for Industrial Control Equipment, CSA C22.2 No. 274-17, 2nd Edition.

Note: CNL = Canadian National Standards - Listed.
USL = United States Standards - Listed.

Model difference -

Model ProNet-E-04A-UL is identical to models PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-* and PRONET-04A##-EC-UL except coder and communication module; And Model ProNet-E-04A-UL is identical to models PRONET-A5A##-*, PRONET-A5A##-UL, PRONET-A5A##-EC-*, PRONET-A5A##-EC-UL, PRONET-01A##-*, PRONET-01A##-UL, PRONET-01A##-EC-*, PRONET-01A##-EC-UL, PRONET-02A##-*, PRONET-02A##-UL, PRONET-02A##-EC-* and PRONET-02A##-EC-UL except ratings and some circuits not related to electrical safety. Unless specified describing in report, ProNet-E-04A-UL represents all these modes in this report.

Model ProNet-E-10A-UL is identical to models PRONET-10A##-*, PRONET-10A##-UL, PRONET-10A##-EC-* and PRONET-10A##-EC-UL except coder and communication module; And model ProNet-E-10A-UL is identical to models PRONET-08A##-*, PRONET-08A##-UL, PRONET-08A##-EC-* and PRONET-08A##-EC-UL except ratings and some circuits not related to electrical safety. Unless specified describing in report, ProNet-E-10A-UL represents all these modes in this report.

Model ProNet-E-20A-UL is identical to models PRONET-20A##-*, PRONET-20A##-UL, PRONET-20A##-EC-* and PRONET-20A##-EC-UL except coder and communication module; and Model ProNet-E-20A-UL is identical to models PRONET-15A##-*, PRONET-15A##-UL, PRONET-15A##-EC-* and PRONET-15A##-EC-UL except ratings and some circuits not related to electrical safety. Unless specified describing in report, ProNet-E-20A-UL represents all these modes in this report.

CONSTRUCTION DETAILS:

The product shall be constructed in accordance with the Section General and the following description.

Corrosion Protection - All metal parts are of corrosion resistant material, or are plated, painted or equivalent as corrosion protection.

Tolerances – Dimensions are nominal unless otherwise specified.

Grounding – The pressure wire connector intended for connection for field installed equipment, grounding conductor shall be plainly identified such as being marked "G", "GRD", "Ground", "Grounding", or equivalent or with the grounding symbol ⏚ (IEC Publication 417, Symbol 5019).

Spacing –

The minimum spacings are determined based on pollution degree 2 and Overvoltage Category III in accordance with UL 61800-5-1, and Canadian Standard C22.2 No. 274. From UL 61800-5-1, the Standard for Adjustable Speed Electrical Power Drive Systems – Part 5-1: Safety Requirements – Electrical, Thermal and Energy, First Edition, Tables 9 and 10, and CSA C22.2 No. 274-17, Table 28 and 40.

Field Wiring Spacings – The following spacings are maintained: (in accordance with Table DVF.1 (column A) of UL 61800-5-1 and Table 6 (Group A) of CSA C22.2 No. 274-17).

MARKINGS:

Marking – The following markings shall be appeared on the device by molded, die-stamped, paint-stenciled, stamped, laser engraved or etched in metal or indelibly stamped on an aluminum, pressure-sensitive label secured by adhesive. Unless otherwise specified, pressure sensitive labels which contain any of the required markings, shall be R/C (PGDQ2) or R/C (PGJI2), Printing Material, it shall be rated for a max. operating ambient of 62 °C. Unless specified otherwise within this report, the printing material shall also be suitable for 0 °C (indoor use) operating ambient. The material shall be suitable for use on each type of surface to which applied. When R/C (PGJI2) Printing Material was employed, The combination of the ink (ribbon) and the label material shall be used per the manufacturer's UL specifications. The printing of the label shall be done using compatible printing equipment.

1. Listee's name or Trademark
2. Model designation
3. The electrical ratings
4. Factory Identification if necessary

MARKINGS (Cont'd):

Installation and Operating Instructions are provided with each device. The following markings shall appear in one of the following locations: shipped separately with the device; on a separable, self-adhesive permanent label that is shipped with the device; or anywhere on the device itself.

1. "Maximum surrounding air temperature rating of 55 °C" or equivalent.

2. "Solid State Motor Overload Protection: 300% of motor FLA." or equivalent. When the protection level is adjustable, it shall be provided with instructions for adjustment, or make reference to the manual for adjustment instructions.

3. Suitable For Use on a Circuit Capable of Delivering Not More Than 35,000 rms Symmetrical Amperes, 250 Volts Maximum." or equivalent.

4. "Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes" or equivalent.

5. Branch circuit short protection was provided by listed (DIVQ) inverse-time circuit breaker.

Model	Breaker Rating
ProNet-E-04A-UL	250V/15A
*	*
ProNet-E-10A-UL	250V/20A
*	*
*	*
ProNet-E-20A-UL	250V/25A

6. "This equipment is to be installed in an enclosure that provides a Pollution Degree 2 (controlled) environment." or equivalent.

7. "Motor over temperature protection is not provided by the drive." or equivalent.

MARKINGS (Cont'd):

8. Field Wiring Terminal Markings – Wiring terminals shall be marked to indicate the proper connections for power supply and load, or a wiring diagram coded to the terminal marking shall be securely attached to the device.

   "Use 75°C Copper wire **Only**" or equivalent.

Model	Terminal rating	Input	Output
ProNet-E-04A-UL	Torque (Lb.in)	N/A	N/A
	Wire range(AWG)	14	14
ProNet-E-10A-UL	Torque (Lb.in)	N/A	N/A
	Wire range(AWG)	14	14
ProNet-E-20A-UL	Torque (Lb.in)	N/A	N/A
	Wire range(AWG)	14	14

9. **ProNet-E-04A-UL and ProNet-04A Series: "Input shall be center earthed system" or equivalent.**

10. **For models ProNet-E-04A-UL, PRONET-04A##-*, PRONET-04A##-UL, PRONET-04A##-EC-* and PRONET-04A##-EC-UL: "Heatsink should be spaced at least ¼ in (6.4 mm) from the mounting surface" or equivalent.**

CAUTIONARY MARKING:

Cautionary markings shall be located on a part that is not removable without impairing the operation or appearance of the equipment.

A cautionary marking shall be prefixed with the word "CAUTION " or "WARNING," as applicable, in letters not less than 1/8 inch (3.2 mm) high. The remaining letters of such marking, unless specified otherwise in individual marking requirements, shall not be less than 1/16 inch (1.6 mm) high.

A cautionary marking intended to instruct the operator shall be legible and visible to the operator during normal operation of the equipment. A marking that provides servicing instructions shall be legible and visible when such servicing is being performed.

"CAUTION – Risk of Electric Shock" should be provided, followed by instructions to discharge the Bus Capacitor or indicating the time required (5 minutes) for Bus Capacitor to discharge to a level below 50 Vdc.

ILLUSTRATIONS REFERENCE:

Illustrations – In this report, the following illustrations shall be used as supplementary information where specifically noted.

No.	Description
ILL. 1	Dimension of Right and left housing for Model **ProNet-E-04A-UL**
ILL. 2	Dimension of Right and left housing for Model **ProNet-E-10A-UL**
ILL. 3	Dimension of Right and left housing for Model **ProNet-E-20A-UL**
ILL. 4	Dimension of Heat sink for Model **ProNet-E-04A-UL**
ILL. 5	Dimension of Heat sink for Model **ProNet-E-10A-UL**
ILL. 6	Dimension of Heat sink for Model **ProNet-E-20A-UL**
ILL. 7	Dimension of BOP Cover for Model **ProNet-E-04A-UL**
ILL. 8	Dimension of BOP Cover for Model **ProNet-E-10A-UL** and **ProNet-E-20A-UL**
ILL. 9	Specifications of Common mode choke(L1) for Model **ProNet-E-04A-UL, ProNet-E-10A-UL** and b
ILL. 10	Specifications of Transformer (T1) for Model **ProNet-E-04A-UL**
ILL. 11	Specifications of Transformer (T1) for Model ProNet-E-10A-UL
ILL. 12	Specifications of Transformer (T1) for Model ProNet-E-20A-UL
ILL. 13	Power and control board layout for Model ProNet-E-04A-UL
ILL. 14	Power and control board layout for Model ProNet-E-10A-UL
ILL. 15	Power and control board layout for Model ProNet-E-20A-UL

Model **ProNet-E-04A-UL** – FIG. 1, 2
Model **ProNet-E-10A-UL** – FIG. 3, 4
Model **ProNet-E-20A-UL** – FIG. 5, 6

General – FIG. 1, 2 is the assembly and disassembly view of Model **ProNet-E-04A-UL**, It is representative of other model ProNet-E-04AUL; FIG. 3, 4 is the assembly and disassembly view of Model **ProNet-E-10A-UL**, It is representative of other model ProNet-E-10AUL; FIG. 5, 6 is the assembly and disassembly view of Model **ProNet-E-20A-UL**, It is representative of other model ProNet-E-20AUL.

1. Housing - R/C (QMFZ2), **rated HB or better, Min. 85°C.** Measured Min. 1.5 mm thick.

Model	Left/Right Housing	Approx. Height (mm)	Approx. Width (mm)	Approx. Length (mm)	ILL. No
ProNet-E-04A-UL	Right Housing	160	40	180	ILL. 1
	Left Housing	160	40	180	
ProNet-E-10A-UL	Right Housing	186	65	180	ILL. 2
	Left Housing	186	65	180	
ProNet-E-20A-UL	Right Housing	186	65	180	ILL. 3
	Left Housing	186	65	180	

2. Heat sink (Grounded) – Aluminium, Refer to table below for detailed information:

Model	Approx. Height (mm)	Approx. Width (mm)	Approx. Length (mm)	ILL. No
ProNet-E-04A-UL	160	40	179	ILL. 4
ProNet-E-10A-UL	186	84	162	ILL. 5
ProNet-E-20A-UL	186	100	162	ILL. 6

3. BOP Cover - R/C (QMFZ2), **rated HB or better, Min. 85°C.** Measured Min. 1.5 mm thick.

Model	Approx. Height (mm)	Approx. Width (mm)	Approx. Length (mm)	ILL. No
ProNet-E-04A-UL	160	40	180	ILL. 7
ProNet-E-10A-UL	186	65	180	ILL. 8
ProNet-E-20A-UL	186	65	180	ILL. 8

4. Fan – R/C (GPWV2/8), Refer to table below for detailed information:

Model	Number	Manufacturer	File No.	Series	Rating	Air Flow
ProNet-E-04A-UL	N/A	N/A	N/A	N/A	N/A	N/A
ProNet-E-10A-UL	1	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DA06010B24HA	24 Vdc/ 0.15 A	17.8 CFM
ProNet-E-20A-UL	1	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DA06015B24MA	24 Vdc/ 0.12 A	18.5 CFM

5. Brake Resistor assembly – One provided, Mounted on heatsink and secured by screws, two internal wire connected to terminal block, it may be go through heatsink and power board and secured in place by physical-fit. Refer to table below for detailed information:

Frame	Brake resistor assembly manufacturer	Brake resistor assembly Part No.
ProNet-E-04A-UL	N/A	N/A
ProNet-E-10A-UL	**SHANGHAI KRAH ELECTRONICS CO., LTD**	**HPRS100 50R J 250MM**
ProNet-E-20A-UL	**SHANGHAI KRAH ELECTRONICS CO., LTD**	**RXLG-H-F80W-40R 200MM**

*

Frame	Component	CCN	Manufacturer	Type	Rating
ProNet-E-04A-UL	N/A	N/A	N/A	N/A	N/A
ProNet-E-10A-UL	Resistor	N/A	N/A	N/A	60W, 50 ohm
ProNet-E-20A-UL	Resistor	N/A	N/A	N/A	80W, 40 ohm
ProNet-E-10A-UL Component CN2/ ProNet-E-20A-UL Component CN1	Terminal block	XCFR2/8	DINKLE ENTERPRISE CO LTD (E102914)	WKA500-02P	300 V, 10 A
			Alternate – DEGSON ELECTRONICS CO LTD (E228872)	DG245-5.0-02P-11-00AH	FW=2, Rating 300V, 10A, UG=D, 28-12 AWG (SOL/STR), 105°C.
	Wire	AVLV2/8	N/A	N/A	600 V, 200°C

Model **ProNet-E-04A-UL** – FIG. 2

General – FIG. 2 is the disassembly view of Model **ProNet-E-04A-UL**, It is representative of other model ProNet-E-04AUL except where variations are specifically described below.

1. Printed Wiring Board - R/C (ZPMV2), Rated minimum V-0 and Elec. RTI minimum 130 °C, Meet UL796 DSR.

2. Connector (TM1) - R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	0135-39-S1174706	300 V, 10 A,, FW=1, UG=B,D, 105 °C	E102914	Dinkle Enterprise Co Ltd
Plug	0134-32-4469-06	300 V, 10 A, CU, FW=2, UG=B,D, 14-26 AWG (Sol/Str), 105 °C	E102914	Dinkle Enterprise Co Ltd

Alternate – Connector (TM1) – R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	8EDGRCB-7.5-05P-11-23AH	300 V, 10 A, FW=1, UG=D, 105 °C	E228872	DEGSON ELECTRONICS CO LTD
Plug	8EDGKB-7.5-05P-11-13AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (Sol/Str), 105 °C	E228872	DEGSON ELECTRONICS CO LTD

3. Connector (TM2) - R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	0135-19-4466-05	300 V, 10 A,, FW=1, UG=B,D, 105 °C	E102914	Dinkle Enterprise Co Ltd
Plug	0134-12-4468-05	300 V, 10 A, CU, FW=2, UG=B,D, 14-26 AWG (Sol/Str), 105 °C	E102914	Dinkle Enterprise Co Ltd

*

10. Bridge Diode (DB2) - R/C (QQQX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
GBJ2508	800 V, 25 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)	E217139	HY ELECTRONIC (CAYMAN) LTD TAIWAN BRANCH

Alternate Bridge Diode (DB2) – R/C (QQQX2), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
GBJ25K	800 V, 25 A, Maximum Operating temperature 150 °C (Isolating voltage 2500 Vac)	E241476	SUZHOU GOOD-ARK ELECTRONICS CO LTD

11. Fuse (FU1) – **Optional.** R/C (JDYX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
0215015	250 Vac, 15 A	E10480	LITTELFUSE INC

12. Thermistor (TH2) – **Manufactured by NANJING SHIHENG ELECTRONICS CO LTD, model MF73T-1-6/11, rated at 220Vac, 11A.**
13. Inrush relay (RY1) – R/C (NLDX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
G5LA-14-DC12	277Vac, 10A, general use, 85°C	E41643	OMRON CORP

Alternate – Inrush relay (RY1) – R/C (NLDX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
G2RL-1-E	250Vac, 16A, general use, 85°C	E41643	OMRON CORP

14. Inrush Resistance (R28) – Rated 22 Ω, 1 W.

Alternate – Inrush resistance (R28) – Rated 10 Ω, 1 W.

15. Capacitor (C22) - R/C (FOWX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
MKP62	305 Vac, 0.1 µF	E186600	XIAMEN FARATRONIC CO LTD

16. Buffer capacitor (C34) - Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
941C6P22K-F	600 Vdc,0.22uF	N/A	N/A

Alternate – Buffer capacitor (C34) – Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
C161V224K0A1000	600 Vdc, 0.22uF	N/A	XIAMEN FARATRONIC CO LTD

*

17. Bus Capacitor (C30, C32) - Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
CD294	400 V, 330 µf, 105 °C	N/A	**R/C (CZEH2)**, Nantong Jianghai Capacitor Co., Ltd **(E355297)**

18. IGBT (PS1) – R/C (QQQX2), Secured to heatsink and Power board by two screws. Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
FSBB15CH60C	600 V, 15 A, (Maximum case temperature 125 °C, Isolating voltage 2500 Vac)	E209204	Fairchild Semiconductor Corporation

19. Electrolytic Capacitor (C37, C40, C46) - 50 V, 47 uf

20. Diode (ZD1, ZD2, ZD3) – 24 V, 0.5 W.

21. Current sense resistor (RG1, RG2, RG3) - Rated 4 mΩ, 1/8 W.

    Alternate Current sense resistor (RC1, RC2) – Rated 13 mΩ, 2 W.

22. Balance Resistance (R54) - Rated 2.5 Ω, 20 W.

23. Diode (D12, D13, D14) – Rated 600 Vac, 10 A.

24. Resistor (RC1, RC2) – Rated 13 mΩ,3 W.

25. Optical isolator (PC2) – R/C (FPQU2/8), Refer to table below for detailed information:

Type	Rating	File No./CN	Manufacturer
ACPL-W314	(Isolating voltage 5000 Vac, Maximum operation temperature 110°C)	E55361/088324	AVAGO TECHNOLOGIES PTE LTD

26. Surge Protective Device (XX1) – R/C (VZCA2), Refer to table below for detailed information:

Type	Rating	File No./CN	Manufacturer
S10K420E2K1	420 V (VPR 2000V), SPD Type 3 application	E321126/241538	EPCOS (ZHUHAI FTZ) CO LTD

Alternate – Surge Protective Device (XX1) – R/C (VZCA2), Refer to table below for detailed information:

Type	Rating	File No./CN	Manufacturer
FNR-10K471	300 V dc, 3kA, SPD Type 5 application, 105°C	E325462	GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD. XIAHUA NEW SENSITIVE COMPONENTS BRANCH

27. Thermistor (TH1) – **Manufactured by GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD, model NTC5D-9MTF2E3, rated at 240Vac, 3A.** *

28. Capacitor (C1) – R/C (FOWX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
MKP62	305 Vac, 0.1 µF	E186600	XIAMEN FARATRONIC CO LTD

29. Common Mode Choke (L1) - **Manufactured by XIAMEN FARATRONIC CO LTD, Type UU10.5-YH150348.**Constructed as below, Refer to ILL. 9 for construction details:

A. Core – Ferrite

B. Bobbin – R/C (QMFZ2), CHANG CHUN PLASTICS CO LTD (E59481), Type T375J, Rated V-0, RTI 150 °C. required minimum 0.75 mm, (meets DSR requirement).

C. Coil – **R/C (OBMW2), various.**

Model **ProNet-E-20A-UL** – FIG. 6

General – FIG. 6 is the disassembly view of Model **ProNet-E-20A-UL**, It is representative of other model **ProNet-E-10A-UL**, ProNet-E-10AUL and ProNet-E-20AUL except where variations are specifically described below.

1. Printed Wiring Board - R/C (ZPMV2), Rated minimum V-0 and Elec. RTI minimum 130 °C, Meet UL796 DSR.

2. Connector (TM1) - R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	0135-39-B1158206	300 V, 10 A,, FW=1, UG=B,D, 105 °C	E102914	Dinkle Enterprise Co Ltd
Plug	0134-32-B1128506	300 V, 10 A, CU, FW=2, UG=B,D, 14-26 AWG (Sol/Str), 105 °C	E102914	Dinkle Enterprise Co Ltd

Alternate – Connector (TM1) only for **ProNet-E-10A-UL –** R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	8EDGRCB-7.5-06P-11-01AH	300 V, 10 A,, FW=1, UG=D, 105 °C	E228872	DEGSON ELECTRONICS CO LTD
Plug	8EDGKB-7.5-06P-11-01AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (Sol/Str), 105 °C	E228872	DEGSON ELECTRONICS CO LTD

3. Connector (TM2) - R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	0135-39-B1158205	300 V, 10 A,, FW=1, UG=B,D, 105 °C	E102914	Dinkle Enterprise Co Ltd
Plug	0134-32-B1128505	300 V, 10 A, CU, FW=2, UG=B,D, 14-26 AWG (Sol/Str), 105 °C	E102914	Dinkle Enterprise Co Ltd

*

Alternate – Connector (TM2) only for **ProNet-E-10A-UL** – R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	8EDGRCB-5.0-05P-11-01AH	300 V, 10 A,, FW=1, UG=D, 105 °C	E228872	DEGSON ELECTRONICS CO LTD
Plug	8EDGKB-5.0-05P-11-01AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (Sol/Str), 105 °C	E228872	DEGSON ELECTRONICS CO LTD

4. Connector (TM3) - R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	0135-39-B1158203	300 V, 10 A,, FW=1, UG=B,D, 105 °C	E102914	Dinkle Enterprise Co Ltd
Plug	0134-32-B1128503	300 V, 10 A, CU, FW=2, UG=B,D, 14-26 AWG (Sol/Str), 105 °C	E102914	Dinkle Enterprise Co Ltd

Alternate – Connector (TM3) only for **ProNet-E-10A-UL** – R/C (XCFR2/8), Refer to table below for detailed information:

	Cat. No.	Rating	File No.	Manufacturer
Socket	8EDGRCB-7.5-03P-11-01AH	300 V, 10 A,, FW=1, UG=D, 105 °C	E228872	DEGSON ELECTRONICS CO LTD
Plug	8EDGKB-7.5-03P-11-01AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (Sol/Str), 105 °C	E228872	DEGSON ELECTRONICS CO LTD

*5. Surge Protective Device – R/C (VZCA2), Refer to table below for detailed information:

Type	Rating	File No./CN	Manufacturer
S10K420E2K1	420 V (VPR 2000V), SPD Type 3 application	E321126/241538	EPCOS (ZHUHAI FTZ) CO LTD

See below table component ID detail.

Model ProNet-E-10A-UL Component ID	Model ProNet-E-20A-UL Component ID
XX1~XX7	**XX2~XX9**

Alternate – Surge Protection Device – R/C (VZCA2/8), GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD, XIANHUA NEW SENSITIVE COMPONENTS BRANCH (E325462), Type FNR-10K471, MCOV = 300 Vac, MLV = 1470 V, SPD Type 5 application.

*6. Across-the-line capacitor– R/C (FOWX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
MKP62	275 Vac, 0.022 µF	E186600	XIAMEN FARATRONIC CO LTD

See below table component ID detail.

Model ProNet-E-10A-UL Component ID	Model ProNet-E-20A-UL Component ID
C63~C65	**C6, C11, C12**

7. Line-to-ground capacitor – R/C (FOWX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
B32021A3472	250 Vac,4700pF	E97863	EPCOS ELECTRONIC COMPONENTS S A

See below table component ID detail.

Model ProNet-E-10A-UL Component ID	Model ProNet-E-20A-UL Component ID
C5, C6	**C2, C4**

Alternate – Line-to-ground capacitor (C5, C6) only for **ProNet-E-10A-UL** – R/C (FOWX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
C43	300 Vac, 4700pF, maximum temperature 110°C	E186600	XIAMEN FARATRONIC CO LTD

8. Diode () - Rated 600 VAC, 1 A. **See below table component ID detail.**

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
D17~D19	**D1, D2, D4**

9. Discharge Resistance – Rated 33 KΩ, 1 W. **See below table component ID detail.**

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
R5~R7	**R2, R3, R9**

10. Optical Isolator - R/C (FPQU2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
TLP762	(Isolating voltage 4000 Vac, Maximum operation temperature 100°C)	E67349	TOSHIBA CORP, SEMICONDUCTOR CO DISCRETE SEMICONDUCTOR DIV
TLP627	(Isolating voltage 5000 Vac, Maximum operation temperature 100°C)	E67349	TOSHIBA CORP, SEMICONDUCTOR CO DISCRETE SEMICONDUCTOR DIV

See below table component ID detail.

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
PC8	**PC1**

Alternate – Optical Isolator – R/C (FPQU2), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
LTV-852	(Isolating voltage 5000 Vac, Maximum operation temperature 115°C)	E113898	LITE-ON TECHNOLOGY CORP

11. Bridge Diode - R/C (QQQX2/8), Refer to table below for detailed information:

Drive Model	Component ID	Bridge Diode Information
ProNet-E-10A-UL	**DB3, DB4**	**Manufactured by HY ELECTRONIC (CAYMAN) LTD TAIWAN BRANCH (E217139), Model GBJ2508, rated at 800 V, 25 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)**
		SUZHOU GOOD-ARK ELECTRONICS CO LTD (E241476), Model GBJ25K, rated at 800 V, 25 A, Maximum Operating temperature 150 °C (Isolating voltage 2500 Vac)
ProNet-E-20A-UL	**DB2**	**Manufactured by SHINDENGEN ELECTRONIC MANUFACTURING CO LTD (E142422), Model D30XT80, rated at 800 V, 30 A, Maximum Operating temperature 150°C (Isolating voltage 2500 Vac)**

*

12. Fuse (FU1) - R/C (JDYX2/8), **LITTELFUSE INC (E10480), r**efer to table below for detailed information:

Drive Model	Fuse Information
ProNet-E-10A-UL	Model 0215015, rated at 250 Vac, 15 A
ProNet-E-20A-UL	**Model 0324025, rated at 250 Vac, 25 A**

13. Thermistor (TH2) – **Manufactured by NANJING SHIHENG ELECTRONICS CO LTD, model MF73T-1-6/11, rated at 220Vac, 11A.**
14. Inrush relay (RY1) – R/C (NLDX2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
G5RL-1-E	277Vac, 16A, general use	E41643	OMRON CORP

Alternate – Inrush relay (RY1) – R/C (NLDX2/8), OMRON CORP (E41643), Type G2RL-1-E, Rating 250 V ac, 16A, general use.

15. *

16. Capacitor - R/C (FOWX2/8), **XIAMEN FARATRONIC CO LTD (E186600), model C40, rated at 300 Vac, 0.1uF, 27ohm.** Refer to table below for detailed information:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
RC3	**RC1**

17. Buffer capacitor – **Manufactured by CORNELL DUBILIER MARKETING,INC.** Refer to table below for detailed information:

Drive Model	**Component ID**	**Buffer capacitor Information**
ProNet-E-10A-UL	**C11**	**Model 941C6P22K-F, rated at 600 Vdc, 0.22uF**
ProNet-E-20A-UL	**C44**	**Model C352S155KD0C000, rated at 450 Vdc, 0.15uF**

*

18. Buffer capacitor (C88) **only for ProNet-E-10A-UL** - Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
DE2B3KY331KA2BM01	250 Vac, 330pF	E37921	MURATA MFG CO LTD

Alternate – Buffer capacitor (C88) only for **ProNet-E-10A-UL**, GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD. XIAHUA NEW SENSITIVE COMPONENTS BRANCH, Type CT7-X5Y5P4D331KTEW, Rating 250 Vac, 330pF.

19. Bus Capacitor – R/C (CZEH2), C1, C2 and C3 for model **ProNet-E-10A-UL**, C37, C40, C42 for model **ProNet-E-20A-UL**. Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
CD294	400 V, 560 µf, 105 °C	E355297	Nantong Jianghai Capacitor Co., Ltd

20. IGBT (PM1) – R/C (QQQX2), Secured to heatsink and Power board by two screws. Refer to table below for detailed information:

Model	Type	Rating	File No.	Manufacturer
ProNet-E-10A-UL	PS2176**7**	600 V, **30**A, (Maximum case temperature 125 °C, Isolating voltage 2500 Vac)	E80276	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV
ProNet-E-20A-UL	PS21A7A	600 V, 75 A, (Maximum case temperature 100 °C, Isolating voltage 2500 Vac)	E80276	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV

Alternate – IGBT (PM1) only for **ProNet-E-10A-UL** – R/C (QQQX2), secured to heatsink and power board by two screws. Refer to table below for detailed information:

Model	Type	Rating	File No.	Manufacturer
ProNet-E-10A-UL	PSS20S71F6	600V, 20A, (maximum case temperature 100 °C, Isolating voltage 2500 Vac)	E80276	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV

21.*

22. Diode – Rated 600 Vac, 10 A. **Refer to below table for component ID detail.**

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
D14~D16	**D16~D18**

23. Balance Resistance – **Refer to below table for detail.**

Drive Model	**Component ID**	**Resistance Information**
ProNet-E-10A-UL	R66	**6 ohm, 20W**
ProNet-E-20A-UL	**R36**	**2.5 ohm, 25W**

24. Resistor – **Refer to below table for detail.**

Drive Model	**Component ID**	**Resistance Information**
ProNet-E-10A-UL	RC1, RC2	**0.006 ohm, 3W**
ProNet-E-20A-UL	**R37, R38, R101, R102**	**0.006 ohm, 5W**

25. Optical isolator – R/C (FPQU2/8), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
ACPL-W314	(Isolating voltage 5000 Vac, Maximum operation temperature 110°C)	E55361/088324	AVAGO TECHNOLOGIES PTE LTD

Refer to below table for component ID detail.

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
PC7	**PC2**

26. *

27. Thermistor (TH1) - **Manufactured by GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD, model NTC5D-9MTF2E3, rated at 240Vac, 3A.**

28. Common Mode Choke - **Manufactured by XIAMEN FARATRONIC CO LTD, Type UU10.5-YH150348.**Constructed as below, Refer to ILL. 9 **and following table** for construction details:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
L2	**L1**

A. Core – Ferrite

B. Bobbin – R/C (QMFZ2), CHANG CHUN PLASTICS CO LTD (E59481), Type T375J, Rated V-0, RTI 150 °C. required minimum 0.75 mm, (meets DSR requirement).

C. Coil – **R/C (OBMW2), various.**

29. Across – the - line capacitor () – R/C (FOWX2/8), XIAMEN FARATRONIC CO LTD (E186600), Type MKP62, rated at 305 Vac, 0.1 µF. Refer to table below for detailed information:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
C67, C68	**C1, C3**

30. Bridge Diode - R/C (QQQX2/8), Refer to table below for detailed information:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
DB2	**DB1**

Type	Rating	File No.	Manufacturer
DB207	1000 V, 2 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)	E217139	HY ELECTRONIC (CAYMAN) LTD TAIWAN BRANCH

Alternate –R/C (QQQX2), Refer to table below for detailed information:

Type	Rating	File No.	Manufacturer
DB207	1000 V PRV, 1.5A, Maximum Operating temperature 125 °C (Isolating voltage 3000Vac)	E241476 / E230084	SUZHOU GOOD-ARK ELECTRONICS CO LTD

31. Electrolytic Capacitor - Rated 400 Vac, 82 uf. **Refer to below table for component ID.**

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
C4	**C5**

32. Transformer (T1) – For model **ProNet-E-20A-UL**, Createmax Electric Co Ltd. Part No. ETF01-B1, Refer to ILL.12 for detailed information. Constructed as follows:

Component	CCN	Manufacturer	File No.	Type	Rating
Core	N/A	N/A	N/A	N/A	Ferrite
Bobbin	QMFZ 2	CHANG CHUN PLASTICS CO LTD	E59481	T375J	Minimum 0.75 mm thick. Rated V-0, Meet DSR (HWI:1, HAI:0, CTI:3).
Primary/Secondary winding	OBMW 2	CHANGZHOU DAYANG WIRE & CABLE CO LTD	E158909	UEW/155	Wounded on bobbin
Insulation Tape	OANZ 2	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111	CT280	130 °C, Wrapped minimum one layer on winding
Varnish	OBOR 2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	E228349	T-4260(a)	130 °C

33. Transformer (T1) – For model **ProNet-E-10A-UL**, Createmax Electric Co Ltd. Part No. ETF01-C1, Refer to ILL.11 for detailed information. Constructed as follows:

Component	CCN	Manufacturer	File No.	Type	Rating
Core	N/A	N/A	N/A	N/A	Ferrite
Bobbin	QMFZ2	CHANG CHUN PLASTICS CO LTD	E304813	T375J	Minimum 0.75 mm thick. Rated V-0, Meet DSR (HWI:1, HAI:0, CTI:3).
Primary/Secondary winding	OBMW2	CHANGZHOU DAYANG WIRE & CABLE CO LTD	E158909	UEW/155	Wounded on bobbin
Insulation Tape	OANZ2	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111	CT280	130 °C, Wrapped minimum one layer on winding
Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	E228349	T-4260(a)	130 °C

34. Optical isolator – R/C (FPQU2/8), Refer to table below for detailed information:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
PC10	**PC3**

Type	Rating	File No.	Manufacturer
EL817	(Isolating voltage 5000 Vac, Maximum operation temperature 110°C)	E214129	EVERLIGHT ELECTRONICS CO LTD

35. Transistor – Rated Ie = 8 Ma(Isolating voltage 4000 Vdc).

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
U7, U8	**PC7, PC10**

36. Power switch (U1) – St, Type TOP246YN or TOP243YN, Rated Vcc = 6 V, Vi = 30 V. (Maximum case temperature 150 °C)

37. Connector - R/C (ECBT2/8), **WCON ELECTRONICS CO LTD (E248993), model 3110-34SG0BK00A1, rated 29.9 V, 0.8 A(Max operation temperature 105 °C).** Refer to table below for detailed information:

Model ProNet-E-10A-UL Component ID	**Model ProNet-E-20A-UL Component ID**
CN1	**CN3**

风华高科 广东风华高新科技股份有限公司
FENGHUA GUANGDONG FENGHUA ADVANCED TECHNOLOGY (HOLDING) CO., LTD.

REV.NO.:0

ROHS

承 认 书
SPECIFICATION FOR APPROVAL

CUSTOMER: 南京高上美电子有限公司

品 名 Part Name	LINE FILTER	
风华规格 FH. PartNumber	UU10.5-YH150979	
客户料号 Part NO.	5521R0	
规格书编号 DocumentNO.	YH-150979	请客户承认后回签本公司 Please return one copy after approved

变更记录表
Alter Record

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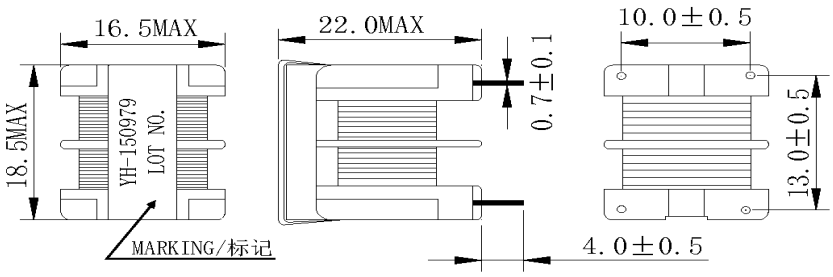
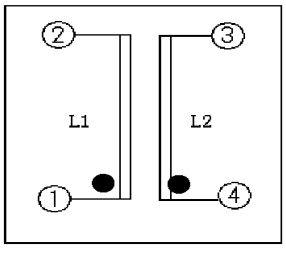
CUSTOMER	南京高上美电子有限公司	TYPE/DOC NO.:UU10.5-YH150979	P 1/2

1. APPEARANCE AND DIMENSION. /外观图: [Unit/单位:mm]



CONNECTION / 接线图



注：1）●表示卷始端。
2）产品含浸。

NOTE 1) The terminal length dimension excluding solder pendant. / 端子长度不包含锡尖
2) LOT No.表示
LOT NO. Example
(批量号 例)

FH 15 26 X
- X: Product line「生产线 A、B、C...」
- 26: Manufactured Week.「制造周」
- 15: Manufactured Year.「制造年(西历)」
- FH: Manufactured Company.「制造公司」

2.WINDING SPEC./卷线规格

WIRE /线材	2UEW Φ0.38mm	
PIN /端子	1--2	4--3
TURNS /圈数	60Ts(REF.)	60Ts(REF.)

广东风华高新科技股份有限公司 FENGHUA ADVANCED TECHNOLOGY (HOLDING) CO., LTD.	MODEL NO. : UU10.5-YH150979	
	PART NO. : 5521R0	
	PART NAME : LINE FILTER	
DESIGNED:谭新霖	CHECKED:肖永斌	APPROVED:王青山

CUSTOMER	南京高上美电子有限公司	TYPE/DOC NO.:UU10.5-YH150979	P 2/2

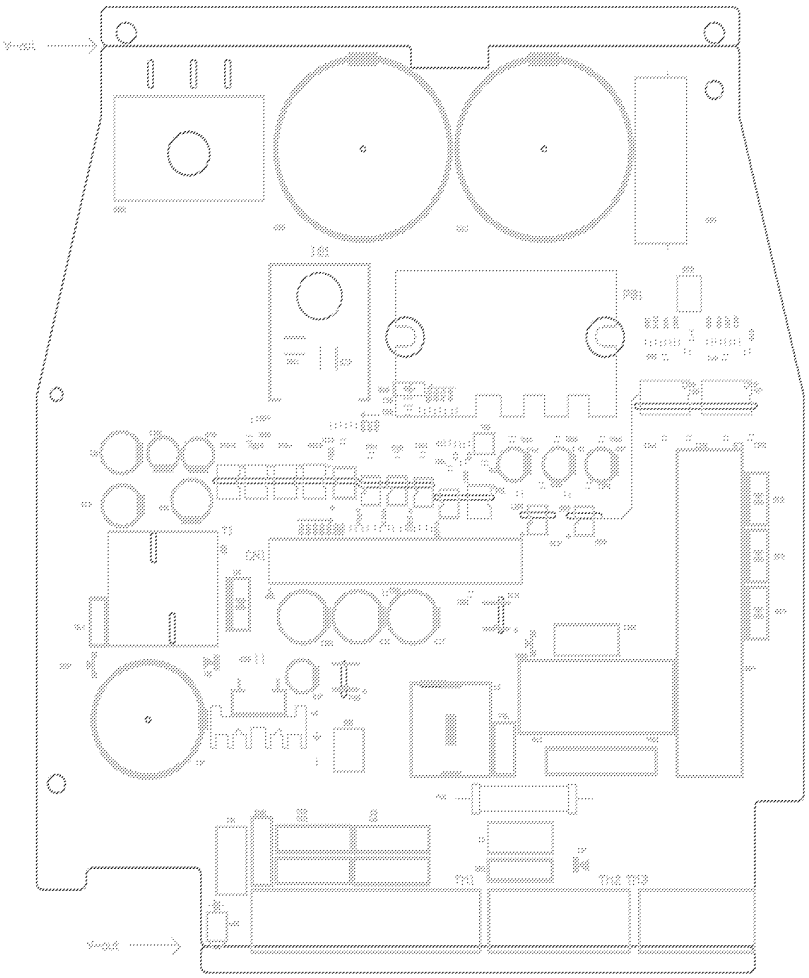
3. ELECTRICAL CHARACTERISTICS / 电气特性

ITEM / 项目	PIN NO. / 测定端子	SPEC. / 规格	CONDITION · EQUIPMENT/ 测定器·条件
INDUCTANCE 电感	1--2	5.5mH MIN	MICROTEST6377+6220 or EQUIVALENT (f=1kHz,0.25V)
	4--3		
L DIFFERENCE 电感偏差	|L1-L2|	0.5mH MAX	
DC RESISTANCE 直流电阻	1--2	0.45Ω MAX	CH3205AC or EQUIVALENT (at 25℃)
	4--3		
INSULATION RESISTANCE 绝缘电阻	COIL--COIL	100MΩ MIN	CH-9053A or EQUIVALENT at DC500V
WITHSTAND VOLTAGE 耐 電 圧	COIL--COIL	AC1.0KV 60S	CH-9053A or EQUIVALENT (CC=5mA)
	COIL--CORE	AC0.8KV 60S	

4. MATERIAL LIST / 材料明细表

NO.	COMPONENT 名称	MATERIAL 材质	MATERIAL SPEC. 材料规格
1	BOBBIN 骨架	PHENOL 电木 T375J	UU10.5
			or EQUIVALENT
2	CORE 磁芯	FERRITE 铁氧体	UU10.5
			or EQUIVALENT
3	WIRE 线材	POLYURETHANE COPPER 聚氨基甲酸酯铜线	2UEW Φ0.38
			or EQUIVALENT
4	CLIP 夹子	STEEL 钢	UU10.5
5	VARNISH 含浸液	EPOXY	1032
			or EQUIVALENT

广东风华高新科技股份有限公司 FENGHUA ADVANCED TECHNOLOGY (HOLDING) CO., LTD.	MODEL NO. : UU10.5-YH150979	
	PART NO. : 5521R0	
	PART NAME : LINE FILTER	
DESIGNED:谭新霖	CHECKED:肖永斌	APPROVED:王青山



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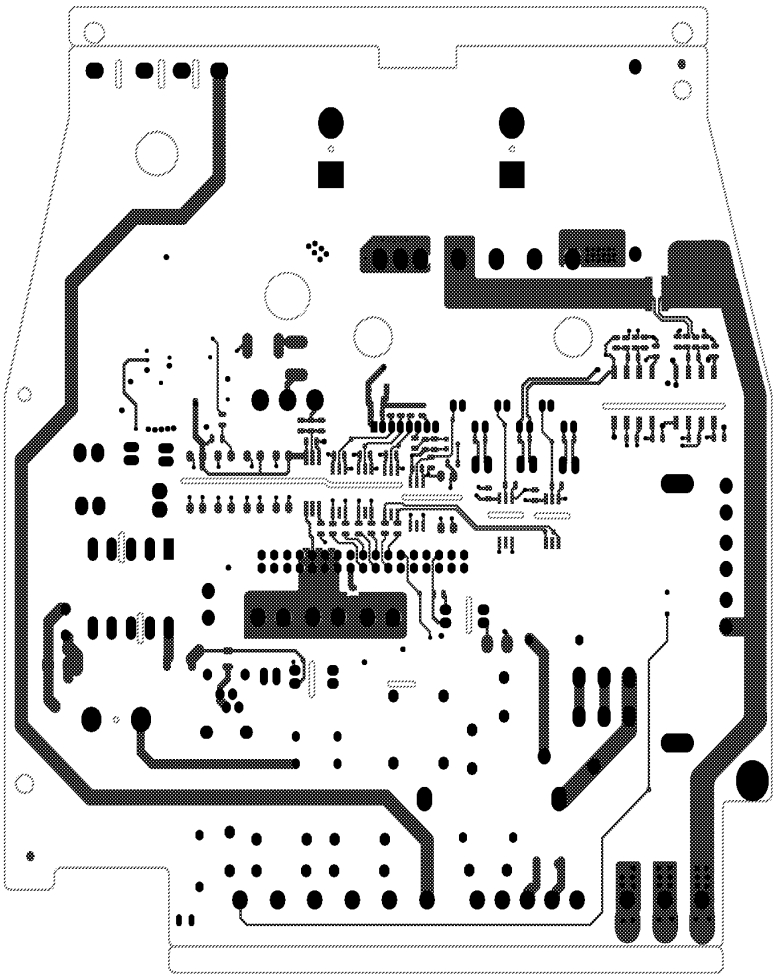

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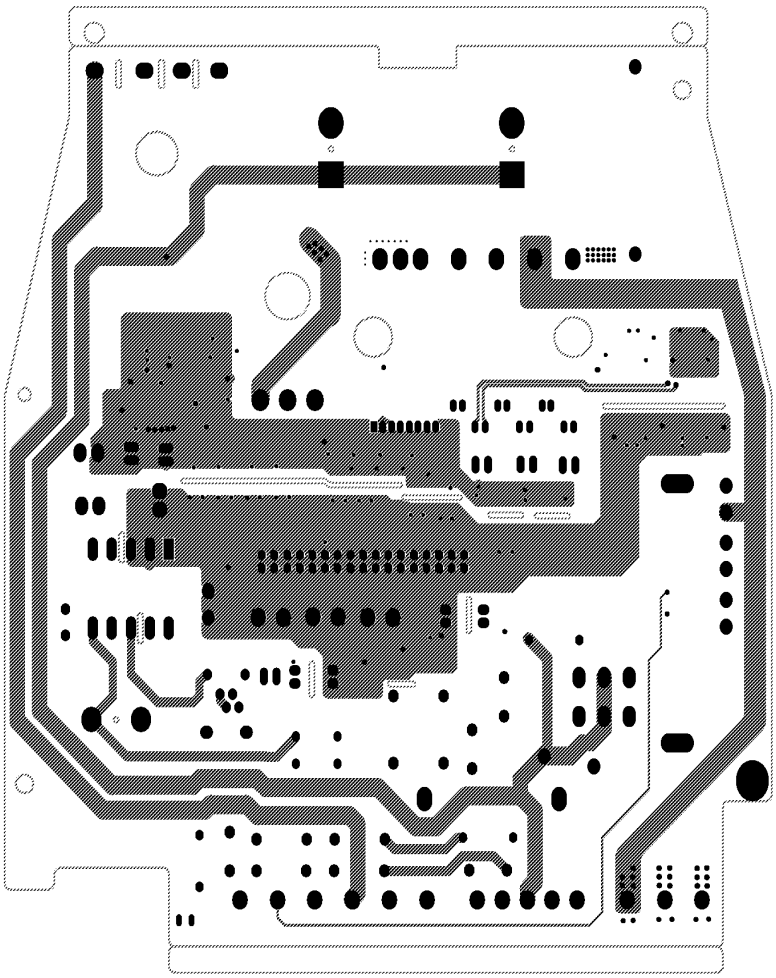

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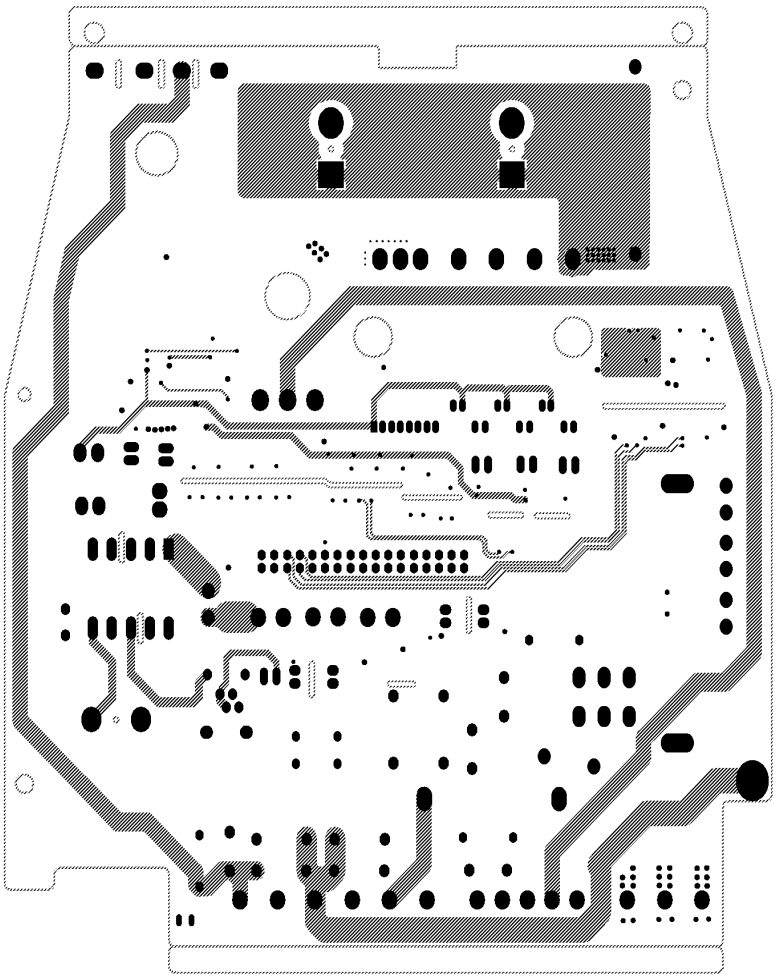

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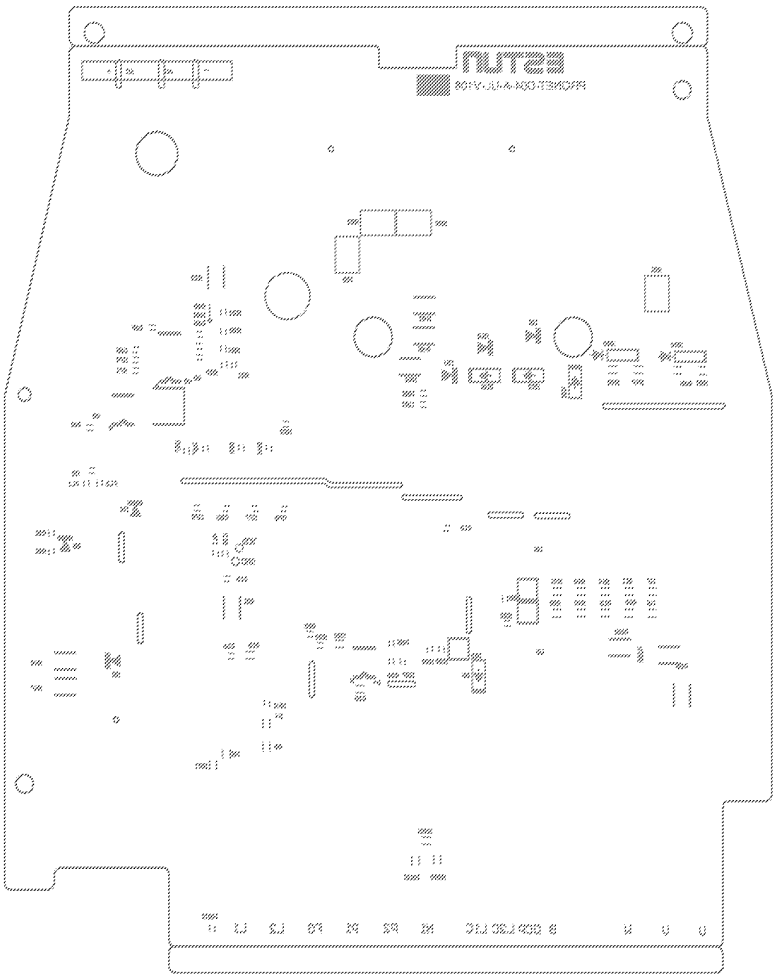

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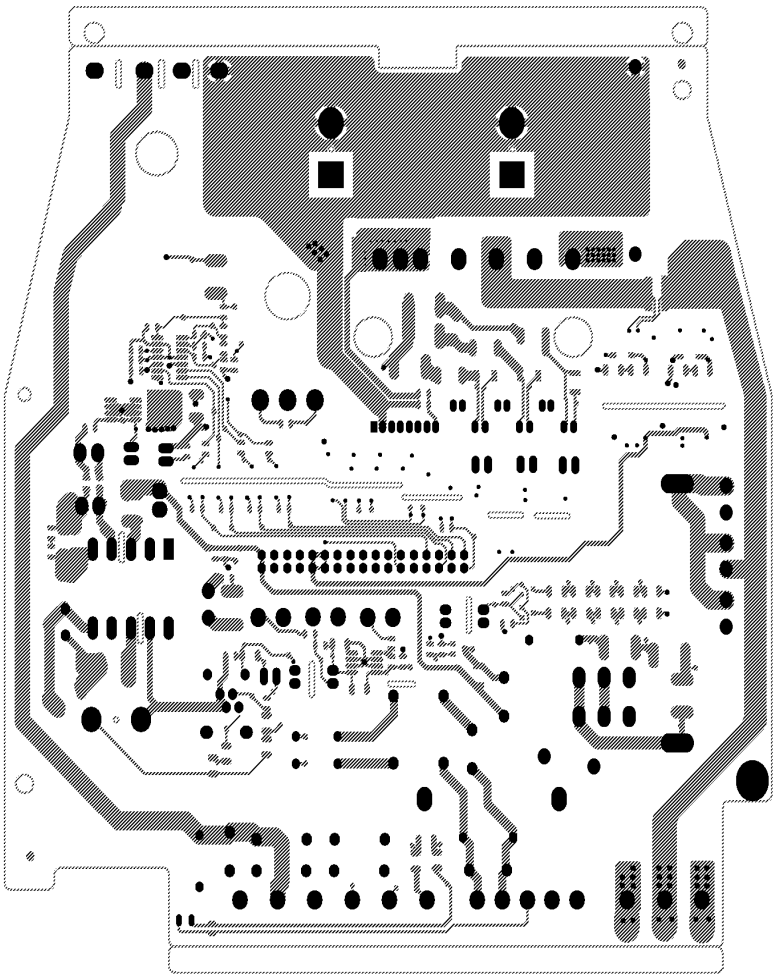

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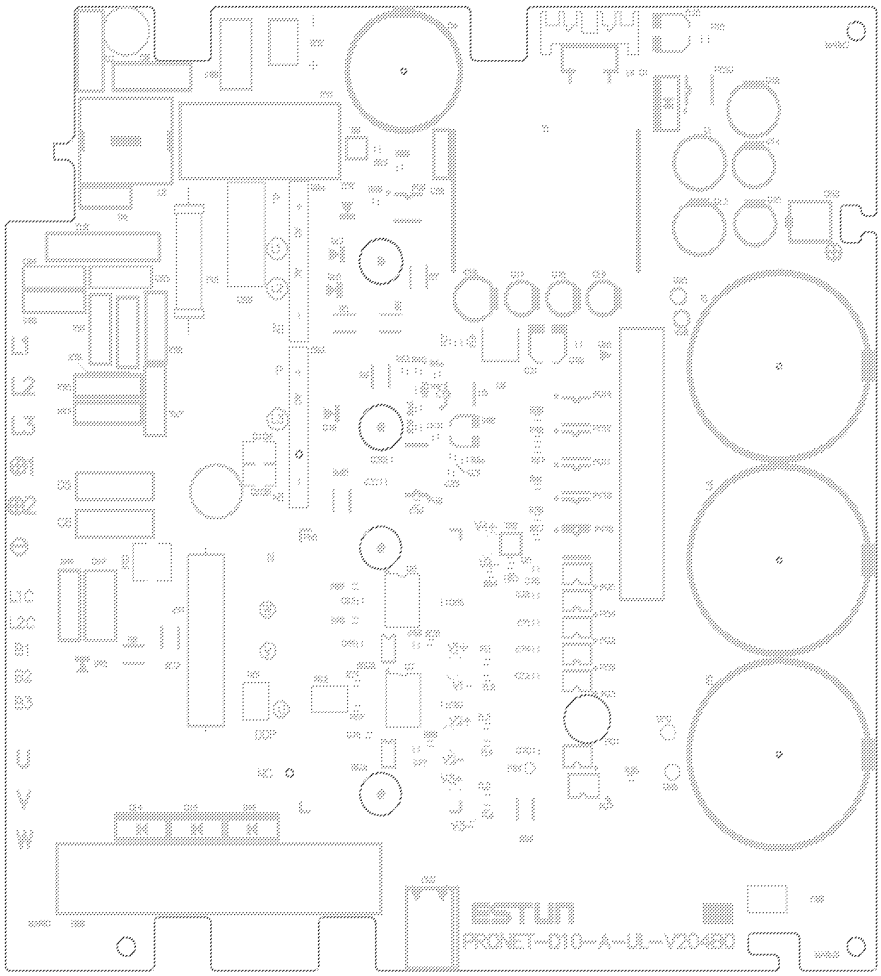

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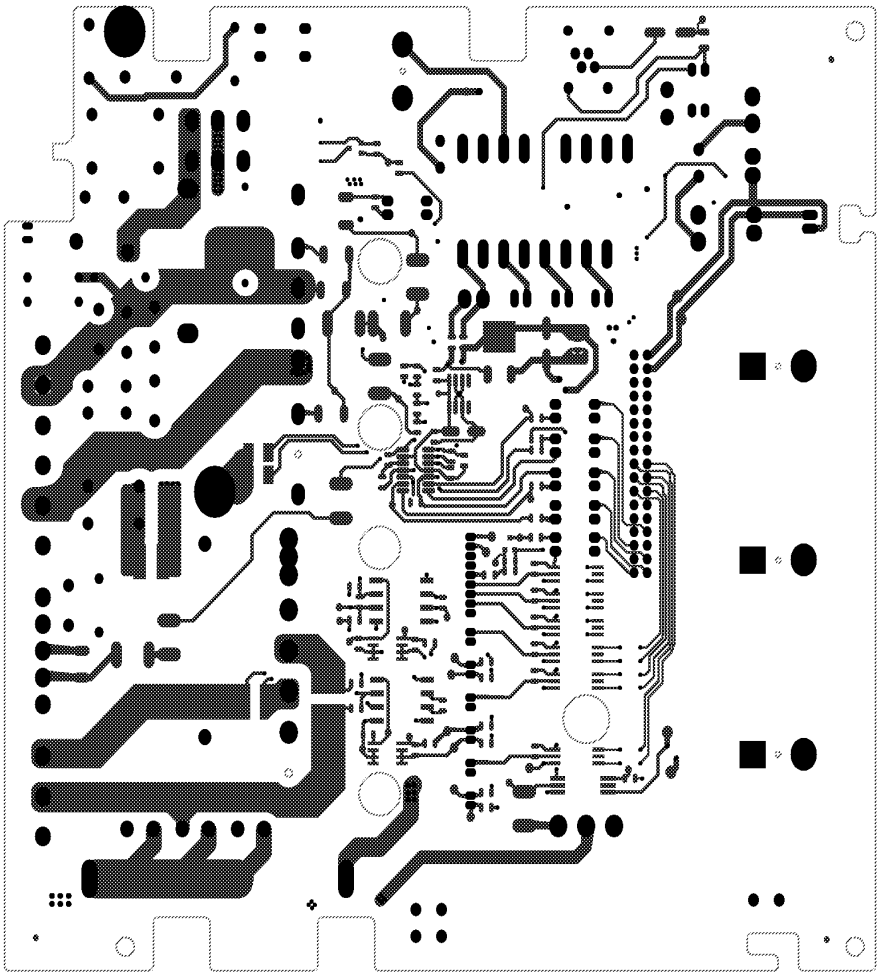

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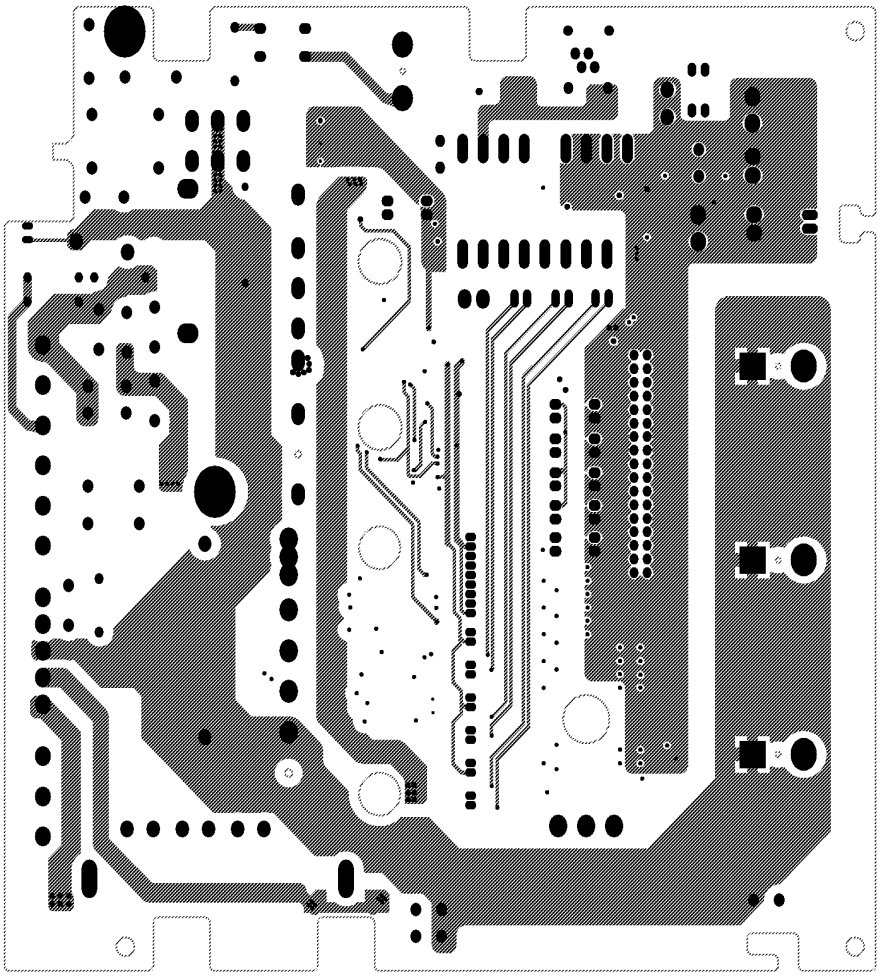

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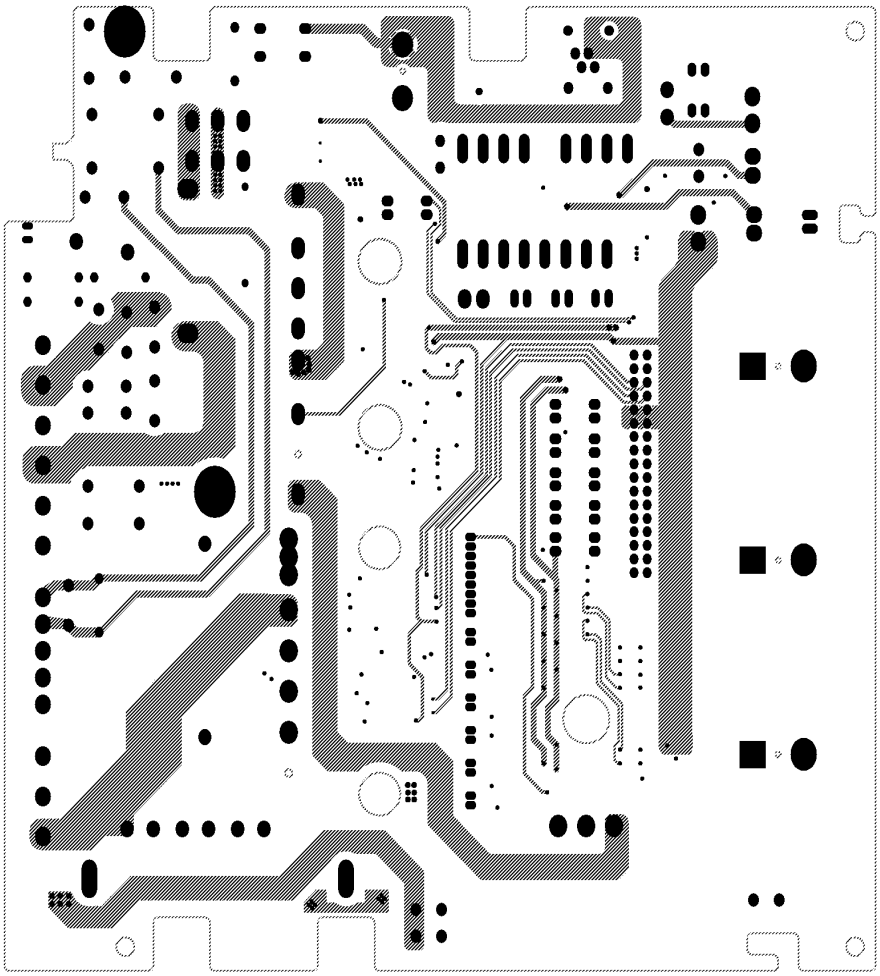

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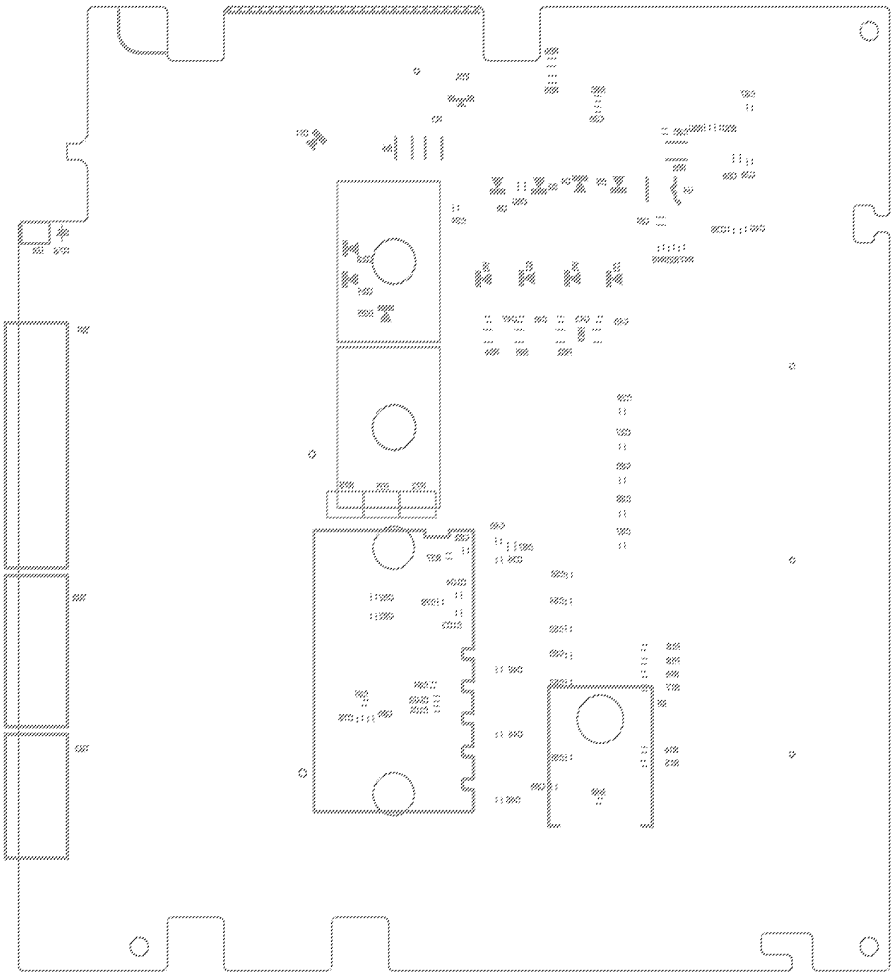

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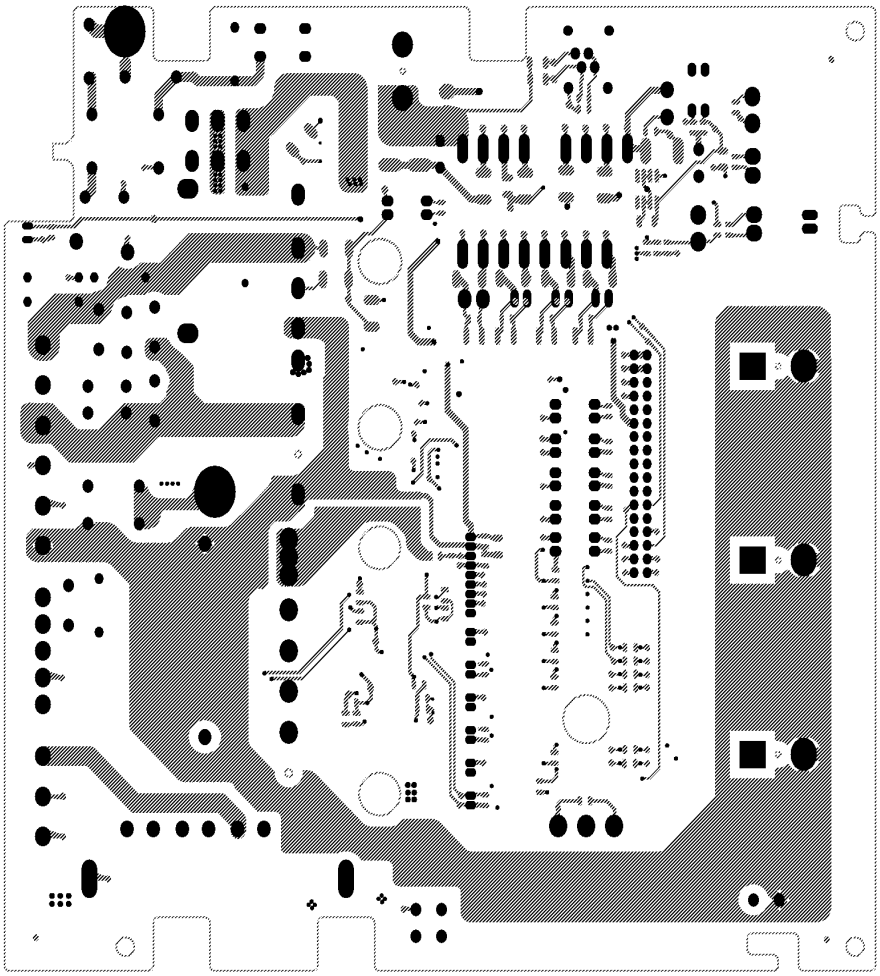

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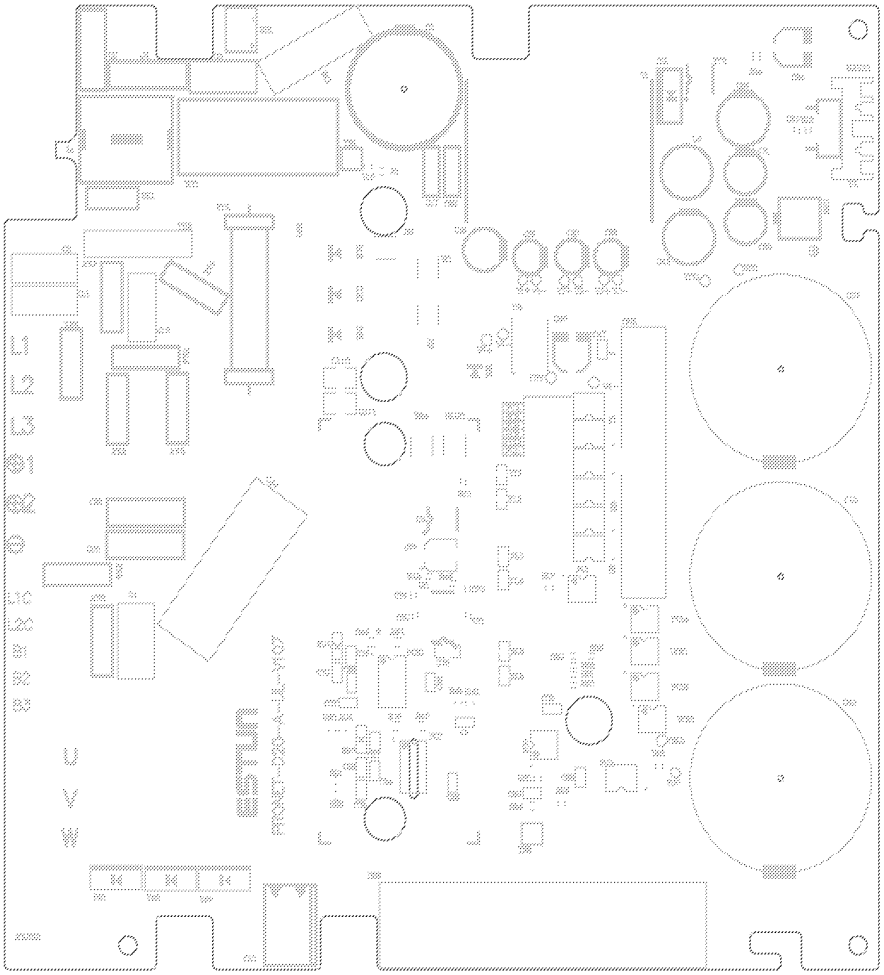

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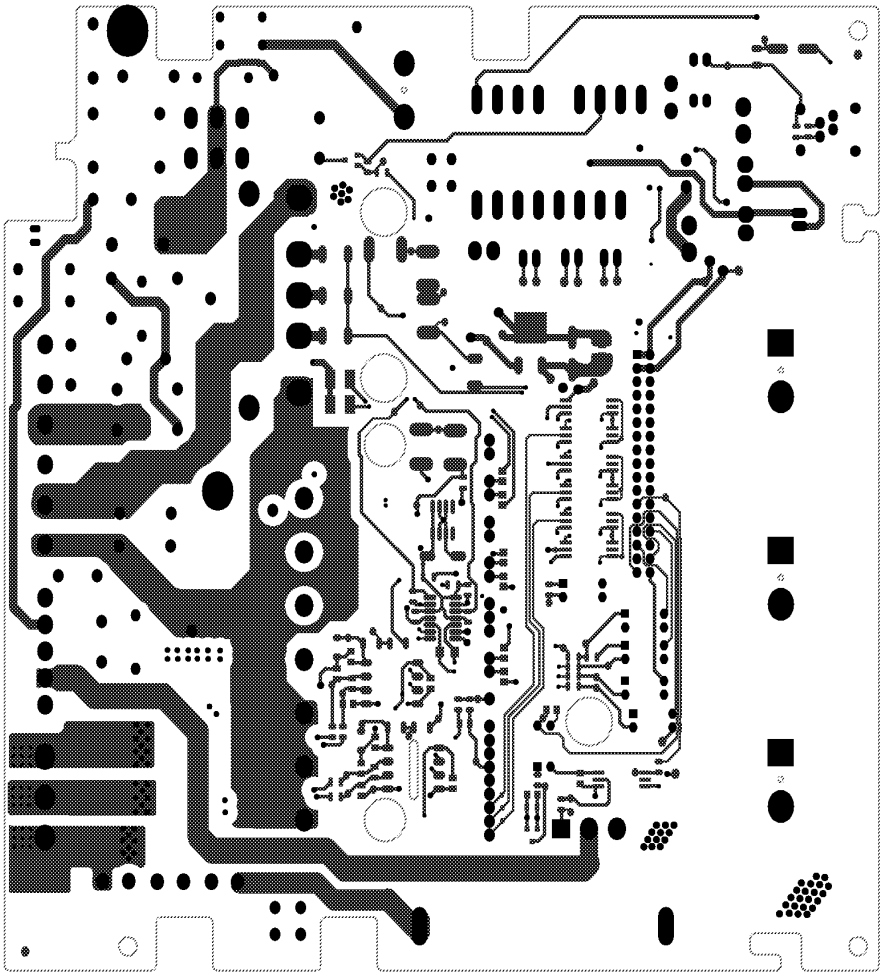

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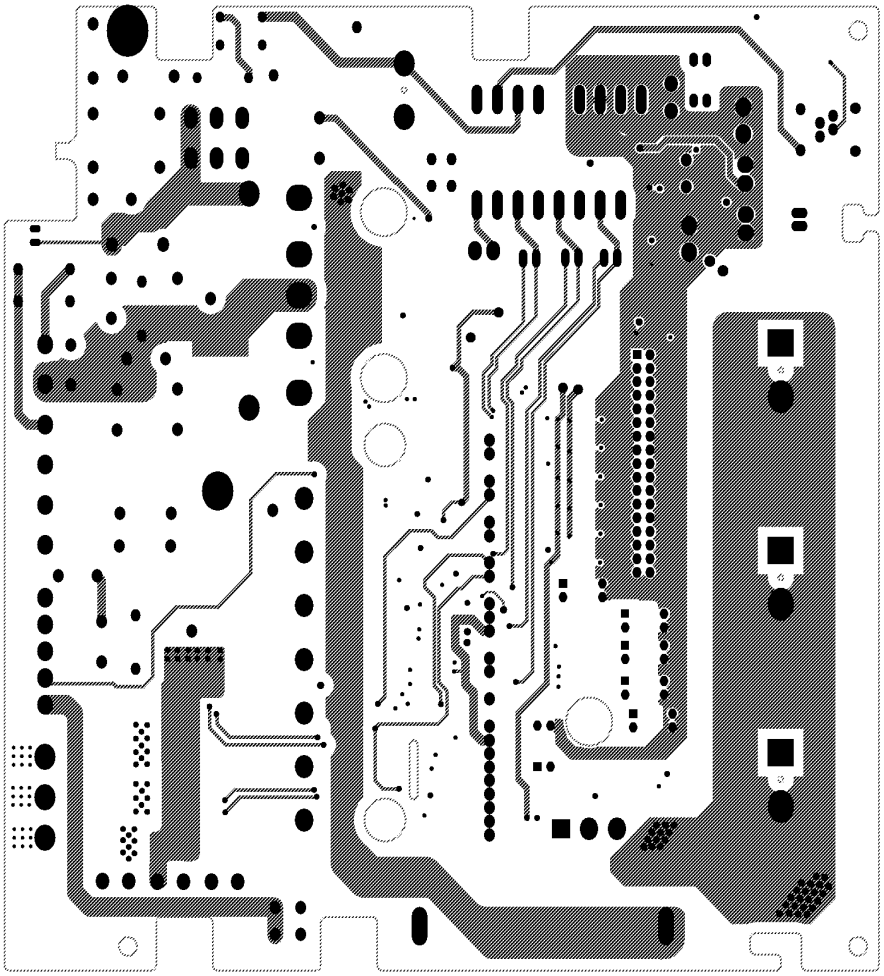

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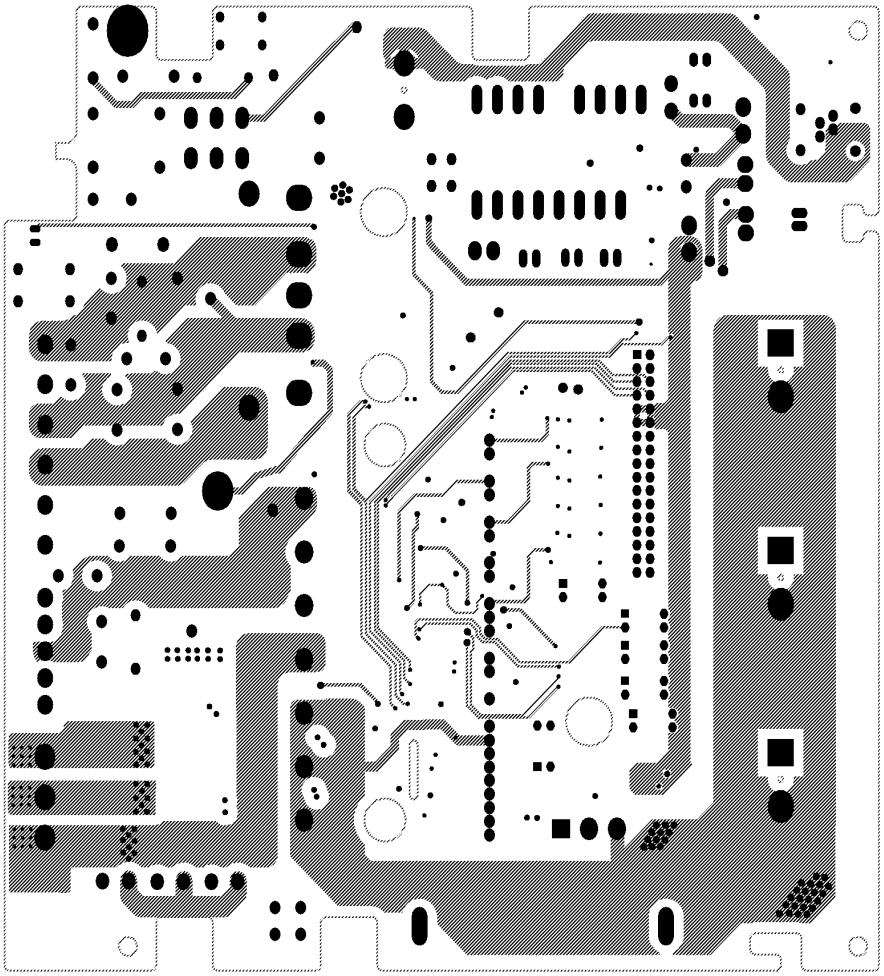

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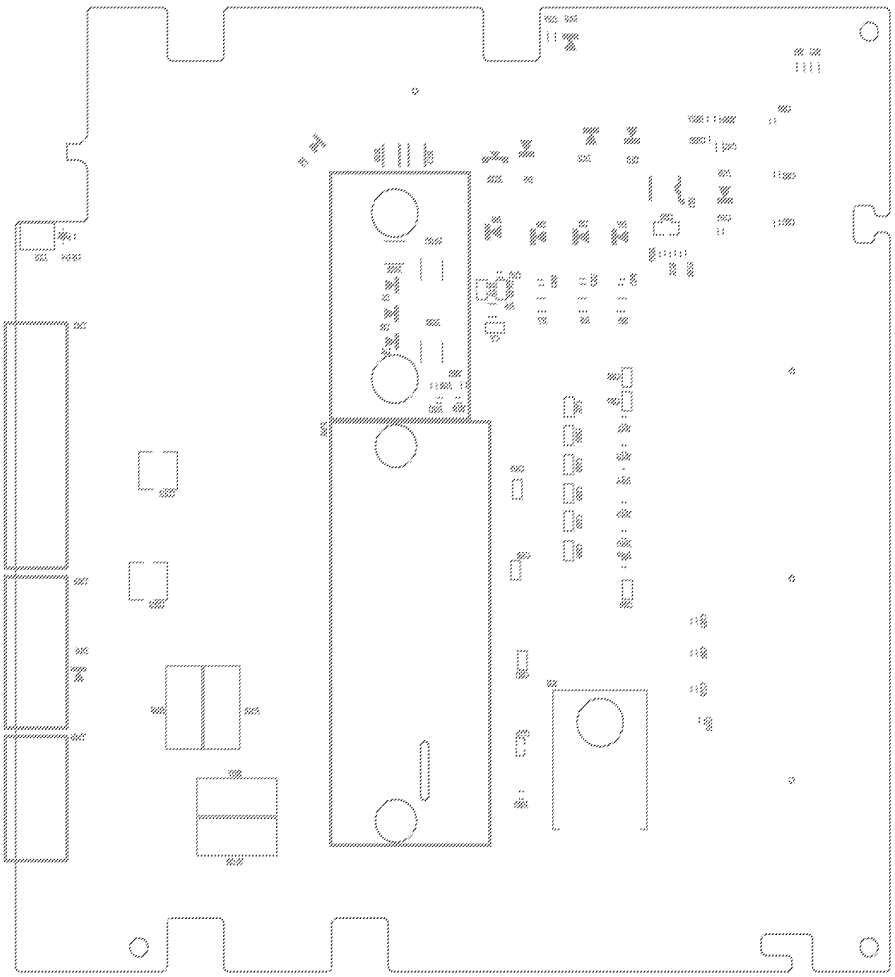

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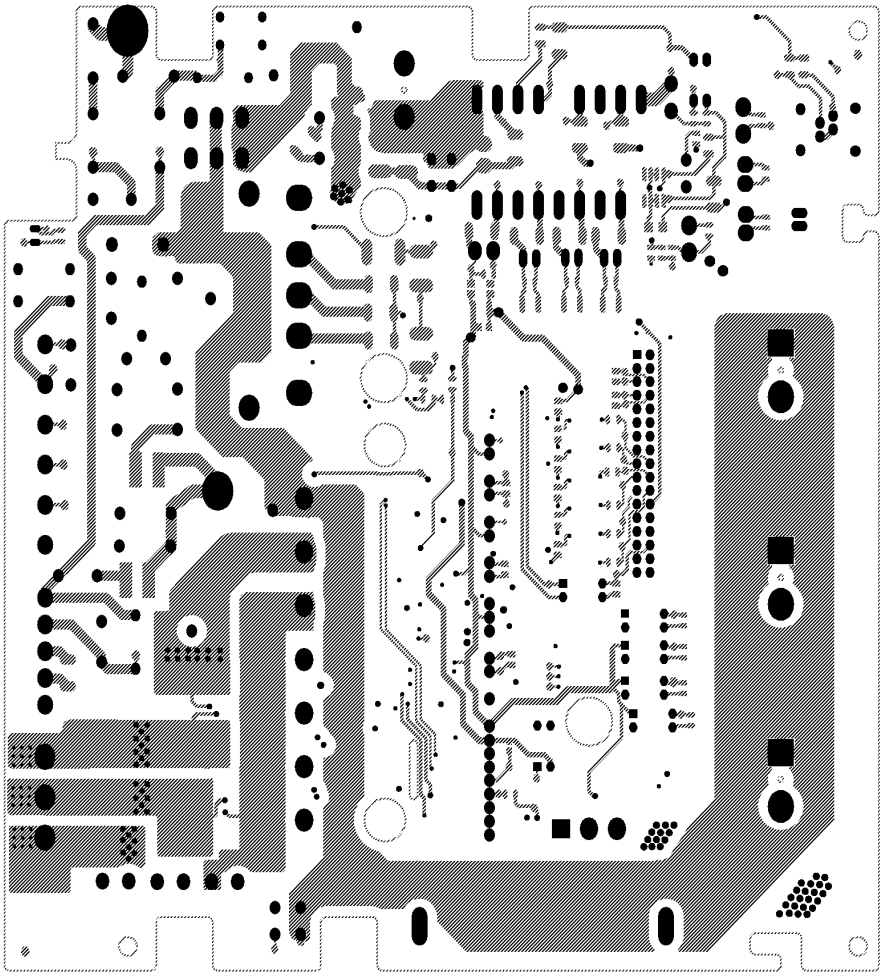

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DESCRIPTION

PRODUCT COVERED:

* USL/ CNL - Open Type, Power Conversion Equipment, AC Servo Driver, Models ProNet-E-02B-UL, ProNet-E-04B-UL, ProNet-E-08B-UL, EHD-3EDMB, EHD-3EDEB, EHD-5ZDMB, EHD-5ZDEB, EHD2-3EDEB, EHD2-3EDMB, EHMA-210DPB and EHD2-5ZDMB.

Servo motor –

AC Servo driver	Intended servo motor
ProNet-E-02B-UL	EMJ-02BPAXX-UL
ProNet-E-04B-UL	EMJ-04BPAXX-UL
ProNet-E-08B-UL	EMJ-08BPAXX-UL
*	
*	
EHD-3EDMB, EHD-3EDEB	EMT2-200GW-LAVA3O-0XX
EHD-5ZDMB, EHD-5ZDEB	EMT2-200HW-LAVA3O-0XX
EHD2-3EDEB, EHD2-3EDMB EHMA-210DPB, EHD2-5ZDMB	EMT-070DRA11-XX
Where “XX” : First X may 0, 1 or 2; Second X may 1, 2, 3 or 4	

GENERAL:

The series ProNet are open type, Single or three phase input and three phase output, variable voltage and variable frequency (VVVF) motor drives intended to be used in industrial control applications for pollution degree 2 environments. They provide variable speed control to motor and provide solid state overload protection.

RATINGS:

Electrical -

Model	Electrical rating								
	Input					Output (Three Phase)			
	Voltage (Vac)	Short Circuit Rating	Phase	Current (A)	Frequency (Hz)	Voltage (Vac)	Current (A)	Frequency (Hz)	Power(kW)
ProNet-E-02B-UL	100-120	35 kA rms, 120 Vac	1	4	50/60	0-100	2.8	0-300	0.2
ProNet-E-04B-UL	100-120	35 kA rms, 120 Vac	1	6.5	50/60	0-100	5.6	0-300	0.4
ProNet-E-08B-UL	100-120	35 kA rms, 120 Vac	1	9.5	50/60	0-100	8.2	0-300	0.75
*									
*									
EHD-3EDMB, EHD-3EDEB	380-440	35 kA rms, 480 Vac	3	66	50/60	0-380	72	0-90	35
EHD-5ZDMB, EHD-5ZDEB	380-440	35 kA rms, 480 Vac	3	95	50/60	0-380	105	0-120	50
EHD2-3EDEB, EHD2-3EDMB	380-440	35 kA rms, 480 Vac	3	66	50/60	0-380	72	0-90	35
EHMA-210DPB, EHD2-5ZDMB	380-440	35 kA rms, 480 Vac	3	95	50/60	0-380	105	0-120	50

Environmental -

Maximum Surrounding air Temperature - 50°C.
Pollution Degree – 2
Enclosure – Open type

CONSTRUCTION DETAILS: (CONT'D)

b) The electrical rating;

c) The catalog number or equivalent;

Installation and operating instructions shall be provided with each device.

The following markings shall appear in one of the following locations: shipped separately with the device; on a separable, self-adhesive permanent label that is shipped with the device; or anywhere on the device itself.

a) Designation markings for each wiring diagram.

b) Markings for proper wiring connections.

c) "Maximum Surrounding Air Temperature 50°C."

d) "Solid State motor overload protection reacts when reaches the percentage(See following table for detail) of FLA" or equivalent;

Model	Percentage
ProNet-E-02B-UL	200%
ProNet-E-04B-UL	200%
ProNet-E-08B-UL	200%
*	
EHD-3EDEB	400%
EHD-5ZDEB	400%
EHD2-3EDEB	400%
EHMA-210DPB	400%

e) "Install device in pollution degree 2 environment." or equivalent.

f) "Suitable For Use On A Circuit Capable Of Delivering Not More Than 35,000 rms Symmetrical Amperes, 240 Volts Maximum When Protected By Inverse Time Circuit Breaker, See Following Table For Fuse Information." or equivalent.

Power Conversion Model Series	Circuit Breaker Rating
ProNet-E-02B-UL	30 A/ 480 V
ProNet-E-04B-UL	30 A/ 480 V
ProNet-E-08B-UL	30 A/ 480 V
EHD-3EDEB	400 A/ 480 V
EHD-5ZDEB	400 A/ 480 V
EHD2-3EDEB	400 A/ 480 V
EHMA-210DPB	400 A/ 480 V

CONSTRUCTION DETAILS: (CONT'D)

h) "CAUTION – Risk of Electric Shock" should be provided, followed by instructions to discharge the Bus Capacitor or indicating the time required (5 minutes) for Bus Capacitor to discharge to a level below 50 Vdc.

i) "Drives have no provision for motor over temperature protection" or equivalent.

g) (For models ProNet-E-02B-UL, ProNet-E-04B-UL and ProNet-E-08B-UL) For used in Canada only: "TRANSIENT SURGE SUPPRESSION SHALL BE INSTALLED ON THE LINE SIDE OF THIS EQUIPMENT AND SHALL BE RATED __120_ V (PHASE TO GROUND), 120 V (PHASE TO PHASE), SUITABLE FOR OVERVOLTAGE CATEGORY _III_, AND SHALL PROVIDE PROTECTION FOR A RATED IMPULSE WITHSTAND VOLTAGE PEAK OF _2.5_ kV" or equivalent.

* (For models EHD-3EDMB, EHD-5ZDMB, EHD2-3EDEB and EHMA-210DPB) For used in Canada only: "TRANSIENT SURGE SUPPRESSION SHALL BE INSTALLED ON THE LINE SIDE OF THIS EQUIPMENT AND SHALL BE RATED __440_ V (PHASE TO GROUND), 440 V (PHASE TO PHASE), SUITABLE FOR OVERVOLTAGE CATEGORY _III_, AND SHALL PROVIDE PROTECTION FOR A RATED IMPULSE WITHSTAND VOLTAGE PEAK OF _6_ kV" or equivalent.

Field Wiring Terminal Markings – Wiring terminals shall be marked to indicate the proper connections for power supply and load, or a wiring diagram coded to the terminal marking shall be securely attached to the device:

a. "Use 75°C CU wire" or equivalent.

b. Required wire torque, type and range listed below:

Frame Size	Terminal Type	Required Torque (in-lbs)	Wire Range (AWG)	Wire Type
ProNet-E-02B-UL	Input and Output	N/A	16-14	STR/SOL
ProNet-E-04B-UL	Input and Output	N/A	16-14	STR/SOL
ProNet-E-08B-UL	Input and Output	N/A	14	STR/SOL
EHD-3EDEB	Input and Output	130	3	STR/SOL
EHD2-3EDEB	Input and Output	175	3	STR/SOL
EHD-5ZDEB	Input and Output	130	1/0	STR/SOL
EHMA-210DPB	Input and Output	175	1/0	STR/SOL
All Models	Control Circuit	2.7	20	STR/SOL

Grounding – The pressure wire connector intended for connection for field installed equipment, grounding conductor shall be plainly identified such as being marked “G”, “GRD”, “Ground”, “Grounding”, or equivalent or with the grounding symbol (IEC 417, Symbol 5019).

Tightening torque and wire range for field grounding wiring terminals are marked adjacent to the terminal or on the wiring diagram.

Frame Size	Terminal Type	Required Torque (in-lbs)	Wire Range (AWG)
ProNet-E-02B-UL	Grounding Terminal Block	15.5	10
ProNet-E-04B-UL	Grounding Terminal Block	15.5	10
ProNet-E-08B-UL	Grounding Terminal Block	15.5	10
EHD-3EDEB, EHD-5ZDEB,	Grounding Terminal Block	130	4
EHD2-3EDEB, EHMA-210DPB,	Grounding Terminal Block	175	4

Model difference –

*

Model EHD-3EDEB is identical to Model EHD-3EDMB except for model I/O card.

Model EHD-5EDEB is identical to Model EHD-5EDMB except for I/O card.

Model EHD2-3EDEB is identical to Model EHD2-3EDMB except for I/O card.

Model EHD2-5EDEB is identical to Model EHD2-5EDMB except for I/O card.

Model EHD-5EDEB is identical to Model EHD-3EDEB except for electrical rating and several minor components.

Model EHD2-5EDEB is identical to Model EHD2-3EDEB except for electrical rating and several minor components.

FIGURES and ILLUSTRATIONS REFERENCE:

In this report, the following illustrations shall be used as supplementary information where specifically noted.

No.	Description
FIG. 1 thru 8	External and Disassembled overview of Model ProNet-E-02B
FIG. 9 thru 16	External and Disassembled overview of Model ProNet-E-04B
FIG. 17 thru 23	External and Disassembled overview of Model ProNet-E-08B
FIG. 31 thru 39	External and Disassembled overview of Model EHD-5EDEB
FIG. 40 thru 52	External and Disassembled overview of Model EHD2-5EDEB
ILL. 1	Model ProNet-E-02B Case Dimensions detail
ILL. 2	Model ProNet-E-04B Case Dimensions detail
ILL. 3	Model ProNet-E-08B Case Dimensions detail
ILL. 5	Model EHD-5EDEB Case Dimensions detail
ILL. 6	Model EHD2-5EDEB Case Dimensions detail
ILL. 7	Model ProNet-E-02B Heatsink Dimension Drawing
ILL. 8	Model ProNet-E-04B Heatsink Dimension Drawing
ILL. 9	Model ProNet-E-08B Heatsink Dimension Drawing
ILL. 11	Model EHD-5EDEB Heatsink Dimension Drawing
ILL. 12	Model EHD2-5EDEB Heatsink Dimension Drawing
ILL. 13	Model ProNet-E-02B Component and Trace Layout Drawing
ILL. 14	Model ProNet-E-04B Component and Trace Layout Drawing
ILL. 15	Model ProNet-E-08B Component and Trace Layout Drawing
ILL. 17	Model EHD-5EDEB Component and Trace Layout Drawing
ILL. 18	Model EHD2-5EDEB Component and Trace Layout Drawing
ILL. 19	Model EHD-5EDEB Dimensions detail of Copper Bus Bar
ILL. 20	Model EHD2-5EDEB Dimensions detail of Copper Bus Bar
ILL. 21	Transformer(ETF26-A2) Schematics and Insulation Drawing
ILL. 22	Transformer(ETF01-C1) Schematics and Insulation Drawing
ILL. 23	Transformer(ETF01-B1) Schematics and Insulation Drawing

(Cont'd)

No.	Description
ILL. 26	Transformer(EHDD5Z-C-V101) Schematics and Insulation Drawing
ILL. 27	Transformer(EHDD5Z-F-V102) Schematics and Insulation Drawing
ILL. 28	Transformer(ETF-33-A0) Schematics and Insulation Drawing
ILL. 29	Transformer(ETF-34-A0) Schematics and Insulation Drawing
*	

OUTER OVERALL VIEW OF
ProNet-E-02B-UL - FIGS. 1 THRU 4
ProNet-E-04B-UL - FIGS. 9 THRU 12
ProNet-E-08B-UL - FIGS. 17 THRU 20
*EHD-5ZDEB - FIGS. 31 THRU 34
* EHMA-210DPB - FIGS. 40 THRU 42

1. Case – Any R/C (QMFZ2), rated minimum HB, minimum 85°C, minimum 0.8 mm thickness. Secured to Heatsink by screws. See following table for dimensions detail.

Model	Illustration
ProNet-E-02B-UL	ILL. 1
ProNet-E-04B-UL	ILL. 2
ProNet-E-08B-UL	ILL. 3
*	

2. Case – – Cold rolled steel plate, measured minimum 1.5 mm. See following table for dimensions detail.

Model	Illustration
EHD-5ZDEB	ILL. 5
EHMA-210DPB	ILL. 6

3. Heatsink - Aluminum. See following table for dimensions detail.

Frame Size	Illustration
ProNet-E-02B-UL	ILL. 7
ProNet-E-04B-UL	ILL. 8
ProNet-E-08B-UL	ILL. 9
*	
EHD-5ZDEB	ILL. 11
EHMA-210DPB	ILL. 12

4. Brake Resistor Assembly – One provided, Mounted on heatsink and secured by screws, two internal wires connected to terminal block, it may be go through heatsink and power board and secured in place by physical-fit. Refer to table below for detailed information:

Model	Manufacturer	Model
ProNet-E-02B-UL	N/A	N/A
ProNet-E-04B-UL	Suzhou Guangfu Telecommunications Equipment Factory	RXTC-60W-50ΩJ
ProNet-E-08B-UL	Suzhou Guangfu Telecommunications Equipment Factory	RXTC-80W-40Ω
*		
EHD-5ZDEB	SHANG HAI EAGTOP CO LTD	BRU10KW4RJ (EAGTOP)
EHMA-210DPB	SHANG HAI EAGTOP CO LTD	BRU10KW4RJ (EAGTOP)

Alternate Brake Resistor Assembly – One provided, mounted on heatsink and secured by screws, two internal wires connected to terminal block, it may be go through heatsink and power board and secured in place by physical-fit. Refer to table below for detailed information:

Model	Manufacturer	Model
ProNet-E-04B-UL	Shanghai Krah Electronics Co., Ltd.	HPRS100 50R J 250MM
ProNet-E-08B-UL	Shanghai Krah Electronics Co., Ltd.	RXLG-H-F80W-40R 200MM
*		

5. Fan – R/C (GPWV2/8), Refer to table below for detailed information:

Model	Number	Manufacturer	File No.	Series	Rating	Air Flow
ProNet-E-02B-UL	N/A	N/A	N/A	N/A	N/A	N/A
ProNet-E-04B-UL	1	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DA06010B24HA	24 Vdc/ 0.15 A	17.8 CFM
ProNet-E-08B-UL	1	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DA06015B24MA	24 Vdc/ 0.12 A	18.5 CFM
*						
EHD-5ZDEB	5	Delta ELECTRONIC CO LTD	E132003	FFB0824EHE	24 Vdc/ 0.5 A	80.16 CFM
EHMA-210DPB	2	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DZ12038B24UA	24 Vdc/ 2 A	222.31 CFM
	2	SHENZHEN HUAXIA HENGTAI ELECTRONIC COLTD	E254715	DA06025B24UA	24 Vdc/ 0.25 A	31.46 CFM

6. Terminal Block - R/C (XCFR2/8), Dinkle Enterprise Co Ltd (E102914), PHOENIX CONTACT GMBH & CO KG (E60425). Refer to table below for detailed information:

Model	Location	Cat. No.	Rating
EHD-5ZDEB	Input and Output, 10 provided	PPAC-95MAS-BK (DINKLE)	300 V, 230 A, CU, FW=2, UG=C, 4/0-4 AWG (Sol/Str), torque: 130 lb-in
	Grounding, 2 provided	PPAC-95MASG (DINKLE)	300 V, 230 A, CU, FW=2, UG=C, 4/0-4 AWG (Sol/Str), torque: 130 lb-in
	For reactor, 2 provided	PPAC-50-BK (DINKLE)	300 V, 150 A, CU, FW=2, UG=C, 1/0-6 AWG (Sol/Str), torque: 52 lb-in
EHMA-210DPB	Input and Output, 8 provided	HDFK95 Series (phoenix)	600 V, 230 A, CU, FW=2, UG=C, 4/0-4 AWG (Sol/Str), torque: 175 lb-in
	Grounding, 2 provided	HDFK95 Series (phoenix)	600 V, 230 A, CU, FW=2, UG=C, 4/0-4 AWG (Sol/Str), torque: 175 lb-in
	For reactor, 2 provided	UW 25 Series (phoenix)	600 V, 112.5 A, CU, FW=2, UG=C, 10-2 AWG (Sol/Str), torque: 35-39 lb-in

INTERNAL VIEW OF
ProNet-E-02B-UL - FIGS.5 THRU 8
ProNet-E-04B-UL - FIGS. 13 THRU 16
ProNet-E-08B-UL - FIGS. 21 THRU 23
*EHD-5ZDEB - FIGS. 35 THRU 39
* EHMA-210DPB - FIGS. 43 THRU 52

1. Printed Wiring Board (PWB) – R/C (ZPMV2), rated minimum V-0, minimum 130°C, minimum CTI=175, DSR all. See following table for PWB trace and component layout detail.

Model	Illustration No.
ProNet-E-02B-UL	ILL. 13
ProNet-E-04B-UL	ILL. 14
ProNet-E-08B-UL	ILL. 15
*	
EHD-5ZDEB	ILL. 17
EHMA-210DPB	ILL. 18

2. Terminal Block - R/C (XCFR2/8), Dinkle Enterprise Co Ltd (E102914). Refer to table below for detailed information:

Model	Component ID	Cat. No.	Rating
ProNet-E-02B-UL	TM1	0135-39-S1174706	300 V, 10 A, FW=1, UG=D, 105 °C
	TM2	0135-19-4466-05	
	TM3	0135-39-B1154706	
	Plug for TM1	0134-32-4469-06	300 V, 10 A, CU, FW=2, UG= D, 14-26 AWG (Sol/Str)
	Plug for TM2	0134-12-4468-05	
	Plug for TM3	0134-32-S1174303	
ProNet-E-04B-UL	TM1	0135-39-B1158206	300 V, 10 A, FW=1, UG=D, 105 °C
	TM2	0135-17-B1158205	
	TM3	0135-39-B1158203	
	Plug for TM1	0134-32-B1128506	300 V, 10 A, CU, FW=2, UG= D, 14-26 AWG (Sol/Str)
	Plug for TM2	0134-32-B1128505	
	Plug for TM3	0134-32-B1128503	
ProNet-E-08B-UL	TM1	0135-39-B1158206	300 V, 10 A,, FW=1, UG=D, 105 °C
	TM2	0135-39-B1158203	
	TM3	0135-17-B1158205	
	Plug for TM1	0134-32-B1128506	300 V, 10 A, CU, FW=2, UG= D, 14-26 AWG (Sol/Str)
	Plug for TM2	0134-32-B1128503	
	Plug for TM3	0134-32-B1128505	
*			

Alternate – Terminal Block – R/C (XCFR2/8), DEGSON Electronics Co Ltd (E228872). Refer to table below for detailed information:

Model	Component ID	Cat. No.	Rating
ProNet-E-02B-UL	TM1	8EDGRCB-7.5-05P-11-23AH	300 V, 10 A, Cu, FW=1, UG=D, 105 °C
	TM2	8EDGRCB-5.0-05P-11-24AH	
	TM3	8EDGRCB-7.5-03P-11-01AH	
	Plug for TM1	8EDGKB-7.5-05P-11-13AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (SOL/STR)
	Plug for TM2	8EDGKB-5.0-05P-11-24AH	
	Plug for TM3	8EDGKB-7.5-03P-11-01AH	
ProNet-E-04B-UL	TM1	8EDGRCB-7.5-06P-11-01AH	300 V, 10 A, FW=1, UG=D, 105 °C
	TM2	8EDGRCB-7.5-05P-11-01AH	
	TM3	8EDGRCB-7.5-03P-11-01AH	
	Plug for TM1	8EDGKB-7.5-05P-11-13AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (SOL/STR)
	Plug for TM2	8EDGKB-7.5-05P-11-24AH	
	Plug for TM3	8EDGKB-7.5-03P-11-01AH	
ProNet-E-08B-UL	TM1	8EDGRCB-7.5-06P-11-01AH	300 V, 10 A, FW=1, UG=D, 105 °C
	TM2	8EDGRCB_7.5-03P-11-01AH	
	TM3	8EDGRCB-5.0-05P-11-01AH	
	Plug for TM1	8EDGKB-7.5-06P-11-01AH	300 V, 10 A, CU, FW=2, UG=D, 14-22 AWG (SOL/STR)
	Plug for TM2	8EDGKB-7.5-03P-11-01AH	
	Plug for TM3	8EDGKB-5.0-05P-11-01AH	

3. Varistors – R/C (VZCA2), CSA Certified, NANJING SHAGON ELECTRONICS CO LTD (E321069), See following table for detail.

Model	Component ID	Model	Rating
ProNet-E-02B-UL	XX1~XX4	MYG10K361	MCOV 230 Vac
ProNet-E-04B-UL	XX1, XX4, XX5, XX6	MYG10K361	MCOV 230 Vac
ProNet-E-08B-UL	XX1~XX7	MYG10K361	MCOV 230 Vac
EHD-5ZDEB, EHMA-210DPB	ZZ1~ZZ3	MYG14K471	Rated MCOV 300 Vac, VPR(MLV) 1290 Vpeak, impulse withstand voltage 6KV, Combination Waveform Test Current or Nominal Discharge current, In: 3KA

Alternate Varistors – R/C (VZCA2/8), GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD. XIANHUA NEW SENSITIVE COMPONENTS BRANCH (E325462), see following table for detail.

Model	Component ID	Model	Rating
ProNet-E-02B-UL	XX2	FNR-10K301	MCOV 200 Vac
ProNet-E-02B-UL	XX3, XX4	FNR-10K471	MCOV 300 Vac
ProNet-E-04B-UL	XX4	FNR-10K301	MCOV 200 Vac
ProNet-E-04B-UL	XX1, XX5, XX6	FNR-10K471	MCOV 300 Vac
ProNet-E-08B-UL	XX2, XX3, XX6	FNR-10K301	MCOV 200 Vac
ProNet-E-08B-UL	XX4, XX5, XX7	FNR-10K471	MCOV 300 Vac
EHD-5ZDEB	ZZ1~ZZ3	FNR-14K471	MCOV 300 Vac
EHMA-210DPB	ZZ1~ZZ3	FNR-14K471	MCOV 300 Vac

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4. Capacitors – Cross the Line. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-02B-UL	C1, C9	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.1 uF, 305 V, 110°C
ProNet-E-04B-UL	C63	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.022uF, 275 V, 110°C
	C67, C68	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.1 uF, 305 V, 110°C
ProNet-E-08B-UL	C1, C3	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.1 uF, 305 V, 110°C
	C8, C9, C12	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.022uF, 275 V, 110°C
*				
EHD-5ZDEB	C1, C2, C3	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.22uF, 275 V, 110°C
EHMA-210DPB	C4, C5, C6	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.22uF, 275 V, 110°C

Alternate – Capacitors – Cross the Line. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-04B-UL	C63	OKAYA E:ECTRIC ONDUSTRIES CO LTD (E47474)	LE223	Rated 0.022 uF, 275 Vac, 100°C
ProNet-E-08B-UL	C8, C9, C12	OKAYA E:ECTRIC ONDUSTRIES CO LTD (E47474)	LE223	Rated 0.022 uF, 275 Vac, 100°C

5. Capacitors – Line to ground. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-02B-UL	C2, C6, C15, C18	EPCOS ELECTRONIC COMPONENTS S A (E97863)	B32021A 3472K	Rated 4.7 nF, 300 V, 110°C
ProNet-E-04B-UL	C5, C6, C7, C8	XIAMEN FARATRONIC CO LTD (E186600)	MKP63	Rated 4.7 nF, 300 V, 110°C
ProNet-E-08B-UL	C2, C4, C6, C25, C26	XIAMEN FARATRONIC CO LTD (E186600)	MKP63	Rated 4.7 nF, 300 V, 110°C
EHD-5ZDEB	C4	XIAMEN FARATRONIC CO LTD (E186600)	MKP63	Rated 2.2 nF, 300 V, 110°C
	CY1, CY2	KEMET ELECTRONIC CO LTD(E73869)	PME295	Rated 4.7 nF, 470 V, 115°C
EHMA-210DPB	C15, C16, C17	KEMET ELECTRONIC CO LTD (E73869)	PME295	Rated 4.7 nF, 470 V, 115°C

Alternate – Capacitors – Line to ground. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-02B-UL	C2, C6, C15, C18	XIAMEN FARATRONIC CO LTD (E186600)	C43	Rated 4.7 nF, 300 V, 110°C
ProNet-E-08B-UL	C2, C4, C6, C25, C26	XIAMEN FARATRONIC CO LTD (E186600)	C43	Rated 4.7 nF, 300 V, 110°C

6. NTC (TH1) (Not for EHD-5ZDEB Series and EHMA-210DPB Series) – R/C (XGPU2/8), NANJING SHIHENG ELECTRONICS CO LTD(E241319), model MF72-5D9, rated 240V, 3A.

Alternate – NTC (Not for EHD-5ZDEB Series and EHMA-210DPB Series) – **Manufactured by GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD.**, model **NTC5D-9MTF2E3**, rated 240V, **3**A.

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7. Linke Chock – See following items for detail:

a. Windings – Two provided. R/C (OBMW2), magnet wire see following table for turns and diameter detail.

Model	Component ID	Wire Diameter (mm)	Winding Turns (T)
ProNet-E-02B-UL ProNet-E-08B-UL	L1	0.25	120
ProNet-E-04B-UL	L2	0.25	120
EHD-5ZDEB	L1	0.38	60

b. Bobbin – R/C (QMFZ2), overall covering core, see following table for detail.

Frame Size	Manufacturer	Cat.	Rating
ProNet-E-02B-UL ProNet-E-04B-UL ProNet-E-08B-UL *EHD-5ZDEB	Chang Chun Plastics Co. Ltd.(E59481)	T375J	measured tnickness mimum 0.75 mm, rated V-0, 150°C(HAI= 1, HWI=0, CTI=3)

b. Core – Magnet metal. See following table core size.

Frame Size	Core Dimensions (mm)
ProNet-E-02B-UL, ProNet-E-08B-UL, *	19.7 by 32 by 29.4
ProNet-E-04B-UL	15.2 by 22 by 17.2
EHD-5ZDEB	35 by 40 by 28

*8. Gas Tube – R/C (QVGQ2/8), see following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-02B-UL, ProNet-E-04B-UL, ProNet-E-08B-UL	D22	BrightKing Electric CO LTD (E244458)	2RL350M-6	Rated 350V, 5KA
*EHD-5ZDEB, -210DPB	GD1	SHENZHEN BENCENT ELECTRONIC CO LTD(E232249)	BF601M	Rated 600V, 5KA

Alternate Gas Tube – R/C (QVGQ2), see following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-02B-UL, ProNet-E-04B-UL, ProNet-E-08B-UL	D22	BRIGHTKING (SHENZHEN) CO LTD (E244458)	2RL600M-6S	Rated 600V, 5KA
EHD-5ZDEB	GD1	BRIGHTKING (SHENZHEN) CO LTD (E244458)	2RL600M-6S	Rated 600V, 5KA

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9. Soft-starting Resistor – See following table for detail.

Model	Component ID	Model	Rating	Location
ProNet-E-02B-UL ProNet-E-04B-UL ProNet-E-08B-UL	TH2	MF73T-1-6/11	Rated 6 ohm, 11 A, 200°C	Soldered to PWB by soldering
EHD-5ZDEB	N/A	ASZ150W30ΩKGO	Rated 30 ohm, 150W, 275°C	Mounted to metal case
EHMA-210DPB	N/A	RXLG-150W 60RJ	Rated 60 ohm, 150W, 275°C	

Alternate – Soft-starting Resistor – See following table for detail.

Model	Component ID	Model	Rating	Location
ProNet-E-02B-UL	TH2	MF71-10D-20	Rated 10 ohm, 5 A, 200°C	Soldered to PWB by soldering
ProNet-E-04B-UL	TH2	MF71-10D-25	Rated 10 ohm, 8 A, 200°C	
ProNet-E-08B-UL	TH2	MF71-10D-25		
EHD-5ZDEB	N/A	RXLG-H-F-150W-30RK 350MM	Rated 30 ohm, 150W	Soldered to PWB by soldering

10. Soft-starting Relay - See following table for detail.

Model	Component ID	Manufacturer	Relay Model	Rating
ProNet-E-02B-UL	RY1	R/C (NLDX2/8), OMRON CORP (E41643)	G5LA-14-DC12	Rated 277 V, 10 A, 85°C
ProNet-E-04B-UL ProNet-E-08B-UL	RY1	R/C (NLDX2/8), OMRON CORP (E41643)	G5RL-1-E	Rated 277 V, 16 A, 85°C

Alternate – Soft-starting Relay – see following table for detail.

Model	Component ID	Manufacturer	Relay Model	Rating
ProNet-E-02B-UL	RY1	R/C (NLDX2/8), OMRON CORP (E41643)	G2RL-1-E	Rated 250 V ac, 16 A, 85°C
ProNet-E-04B-UL ProNet-E-08B-UL	RY1	R/C (NLDX2/8), OMRON CORP (E41643)	G2RL-1-E	Rated 250 V ac, 16 A, 85°C

11. Contactor – R/C (NLDX2/8), See following table for detail.

Model	Manufacturer	Contactor Model	Rating
EHD-5ZDEB	SCHNEIDER ELECTRIC INDUSTRIES S A(E164862)	LC1-D15000Q7	Rated 1000 V, 150 A, 60°C

12. Rectifier- R/C (QQQX2), see following table for rating detail. Contact heatsink directly.

Model	Component ID	Manufacturer	Type	Rating
ProNet-E-02B-UL	DB2	HY ELECTRONIC (CAYMAN) LTD TAIWAN BRANCH (E217139)	GBJ2508	25A, working voltage 800 Vac (Isolation voltage 2500 Vac, 150°C)
ProNet-E-04B-UL	DB4			
ProNet-E-08B-UL	DB2	SHINDENGEN ELECTRIC MFG CO LTD (E142422)	D30XT80	800 V, 30 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)
*EHD-5ZDEB	N/A	INFINEON ELECTRIC CO LTD (E83335)	DD350N16KOF	1600 V, 350 A, Maximum case temperature 150 °C (Isolating voltage 3000 Vac)
*EHMA-210DPB	N/A	SEMIKRON ELECTRIC CO LTD(E63532)	SKKH330/16E	1600 V, 330 A, Maximum case temperature 150 °C (Isolating voltage 3000 Vac)

Alternate - Rectifier - R/C (QQQX2), SUZHOU GOOD-ARK ELECTRONICS CO LTD (E241476). See following table for rating detail. Contact heatsink directly.

Model	Component ID	Manufacture	Type	Rating
ProNet-E-02B-UL	DB2	SUZHOU GOOD-ARK ELECTRONICS CO LTD (E241476).	GBJ25K	600 V, 25 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)
ProNet-E-04B-UL	DB4	SUZHOU GOOD-ARK ELECTRONICS CO LTD (E241476).	GBJ25K	600 V, 25 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)
EHD-5ZDEB	N/A	INFINEON ELECTRIC CO LTDE83335	DD380N16A	1600 V, 380 A, Maximum case temperature 150 °C (Isolating voltage 3000 Vac

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13. IGBT – R/C (QQQX2), see following table for rating detail. Contact heatsink directly.

Model Name	Component ID	Manufacturer	Type	Rating
ProNet-E-02B-UL	PS1	Fairchild Semiconductor Corporation (E258596)	FSBB15CH60C	600 V, 15 A, (Maximum case temperature 125 °C, Isolating voltage 2500 Vac)
ProNet-E-04B-UL	PM1	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV (E80276)	PS21765	20A, 600 Vac (Isolation voltage 2500 Vac, Case: 125°C)
ProNet-E-08B-UL	PM1	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV (E80276)	PS21A79	50A, 600 Vac (Isolation voltage 2500 Vac, Case: 100°C)
EHD-5ZDEB, EHMA-210DPB	N/A	INFINEON TECHNOLOGIES AG (E83335)	FF600R12ME4	600A, 1200 Vac (Isolation voltage 2500 Vac, Case: 150°C)

Alternate – IGBT – R/C (QQQX2), see following table for rating detail. Contact heatsink directly.

Model Name	Component ID	Manufacturer	Type	Rating
ProNet-E-04B-UL	PM1	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV (E80276)	PSS20S71F6	600 V, 20 A, (Maximum case temperature 100 °C, Isolating voltage 2500 Vac)

14. Current Sensor Resistors – See following table for detail.

Model	Component ID	Rating
ProNet-E-02B-UL	RC1, RC2	0.013 ohm, 3 W
ProNet-E-04B-UL	RC1, RC2	0.007 ohm, 3 W
ProNet-E-08B-UL	R37, R38	0.007 ohm, 3 W

Alternate – Current Sensor Resistors (R37, R38) only for ProNet-E-08B-UL, rating 0.003ohm, 5W.

15. Current Sensor – See following table for detail.

Model	Component ID	Manufacturer	Current Sensor Model	Rating
EHD-5ZDEB,	N/A	R/C (PICQ2/8)HONEYWELL CONTROL SYSTEMS LTD (E239665)	CSNS300M	Rated 300A, (Isolation voltage 6000 Vac, Case: 85°C)
EHMA-210DPB	N/A	R/C (NMTR2/8)LEM SWITZERLAND S A (E189713)	LF 505-S[L]	Rated 500A, (Isolation voltage 3800 Vac, Case: 85°C)

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16. Fuse (FU1) – R/C (JDYX2/8), see following table for detail.

Model	Manufacturer	Model	Rating
ProNet-E-02B-UL ProNet-E-04B-UL	HOLLYLAND CO LTD (E156471)	50CT(P)	250 V, 1.5 A
ProNet-E-08B-UL	LITTELFUSE INC(E10480)	324025	250 V, 25 A

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Alternate - Fuse (FU1) - R/C (JDYX2/8), see following table for detail.

Model	Manufacturer	Model	Rating
ProNet-E-02B-UL ProNet-E-04B-UL	LITTELFUSE INC(E10480)	0215015MXEP	250 V, 15 A

17. PWM IC - See following table for detail.

Model	Component ID	Model
ProNet-E-02B-UL	U1	TOP246YN (PI)
ProNet-E-04B-UL	U1	TOP246YN (PI)
ProNet-E-08B-UL	U1	TOP246YN (PI)
EHD-5ZDEB	U1, U7	UC2844AD8 (TI)
EHMA-210DPB	U4	UC2844AD8[L] (TI)

18. Resistor – See following table for rating detail.

Model Name	Component ID	Rating
EHD-5ZDEB	R12, R13	1 ohm, 1 W
EHMA-210DPB	R38, R39, R40	0.5ohm, 1W

19. Transistor (Q1) - See following table for detail

Model	Rating
EHD-5ZDEB	1500 V, 2A, 100 W
EHMA-210DPB	100 V, 9.2A, 48 W

20. Optical Isolator – See following table for detail.

Model	Component ID	Manufacturer	Component Model	Rating
ProNet-E-02B-UL	PC1, PC3, PC11~PC14	R/C (FPQU2/8), EVERLIGHT ELECTRONICS CO LTD (E214129)	PC817X3 NSZW	Isolating voltage 5000 Vac, 110°C
ProNet-E-04B-UL	PC11~PC15			
ProNet-E-08B-UL	PC3, PC6, PC13~PC16			
EHD-5ZDEB	PC2~PC11			
EHMA-210DPB	PC1~PC7			
ProNet-E-02B-UL	PC2	R/C (FPQU2/8), TOSHIBA CORP, SEMICONDUCTOR CO DISCRETE SEMICONDUCTOR DIV (E67349)	TLP701	Isolating voltage 5000 Vac, 100°C
ProNet-E-04B-UL	PC7			
ProNet-E-08B-UL	PC2			
ProNet-E-02B-UL	PC4	R/C (FPQU2/8), TOSHIBA CORP, SEMICONDUCTOR CO DISCRETE SEMICONDUCTOR DIV (E67349)	TLP627	Isolating voltage 5000 Vac, 100°C
ProNet-E-04B-UL	PC8			
ProNet-E-08B-UL	PC1			
ProNet-E-02B-UL	PC5~PC10	R/C (FPQU2), CSA Certified, AVAGO TECHNOLOGIES PTE LTD (E55361)	ACPL-P480-500E	Isolating voltage 5000 Vac, 110°C
ProNet-E-04B-UL	PC1~PC6			
ProNet-E-08B-UL	PC4, PC5, PC8~PC12			
ProNet-E-08B-UL	PC7, PC10	R/C (FPQU2), CSA Certified, AVAGO TECHNOLOGIES PTE LTD (E55361)	HCPL-7840-500E	Isolating voltage 3750 Vac, 110°C

Alternate - Optical Isolator - See following table for detail.

Model	Component ID	Manufacturer	Component Model	Rating
ProNet-E-02B-UL	PC1, PC3, PC11~PC14	R/C (FPQU2/8), EVERLIGHT ELECTRONICS CO LTD (E214129)	EL817A	Isolating voltage 5000 Vac, 110°C
ProNet-E-04B-UL	PC11~PC15			
ProNet-E-08B-UL	PC3, PC6, PC13~PC16			
ProNet-E-02B-UL	PC2	R/C (FPQU2), AVAGO TECHNOLOGIES PTE LTD (E55361)	ACPL-W314-500E	Isolating voltage 5000 Vac, 110°C
ProNet-E-04B-UL	PC7			
ProNet-E-08B-UL	PC2			
ProNet-E-02B-UL	PC4	R/C (FPQU2), LITE-ON TECHNOLOGY CORP (E113898)	LTV-852	Isolating voltage 5000 Vac, 115°C
ProNet-E-04B-UL	PC8			
ProNet-E-08B-UL	PC1			
ProNet-E-08B-UL	PC7, PC10	R/C (FPQU2), AVAGO TECHNOLOGIES PTE LTD (E55361)	QCPL-7847-500E	Isolating voltage 5000 Vac, 110°C

19. Insulation Barrier – R/C (QMFZ2), SICHUAN DONGFANG INSULATING MATERIAL CO LTD (E199019), Type DFPET 6023, PET film, rated VTM-2, 105°C, minimum thickness 0.05 mm.

20. Bus Bar – Copper, measured thickness minimum 3 mm, see following table for detail.

Model	Illustration No.
EHD-5ZDEB	ILL. 19
EHMA-210DPB	ILL. 20

*21. Insulation For Bus Bar (For EHD-5ZDEB and EHMA-210DPB Only) – R/C (QMFZ2), SICHUAN DONGFANG INSULATING MATERIAL CO LTD (E199019), Type DFPET 6023, PET film, rated VTM-2, 105°C, minimum thickness 0.05 mm. Covering copper bus bar which is connected to bus capacitor directly.

22. Bus capacitors – See following table for rating detail.

Model Name	Component ID	Capacitor Model	Rating
Manufactured by Nantong Jianghai Capacitor Co.,Ltd.			
ProNet-E-02B-UL	C30, C32	ECS2EBW681MVN350030	680 uF, 250 V, 105°C
ProNet-E-04B-UL	C1, C2, C3	ECS2EBW122MVN350040	1200 uF, 250 V, 105°C
ProNet-E-08B-UL	C37, C40, C42	ECS2EBW122MVN350040	1200 uF, 250 V, 105°C
EHMA-210DPB	N/A, 8 provided	ECG2WPX222VC130B	2200 uF, 450 V, 85°C
Manufactured by Cornell Dubilier			
EHD-5ZDEB	N/A, 8 provided	DCMC682M450DY5HS	6800 uF, 450 V, 85°C

Alternate – Bus capacitors – See following table for rating detail.

Model Name	Component ID	Capacitor Model	Rating
Manufactured by Nantong Jianghai Capacitor Co.,Ltd.			
EHD-5ZDEB	N/A, 8 provided	ECG2WPX682M155BB	6800 uF, 450 V, 105°C

23. Transformer - Manufactured by Lishui Yongfeng Electron Electricity Factory. Constructed as below. See following Table for detail.

Model	Component ID	Transformer Model	Illustration No.
ProNet-E-02B-UL	T1	ETF26-A2	ILL. 21
ProNet-E-04B-UL	T1	ETF01-C1	ILL. 22
ProNet-E-08B-UL	T1	ETF01-B1	ILL. 23
EHD-5ZDEB	T1	EHDD5Z-C-V101	ILL. 26
	T2	EHDD5Z-F-V102	ILL. 27
EHMA-210DPB	E1	ETF-33-A0	ILL. 28
	E2	ETF-34-A0	ILL. 29

*

DESCRIPTION

PRODUCT COVERED:

USL/ CNL - Open Type, Power Conversion Equipment, AC Servo Driver, Models ProNet-E-30A-UL, PRONET-30A##-*, PRONET-30A##-UL, PRONET-30A##-EC-*, PRONET-30A##-EC-UL, ProNet-E-50A-UL, PRONET-50A##-*, PRONET-50A##-UL, , PRONET-50A##-EC-*, PRONET-50A##-EC-UL, "#" stands for A-Z to indicate encoder soft edition; "-*" stands for null to indicate general manufacture; "-*" stands for 0-9 or A-Z or any other form to indicate client number.

Servo motor –

AC Servo driver	Intended servo motor
ProNet-E-30A-UL, PRONET-30A##-*, PRONET-30A##-UL, PRONET-30A##-EC-*, PRONET-30A##-EC-UL,	EM3A-30A-x$F#&&&-*
ProNet-E-50A-UL, PRONET-50A##-*, PRONET-50A##-UL, PRONET-50A##-EC-*, PRONET-50A##-EC-UL	EM3A-50A-x$F#&&&-*

GENERAL:

The series ProNet are open type, Single or three phase input and three phase output, variable voltage and variable frequency (VVVF) motor drives intended to be used in industrial control applications for pollution degree 2 environments. They provide variable speed control to motor and provide solid state overload protection.

RATINGS:

Electrical -

Model	Electrical rating								
	Input					Output (Three Phase)			
	Voltage (Vac)	Short Circuit Rating	Phase	Current (A)	Frequency (Hz)	Voltage (Vac)	Current (A)	Frequency (Hz)	Power(kW)
ProNet-E-30A-UL, PRONET-30A##-*, PRONET-30A##-UL, PRONET-30A##-EC-*, PRONET-30A##-EC-UL,	200Y/115~230Y/132Vac	35 kA rms, 250 Vac	3	14.4	50/60	0-200	18	0-200	3
ProNet-E-50A-UL, PRONET-50A##-*, PRONET-50A##-UL PRONET-50A##-EC-*, PRONET-50A##-EC-UL	200Y/115~230Y/132Vac	35 kA rms, 250 Vac	3	22.4	50/60	0-200	28	0-200	5

Environmental -

Maximum Surrounding air Temperature - 50°C.
Pollution Degree – 2
Enclosure – Open type

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use – These devices are open type Power Conversion Equipment. They are intended to be used in an enclosure. Insulated gate bipolar transistor (IGBT) incorporating microprocessor technology. They are operated from a single or three-phase source of supply, and intended to control three-phase induction motors by means of a variable frequency output. The units are intended for general-purpose industrial applications.

USL indicates these products were investigated under the Standard for Power Conversion Equipment, UL 61800-5-1.

CNL indicates these products were investigated under the Standard for Industrial Control Equipment, CSA C22.2 No. 274-17, 2nd Edition.

Note: CNL = Canadian National Standards – Listed.
USL = United States Standards – Listed.

Note: CNL = Canadian National Standards – Listed.
USL = United States Standards – Listed.

These devices have been evaluated for providing solid state short circuit protection. The drive is provided with solid-state motor overload protection, overcurrent protection, input failure protection and output failure protection.

CONSTRUCTION DETAILS:

These devices are constructed in accordance with the following description and as described in this Report.

General – References may be made to accompanying photographs and itemized descriptive pages for the details of construction.

Corrosion Protection – All ferrous parts are of corrosion resistant material or are plated or painted as corrosion protection.

Tolerances – Unless specified otherwise, all indicated dimensions are nominal.

Spacings – Spacings according to an Overvoltage Category III (PWB minimum CTI PLC=3) and pollution degree 2. Spacings through the system were based on the input voltage.

Spacings - The minimum spacings are determined based on pollution degree 2 and Overvoltage Category III in accordance with UL 61800-5-1, and Canadian Standard C22.2 No. 274.

Spacings – From UL 61800-5-1, the Standard for Adjustable Speed Electrical Power Drive Systems – Part 5-1: Safety Requirements – Electrical, Thermal and Energy, First Edition, Tables 9 and 10, and CSA C22.2 No. 274-17, Table 28 and 40.

Field Wiring Spacings – The following spacings are maintained: (in accordance with Table DVF.1 (column A) of UL 61800-5-1 and Table 6 (Group A) of CSA C22.2 No. 274-17).

MARKING REQUIREMENTS:

Permanence of Marking – Markings may be molded, die-stamped, paint-stenciled, stamped, laser engraved or etched in metal or indelibly stamped on aluminum, pressure-sensitive label secured by adhesive. Unless otherwise specified, pressure sensitive labels which contain any of the required markings, shall be R/C (PGDQ2) or R/C (PGJI2), Printing Material, it shall be rated for a max. operating ambient of 60°C (or better)and shall also be suitable for 0°C (indoor use) operating ambient, material shall be suitable for use on each type of surface to which applied. If R/C (PGJI2), Printing Material was employed. The combination of the ink (ribbon) and the label material shall be used per the manufacturer’s UL specifications. The printing of the label shall be done using compatible printing equipment.

Industrial control equipment shall be plainly marked with: (appear on anywhere on the device, or on a permanent self-adhesive label shipped with the device)

CONSTRUCTION DETAILS: (CONT'D)

a) The Listee's name, File number, or other descriptive marking by which the organization responsible for the product may be identified;

b) The electrical rating;

c) The catalog number or equivalent;

Installation and operating instructions shall be provided with each device.

The following markings shall appear in one of the following locations: shipped separately with the device; on a separable, self-adhesive permanent label that is shipped with the device; or anywhere on the device itself.

a) Designation markings for each wiring diagram.

b) Markings for proper wiring connections.

c) "Maximum Surrounding Air Temperature 50°C."

d) "Solid State motor overload protection reacts when reaches the percentage(See following table for detail) of FLA" or equivalent;

Model	Percentage
ProNet-E-30A-UL	200%
ProNet-E-50A-UL	200%

e) "Install device in pollution degree 2 environment." or equivalent.

f) "Suitable For Use On A Circuit Capable Of Delivering Not More Than 35,000 rms Symmetrical Amperes, 240 Volts Maximum When Protected By Inverse Time Circuit Breaker, See Following Table For Fuse Information." or equivalent.

Power Conversion Model Series	Circuit Breaker Rating
ProNet-E-30A-UL	125 A/ 480 V
ProNet-E-50A-UL	125 A/ 480 V

h) "CAUTION – Risk of Electric Shock" should be provided, followed by instructions to discharge the Bus Capacitor or indicating the time required (5 minutes) for Bus Capacitor to discharge to a level below 50 Vdc.

i) "Drives have no provision for motor over temperature protection" or equivalent.

CONSTRUCTION DETAILS: (CONT'D)

g) For used in Canada only: "TRANSIENT SURGE SUPPRESSION SHALL BE INSTALLED ON THE LINE SIDE OF THIS EQUIPMENT AND SHALL BE RATED __240_ V (PHASE TO GROUND), 240 V (PHASE TO PHASE), SUITABLE FOR OVERVOLTAGE CATEGORY _III_, AND SHALL PROVIDE PROTECTION FOR A RATED IMPULSE WITHSTAND VOLTAGE PEAK OF _4_ kV" or equivalent.

Field Wiring Terminal Markings – Wiring terminals shall be marked to indicate the proper connections for power supply and load, or a wiring diagram coded to the terminal marking shall be securely attached to the device:

a. "Use 75°C CU wire" or equivalent.

b. Required wire torque, type and range listed below:

Frame Size	Terminal Type	Required Torque (in-lbs)	Wire Range (AWG)	Wire Type
ProNet-E-30A-UL	Input and Output	15.5	10	STR/SOL
ProNet-E-50A-UL	Input and Output	15.5	8	STR/SOL
All Models	Control Circuit	2.7	20	STR/SOL

Grounding – The pressure wire connector intended for connection for field installed equipment, grounding conductor shall be plainly identified such as being marked “G”, “GRD”, “Ground”, “Grounding”, or equivalent or with the grounding symbol (IEC 417, Symbol 5019).

Tightening torque and wire range for field grounding wiring terminals are marked adjacent to the terminal or on the wiring diagram.

Frame Size	Terminal Type	Required Torque (in-lbs)	Wire Range (AWG)
ProNet-E-30A-UL	Grounding Terminal Block	15.5	6
ProNet-E-50A-UL	Grounding Terminal Block	15.5	6

MODEL DIFFERENCE –

Model ProNet-E-30A-UL is identical to Models PRONET-30A##-*, PRONET-30A##-UL, PRONET-30A##-EC-* and PRONET-30A##-EC-UL except for I/O card. Unless specified describing in report, ProNet-E-50A-UL represents all these modes in this report.

Model ProNet-E-50A-UL is identical to Models PRONET-50A##-*, PRONET-50A##-UL PRONET-50A##-EC-* and PRONET-50A##-EC-UL except for I/O card. Unless specified describing in report, ProNet-E-50A-UL represents all these modes in this report.

Model ProNet-E-50A is identical to Model ProNet-E-30A except for electrical rating and several minor components.

FIGURES and ILLUSTRATIONS REFERENCE:

In this report, the following illustrations shall be used as supplementary information where specifically noted.

No.	Description
FIG. 1 thru 7	External and Disassembled overview of Model ProNet-E-50A
ILL. 1	Model ProNet-E-50A Case Dimensions detail
ILL. 2	Model ProNet-E-50A Heatsink Dimension Drawing
ILL. 3	Model ProNet-E-50A Component and Trace Layout Drawing
ILL. 4	Transformer(ETF02-A1) Schematics and Insulation Drawing
ILL. 5	Transformer(ETF03-1B) Schematics and Insulation Drawing
ILL. 6	Transformer (ETF41-A0) Schematics and Insulation Drawing

OUTER OVERALL VIEW OF
ProNet-E-50A-UL - FIGS. 1 THRU 4

1. Case – Any R/C (QMFZ2), rated minimum HB, minimum 85°C, minimum 0.8 mm thickness. Secured to Heatsink by screws. See following table for dimensions detail.

Model	Illustration
ProNet-E-50A-UL	ILL. 1

2. Heatsink - Aluminum. See following table for dimensions detail.

Frame Size	Illustration
ProNet-E-50A-UL	ILL. 2

3. Brake Resistor Assembly – One provided, Mounted on heatsink and secured by screws, two internal wires connected to terminal block, it may be go through heatsink and power board and secured in place by physical-fit. Refer to table below for detailed information:

Model	Manufacturer	Model
ProNet-E-50A-UL	SHANGHAI KRAH ELECTRONICS CO., LTD	RXLG-H-F-300W-10RK 350MM

4. Fan – R/C (GPWV2/8), Refer to table below for detailed information:

Model	Number	Manufacturer	File No.	Series	Rating	Air Flow
ProNet-E-50A-UL	2	SHENZHEN HUAXIA HENGTAI ELECTRONIC CO LTD	E254715	DA06015B24MA	24 Vdc/ 0.12 A	18.5 CFM

INTERNAL VIEW OF
ProNet-E-50A-UL - FIGS. 5 THRU 7

1. Printed Wiring Board (PWB) – R/C (ZPMV2), rated minimum V-0, minimum 130°C, minimum CTI=175, DSR all. See following table for PWB trace and component layout detail.

Model	Illustration No.
ProNet-E-50A-UL	ILL. 3

2. Terminal Block - R/C (XCFR2/8), Dinkle Enterprise Co Ltd (E102914). Refer to table below for detailed information:

Model	Component ID	Cat. No.	Rating
ProNet-E-50A-UL	TM1	DT-66-B01W	300 V, 40 A, CU, FW=2, UG=C, 8-18 AWG (Sol/Str), torque: 15.5 lb-in

Alternate – Terminal Block – R/C (XCFR2/8), DEGSON Electronics Co Ltd (E228872). Refer to table below for detailed information:

Model	Component ID	Cat. No.	Rating
ProNet-E-50A-UL	TM1	DG65R-B-14P-13-00AH	300 V, 10 A, FW=2, UG=D, 95°C, torque: 10.5 lb-in

3. Varistors – R/C (VZCA2), CSA Certified, NANJING SHAGON ELECTRONICS CO LTD (E321069), see following table for detail.

Model	Component ID	Model	Rating
ProNet-E-50A-UL	XX1~XX4	MYG10K471	MCOV 300 Vac

Alternate Varistors – R/C (VZCA2/8), GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD. XIANHUA NEW SENSITIVE COMPONENTS BRANCH (E325462), see following table for detail.

Model	Component ID	Model	Rating
ProNet-E-50A-UL	XX1~XX4	FNR-10K471	MCOV 300 Vac

4. Capacitors – Cross the Line. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-50A-UL	C7, C8, C9	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.022uF, 275 V, 110°C
	C56, C105	XIAMEN FARATRONIC CO LTD (E186600)	MKP62	Rated 0.1 uF, 305 V, 110°C

5. Capacitors – Line to ground. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-50A-UL	C10~C13	XIAMEN FARATRONIC CO LTD (E186600)	MKP63	Rated 4.7 nF, 300 V, 110°C

Alternate – Capacitors – Line to ground. R/C (FOWX2/8). See following table for detail.

Model	Component ID	Manufacturer	Model	Rating
ProNet-E-50A-UL	C10~C13	XIAMEN FARATRONIC CO LTD (E186600)	C43	Rated 4.7nF, 300 V, 110°C

6. NTC (TH1) – Manufactured by GUANGDONG FENGHUA ADVANCED TECHNOLOGY HOLDING CO LTD., model NTC5D-9MTF2E3, rated 240V, 3A.

7. Linke Chock – See following items for detail:

a. Windings – Two provided. R/C (OBMW2), magnet wire see following table for turns and diameter detail.

Model	Component ID	Wire Diameter (mm)	Winding Turns (T)
ProNet-E-02B-UL ProNet-E-08B-UL	L1	0.25	120
ProNet-E-04B-UL	L2	0.25	120
ProNet-E-50A-UL	L2	0.25	120
EHD-5ZDEB	L1	0.38	60

b. Bobbin – R/C (QMFZ2), overall covering core, see following table for detail.

Frame Size	Manufacturer	Cat.	Rating
ProNet-E-50A-UL	Chang Chun Plastics Co. Ltd.(E59481)	T375J	measured tnickness mimum 0.75 mm, rated V-0, 150°C(HAI= 1, HWI=0, CTI=3)

b. Core – Magnet metal. See following table core size.

Frame Size	Core Dimensions (mm)
ProNet-E-50A-UL	19.7 by 32 by 29.4

8. Soft-starting Resistor – See following table for detail.

Model	Component ID	Model	Rating	Location
ProNet-E-50A-UL	TH2, TH3	MF73T-1-6/11	Rated 6 ohm, 11 A, 200°C	Soldered to PWB by soldering

9. Soft-starting Relay - See following table for detail.

Model	Component ID	Manufacturer	Relay Model	Rating
ProNet-E-50A-UL	RL1	R/C (NRNT2/8), XIAMEN HONGFA ELECTROACOUSTIC CO LTD (E133481)	HFKP/006-1H5TS	Rated 13.5 Vdc, 45 A, 125°C
		R/C (NLDX2/8), OMRON CORP (E41643)	G4A-1A-PE	Rated 250 V ac, 20 A, 85°C

10. Rectifier– R/C (QQQX2), see following table for rating detail. Contact heatsink directly.

Model	Component ID	Manufacturer	Type	Rating
ProNet-E-50A-UL	DB1	SHINDENGEN ELECTRIC MFG CO LTD (E142422)	D45XT80	800 V, 45 A, Maximum case temperature 150 °C (Isolating voltage 2500 Vac)

11. IGBT – R/C (QQQX2), see following table for rating detail. Contact heatsink directly.

Model Name	Component ID	Manufacturer	Type	Rating
ProNet-E-50A-UL	PM1	MITSUBISHI ELECTRIC CORP SEMICONDUCTOR DIV (E80276)	PM150RL1A060	150A, 600 Vac (Isolation voltage 2500 Vac, Case: 125°C)
			PM100RL1A060	100A, 600 Vac (Isolation voltage 2500 Vac, Case: 125°C)

12. Current Sensor – See following table for detail.

Model	Component ID	Manufacturer	Current Sensor Model	Rating
ProNet-E-50A-UL	CT1, CT2	R/C (NMTR2/8), LEM SWITZERLAND S A (E189713)	LAX100NP	Rated 100A, (Isolation voltage 3500 Vac, Case: 85°C)
			CASR50-NP	Rated 600V, 50A, (Case: 105°C)

13. Fuse (FU1) – Optional. See following table for detail.

Model	Manufacturer	Model	Rating
ProNet-E-50A-UL	Mingrong Electrical Protection CO LTD	RGS11-250V-75A	300 V, 75 A

14. PWM IC – See following table for detail.

Model	Component ID	Model
ProNet-E-50A-UL	U1	TOP246YN (PI)

15. Optical Isolator – See following table for detail.

Model	Component ID	Manufacturer	Component Model	Rating
ProNet-E-50A-UL	PC10~PC20	R/C (FPQU2/8), EVERLIGHT ELECTRONICS CO LTD (E214129)	PC817X3 NSZW	Isolating voltage 5000 Vac, 110°C
	PC1~PC7	R/C (FPQU2), CSA Certified, AVAGO TECHNOLOGIES PTE LTD (E55361)	HCPL-M456-500E	Isolating voltage 3750 Vac, 110°C
	PC30	R/C (FPQU2),NEC Corporation CO LTD(E72422)	PS2502-1-A	Isolating voltage 5000 Vac, 100°C
		R/C (FPQU2), LITE-ON TECHNOLOGY CORP (E113898)	LTV-852	Isolating voltage 5000 Vac, 115°C

16. Insulation Barrier – R/C (QMFZ2), SICHUAN DONGFANG INSULATING MATERIAL CO LTD (E199019), Type DFPET 6023, PET film, rated VTM-2, 105°C, minimum thickness 0.05 mm.

17. Bus capacitors – See following table for rating detail.

Model Name	Component ID	Capacitor Model	Rating
Manufactured by Nantong Jianghai Capacitor Co.,Ltd.			
Manufactured by AISHI			
ProNet-E-50A-UL	C1~C5	ELH2GM561R40JC	560 uF, 400 V, 105°C
Manufactured by Nantong Jianghai Capacitor Co.,Ltd.			
ProNet-E-50A-UL	C1~C5	ECS2GBW561MLB350040	560 uF, 400 V, 105°C

23. Transformer – Manufactured by Lishui Yongfeng Electron Electricity Factory. Constructed as below. See following Table for detail.

Model	Component ID	Transformer Model	Illustration No.
ProNet-E-50A-UL	T1	ETF02-A1	ILL. 4
	T2	ETF03-1B	ILL. 5

Alternate – Transformer (T1) only for ProNet-E-50A-UL – Manufactured by Lishui Yongfeng Electron Electricity Factory, Model ETF41-A0, Constructed as ILL. 6.

Transformer constructed as follows:

Component	Manufacturer	Type	Rating
Core	N/A	N/A	Ferrite
Bobbin	R/C (QMFZ2), CHANG CHUN PLASTICS CO LTD (E59481)	T375J	Minimum 0.75 mm thick. Rated V-0, Meet DSR (HWI:1, HAI:0, CTI:3).
Winding	R/C (OBMW2), Any manufacturer	Any type	Minimum 105°C
Insulation Tape	R/C (OANZ2), JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD (E165111)	CT	130 °C, Wrapped minimum one layer on winding

CONTROL BOARD

1. Terminal Block - (JP1) - R/C (XCFR2, XCFR8), ANYTEK TECHNOLOGY CORP (E202113), Type K6, rated 300 Vac. (10 A, FW(2), 16 - 24 AWG (SOL/STR), Copper, Torque 2.7 in-lbs, UG: D)

200V
SERVODRIVE
PRONET-E-30A
POWER
CHARGE
CN3
CN4
CN1
CN2
ESTUN
WARNING
CAUTION
Read manual carefully and follow the direction
Disconnect all power and wait 5 minutes before servicing.
May cause electric shock.
Do not touch heatsink. May cause burn.
Use proper grounding techniques.

N191936770

SERVODRIVE
PRONET-E-30A
200V
POWER
CHARGE
L1
L2
L3
⊕1
⊕2
⊖
L1C
L2C
B1
B2
B3
U
V
W

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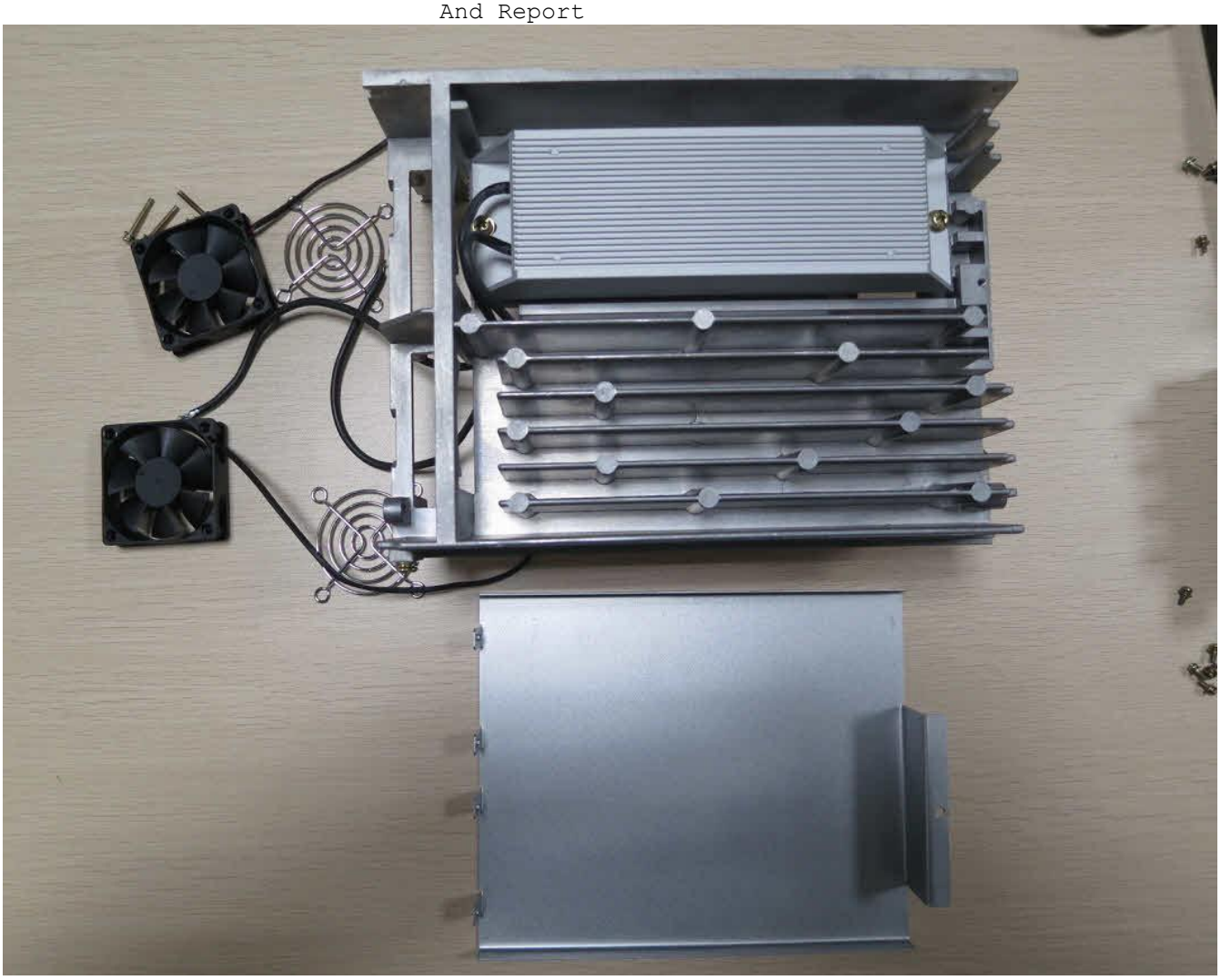

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ESTUN
PRONET-D50-A-V103
CD294
30A
L1
L2
L3
⊕1
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⊖
L1C
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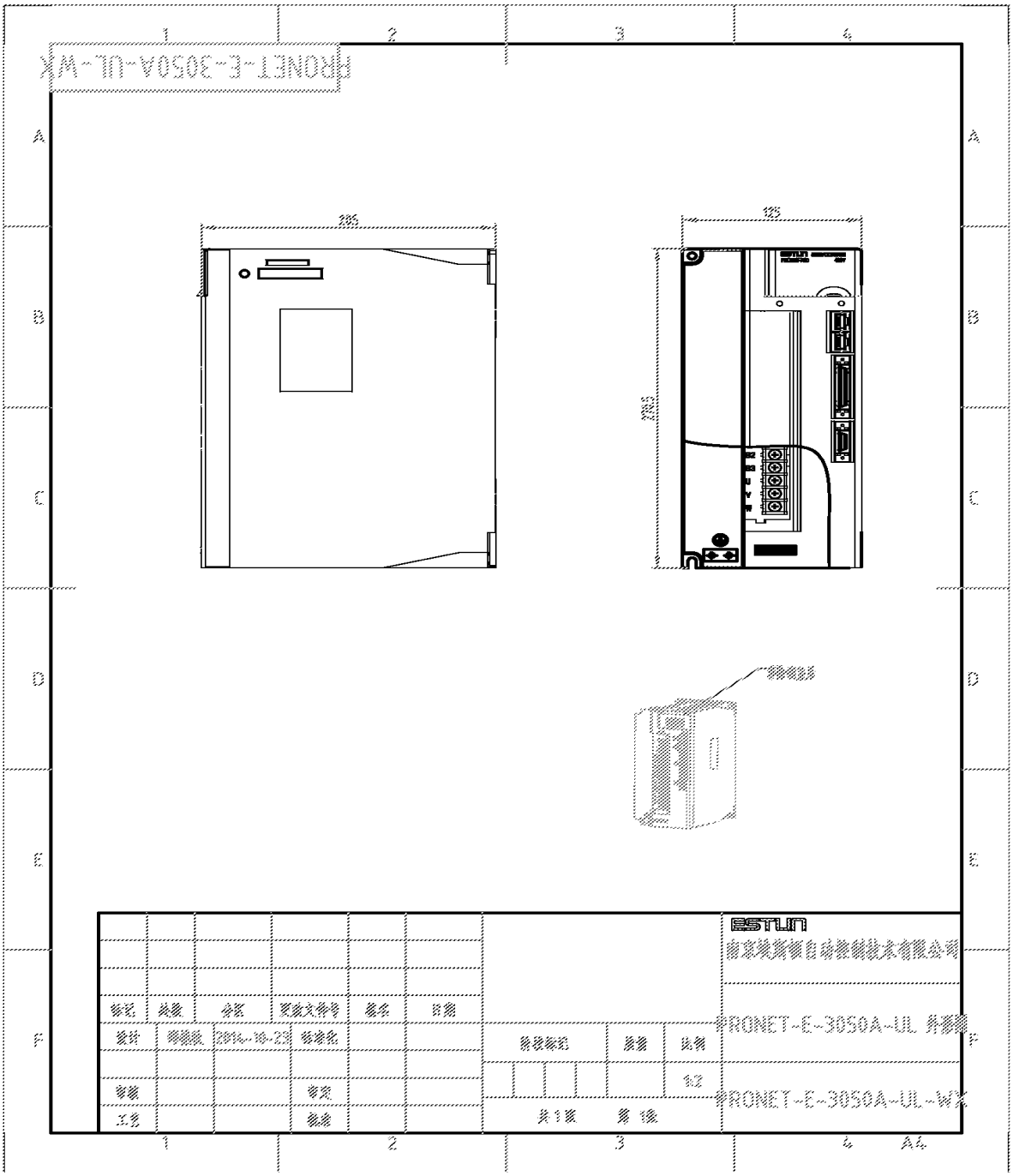
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FRONET-E-3050A-UL-W
A4

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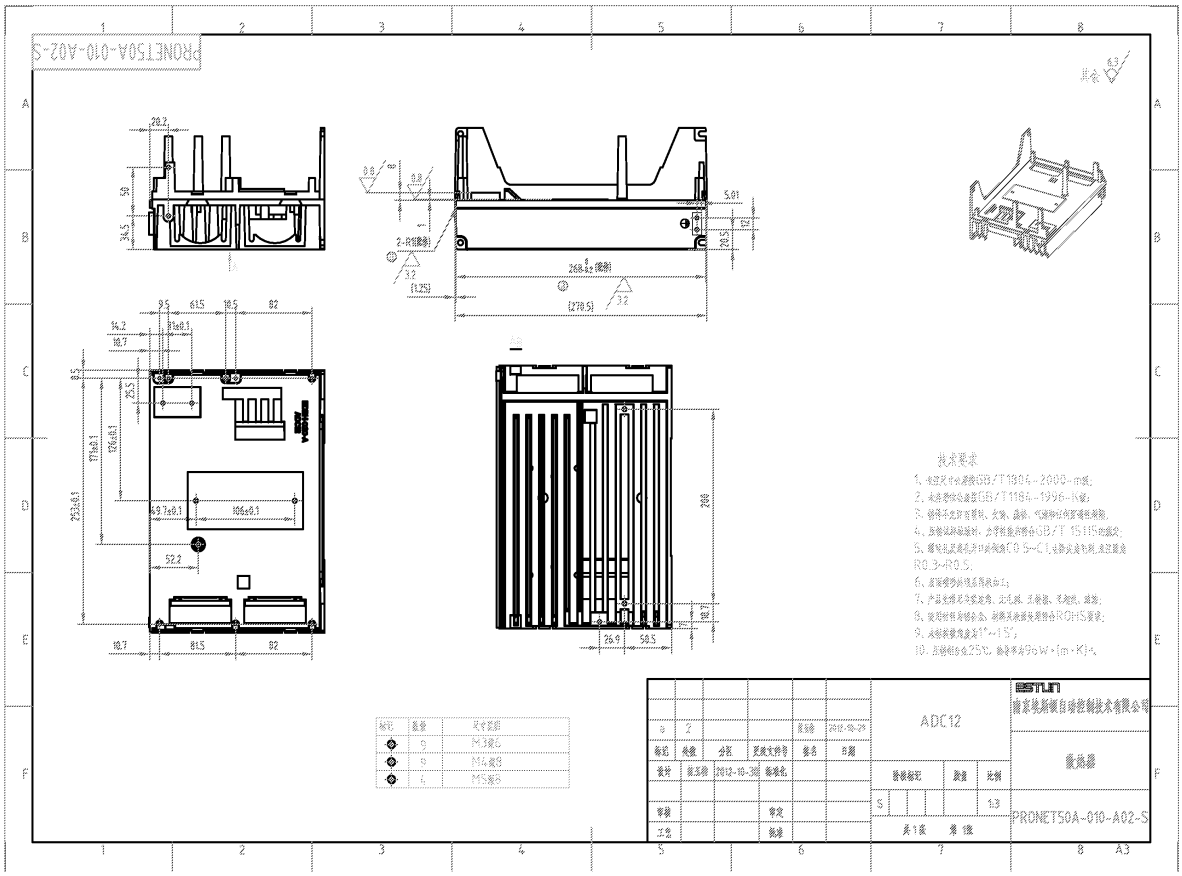

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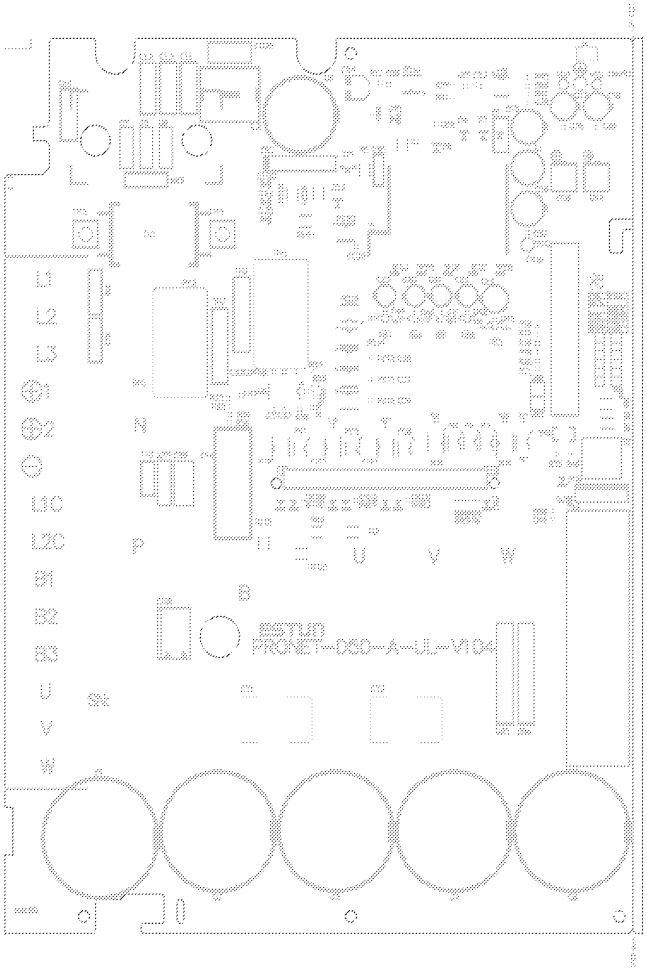
L1
L2
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PRONET-050-A-UL-V104

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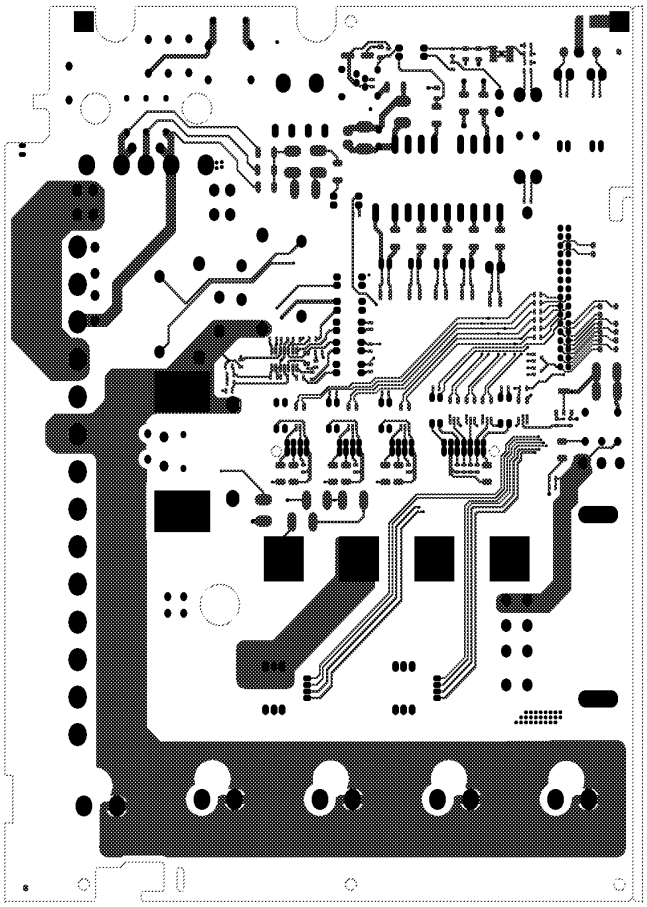

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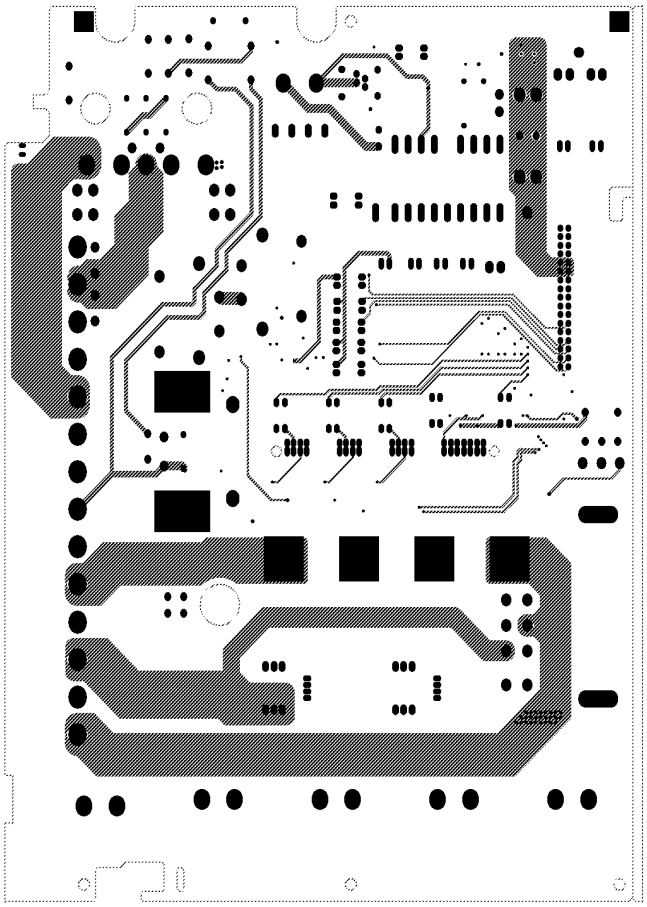

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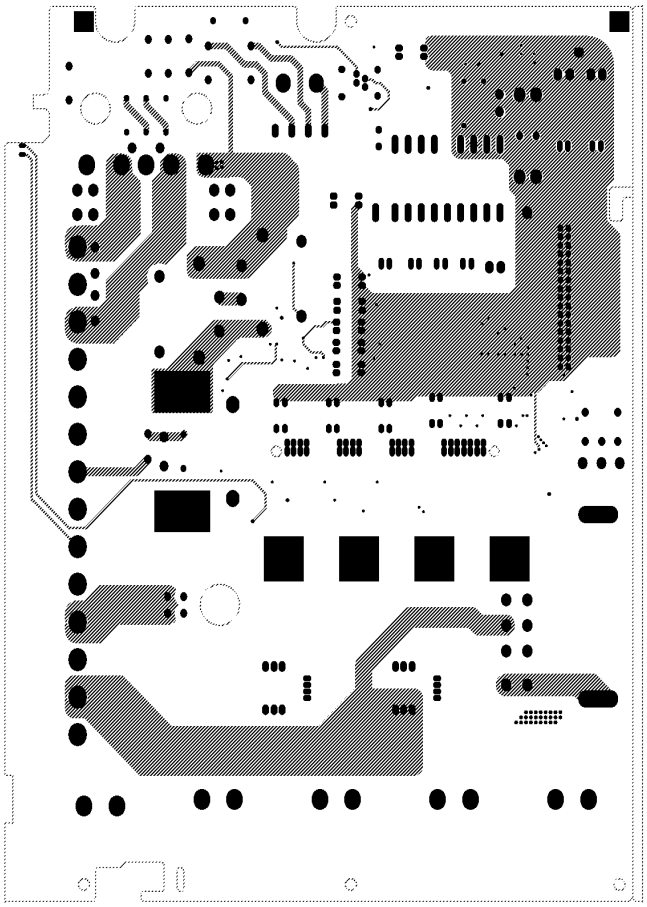

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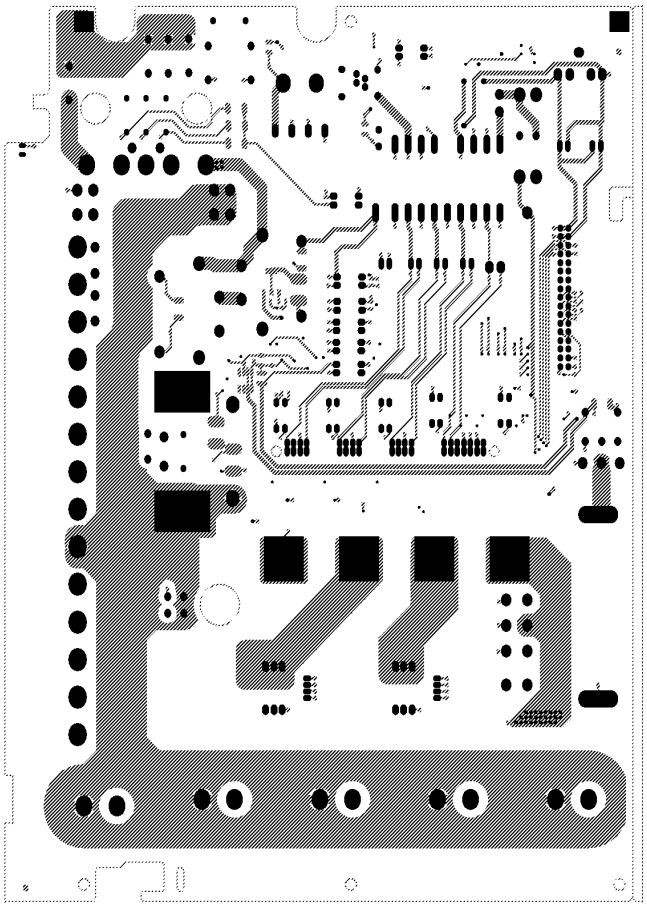

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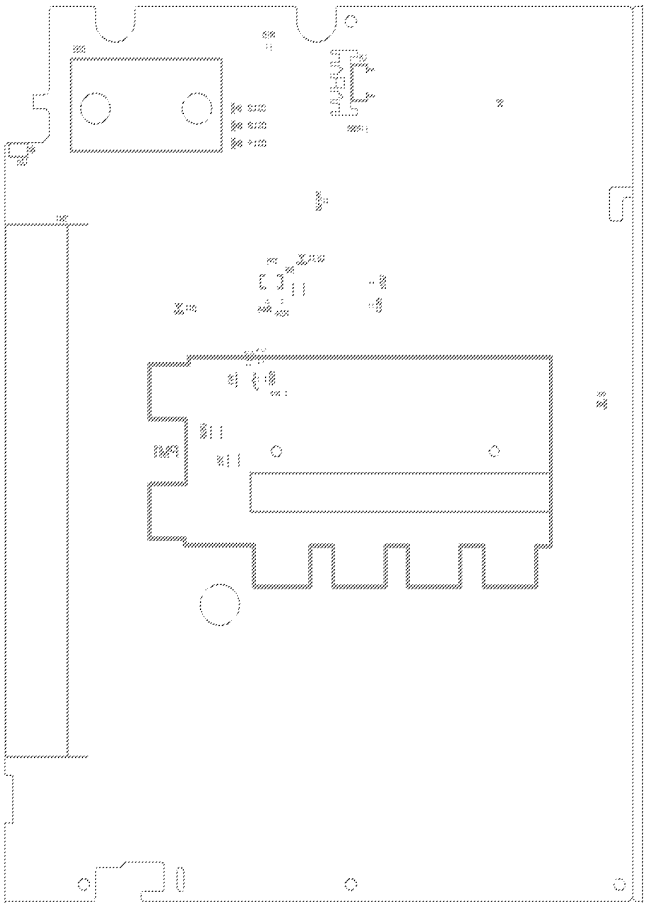

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南京埃斯顿自动控制技术有限公司 研发部	文档编号	版本	密级
		V1.00	内部公开
	资源类别:		共 6 页

ETF02-A1 变压器规格书

拟制: 边彬 日期: 2008-12-9

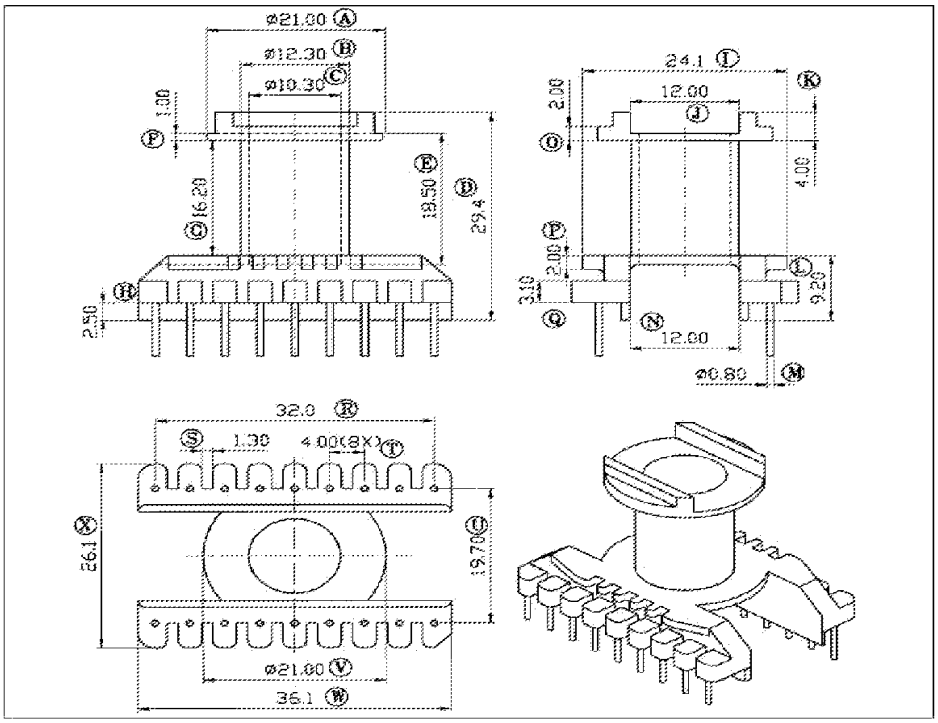
审核: 日期: 2008-12-9

批准: 日期: 2008-12-9

修订记录

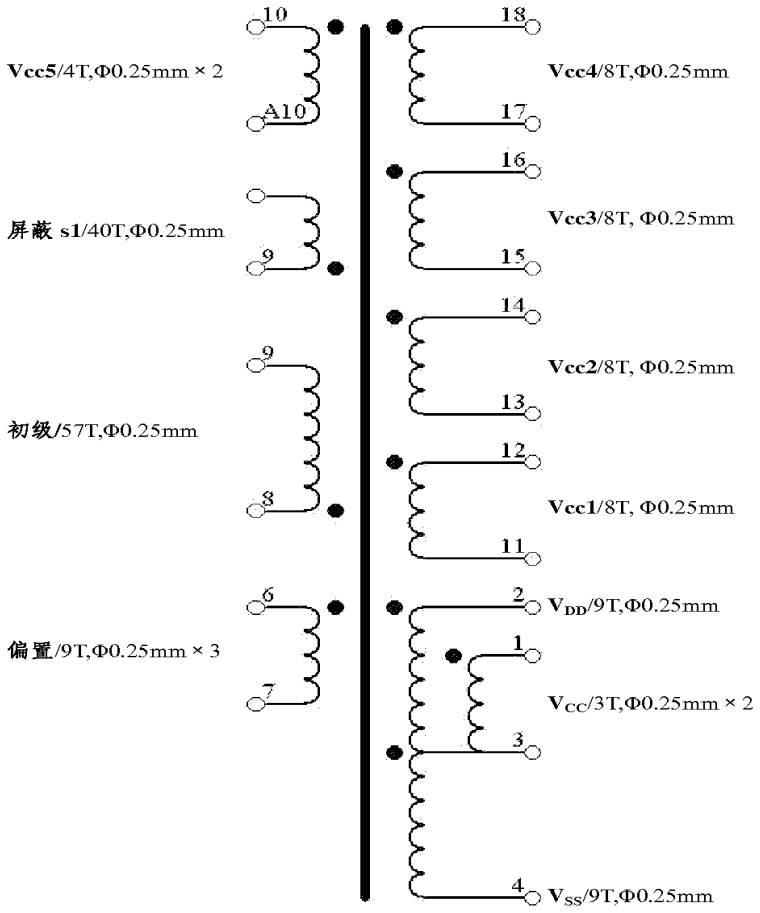
日期	修订版本	描述	作者
2008/12/9	1.00	变压器重新设计	边彬

一、骨架外形结构



型号	EER-28(18 PIN)
B_W	10.20mm （实测）
供货商	

二、电气框图



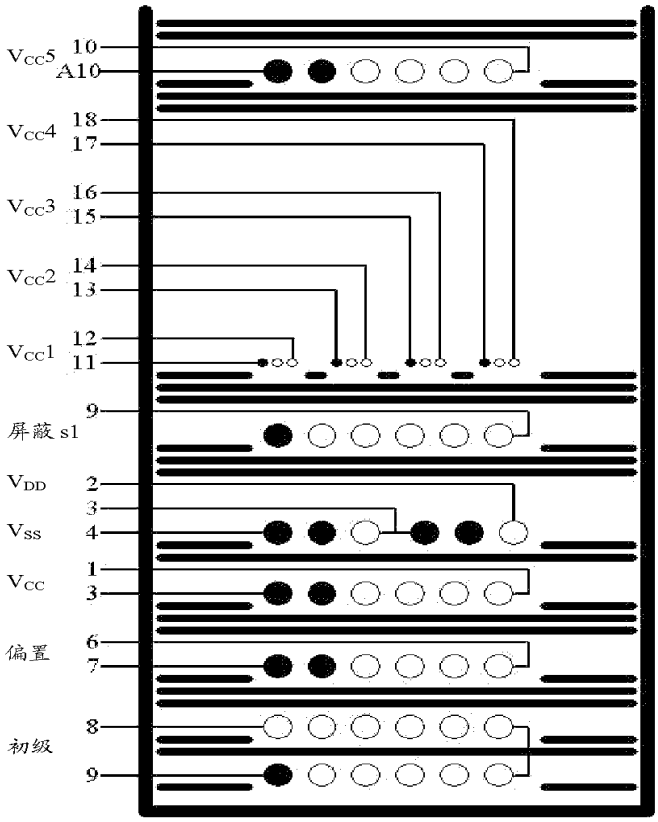
三、电气指标

电气绝缘	初级与次级绕组之间，以及次级各绕组之间	3000V_{AC}
初级电感	8-9 号引脚,其他引脚开路,130kHz	1558μH/±5%
共振频率	8-9 号引脚,其他引脚开路	不低于 0.5MHz
初级漏感	8-9 号引脚,其他引脚短接,130kHz	不大于 47μH

四、材料

序号	描　述
[1]	磁芯采用 EER-28，PC44-HF-100C 材质磁芯，A_{LG}=475nH/T^2
[2]	骨架采用珠海厦尔制造的 EER-28，18PIN；5 号引脚剪除，**A10 为 10 号引脚旁外加耐高温套管引出引脚**
[3]	裸线径为 0.25 漆包线
[4]	电气绝缘胶带
[5]	清漆

五、绕制示意图



六、绕制说明

初级绕组	用 3mm 挡墙。9 号引脚开始，用Φ0.25mm 芯线[3]从左至右绕制 28 圈，并使线圈均匀分布在骨架窗口内；两层之间用两层胶带[4]隔离；再从右至左绕制剩余的 29 圈，同样均匀分布在骨架的窗口内；终止于 8 号引脚。
电气绝缘	绕制一层胶带[4]用于基本电气绝缘。
偏置绕组	用 3mm 挡墙。7 号引脚开始，采用Φ0.25mm 芯线[3]三线并绕方式从左至右绕制 9 圈，并使线圈均匀分布在骨架的窗口内，终止于 6 号引脚。
电气绝缘	绕制三层胶带[4]用于基本电气绝缘。
反馈绕组	用 3mm 挡墙。V_{CC}从 3 号引脚开始，采用Φ0.25mm 芯线[3]双线并绕方式从左至右绕制 3 圈，并使线圈均匀分布在骨架的窗口内，终止于 1 号引脚。
电气绝缘	绕制一层胶带[4]用于电气绝缘。
次级绕组	用 3mm 挡墙。V_{SS}从 4 号引脚开始，采用Φ0.25mm 芯线[3]从左至右绕制 9 圈，并使线圈均匀分布在骨架的左半边，终止于 3 号引脚；V_{DD}从 3 号引脚开始，采用Φ0.25mm 芯线[3]从左至右绕制 9 圈，并使线圈在骨架的右半边，终止于 2 号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
屏蔽绕组 S1	用 3mm 挡墙。开始端埋在胶带中，采用Φ0.25mm 芯线[3]，从左至右绕制约 40 圈（保证填满窗口即可），并使线圈均匀排列在骨架的窗口中心带，终止于 9 号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
隔离绕组	用 2mm 挡墙。分别从 11 号引脚、13 号引脚、15 号引脚与 17 号引脚开始，采用Φ0.25mm 芯线[3]从左至右绕制 8 圈，同时用 1mm 挡墙间隔各绕组，使各绕组均匀分布在骨架的窗口内，分别终止于 12 号引脚、14 号引脚、16 号引脚与 18 号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
隔离绕组 2	用 3mm 挡墙。饶线外套耐高温套管从 10 号引脚旁开始并作为 A10 号引脚，采用Φ0.25mm 芯线[3]双线并绕方式从左至右绕制 4 圈，并使线圈均匀分布在骨架的窗口内，终止于 10 号引脚。
电气绝缘	绕制三层胶带[4]用于加强电气绝缘。
组装	将已开气隙的磁芯[1]，装入骨架中（5 号、18 号引脚剪除），并用胶带[4]固定。
铜箔	将铜箔包裹于磁芯气隙一周。
浸漆	将组装好的变压器用浸漆均匀浸透。

ESTUN 埃斯顿自动化

产品规格书

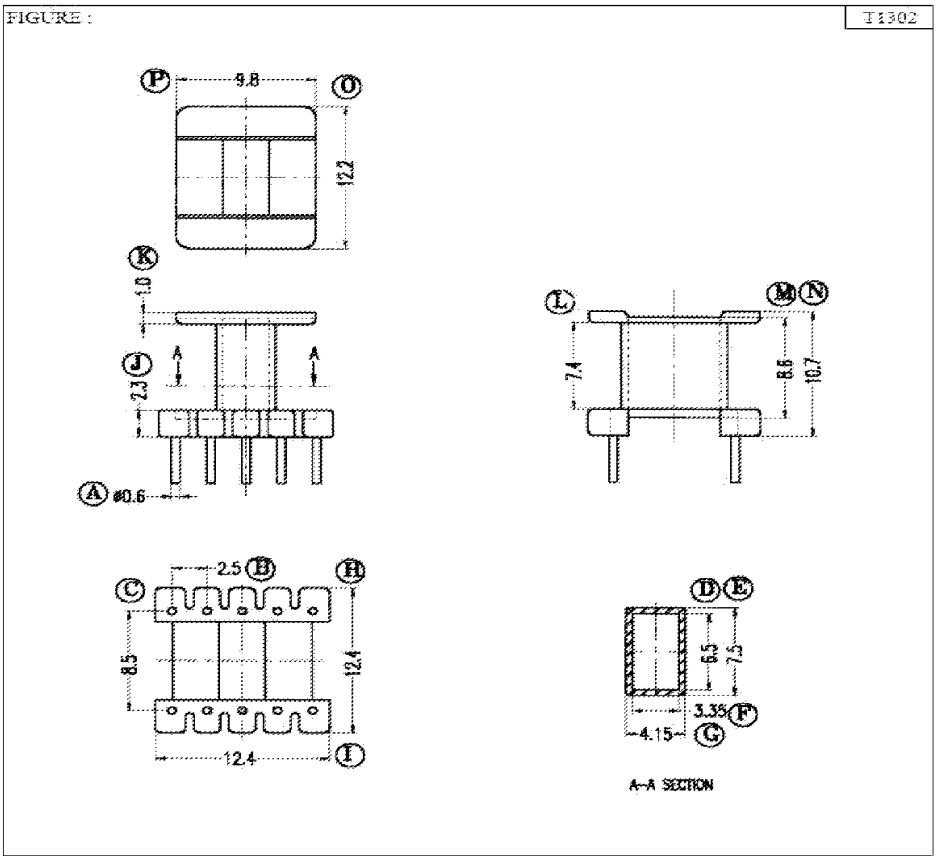
产品名称	信号驱动变压器
产品型号	E T F 0 3
产品版本	1 B

设计	陶荣宁
审核	
批准	

N191936821

埃斯顿自动化

一、骨架外形结构



型号 EE-13(10 PIN)

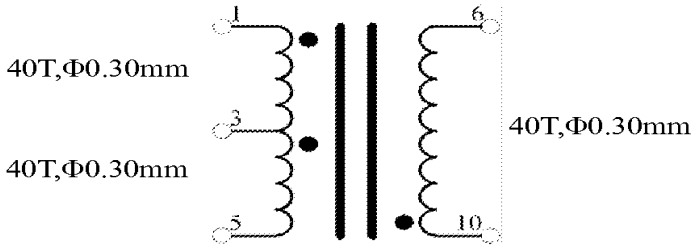
供货商

南京江宁经济技术开发区将军南路 155 号 / 211100 / 025-52785866
taorongning@estun.com / 025-52785143 / 13851472897

N191936821

埃斯顿自动化

二、电气框图



三、电气指标

电气绝缘	1min,60Hz,1、5 号引脚至 6、10 号引脚	3000V_{AC}
初级电感	1、5 号引脚,其他引脚开路	8.0mH/±15%
次级电感	6、10 号引脚,其他引脚开路	2.2mH/±15%

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taorongning@estun.com / 025-52785143 / 13851472897

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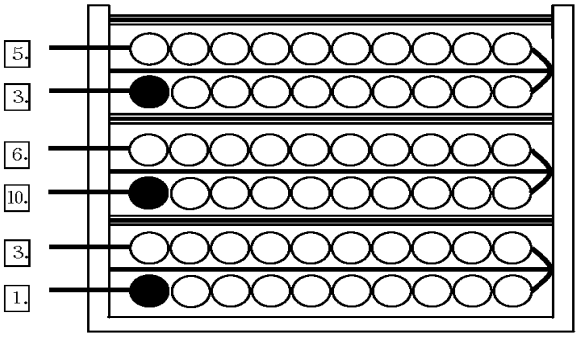
四、材料

序号	描 述
[1]	磁芯采用 EE-13，R2K 或与其相当的材质
[2]	骨架采用 EE-13（10 PIN）立式胶木骨架，除去多余引脚
[3]	芯线采用 Φ0.30mm 的漆包线
[4]	电气绝缘胶带
[5]	清漆

五、绕制示意图



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taorongning@estun.com / 025-52785143 / 13851472897

ESTUN 埃斯顿自动化

六、绕制说明

双层初级绕组	1 号引脚开始，用Φ0.30mm 芯线[3]从左至右绕制 20 圈，并使线圈均匀分布在骨架窗口内；两层之间用一层胶带[4]隔离；再从右至左绕制剩余的 20 圈，同样均匀分布在骨架的窗口内；终止于 3 号引脚。
电气绝缘	绕制两层胶带[4]用于电气绝缘。
双层次级绕组	10 号引脚开始，用Φ0.30mm 芯线[3]从左至右绕制 20 圈，并使线圈均匀分布在骨架窗口内；两层之间用一层胶带[4]隔离；再从右至左绕制剩余的 20 圈，同样均匀分布在骨架的窗口内；终止于 6 号引脚。
电气绝缘	绕制两层胶带[4]用于电气绝缘。
双层初级绕组	3 号引脚开始，用Φ0.30mm 芯线[3]从左至右绕制 20 圈，并使线圈均匀分布在骨架窗口内；两层之间用一层胶带[4]隔离；再从右至左绕制剩余的 20 圈，同样均匀分布在骨架的窗口内；终止于 5 号引脚。
电气绝缘	绕制两层胶带[4]用于电气绝缘。
组装	将磁芯[1]装入骨架中，并用胶带[4]固定。
浸漆	将组装好的变压器用清漆均匀浸透。

南京江宁经济技术开发区将军南路 155 号 / 211100 / 025-52785866
taorongning@estun.com / 025-52785143 / 13851472897

南京埃斯顿自动控制技术有限公司 研究院	文档编号	版本	密级
		V1.00	内部公开
	资源类别：		共6页

ETF41-A0变压器规格书

拟制：赵满员 日期：2015-09-16

审核： 日期：2015-09-16

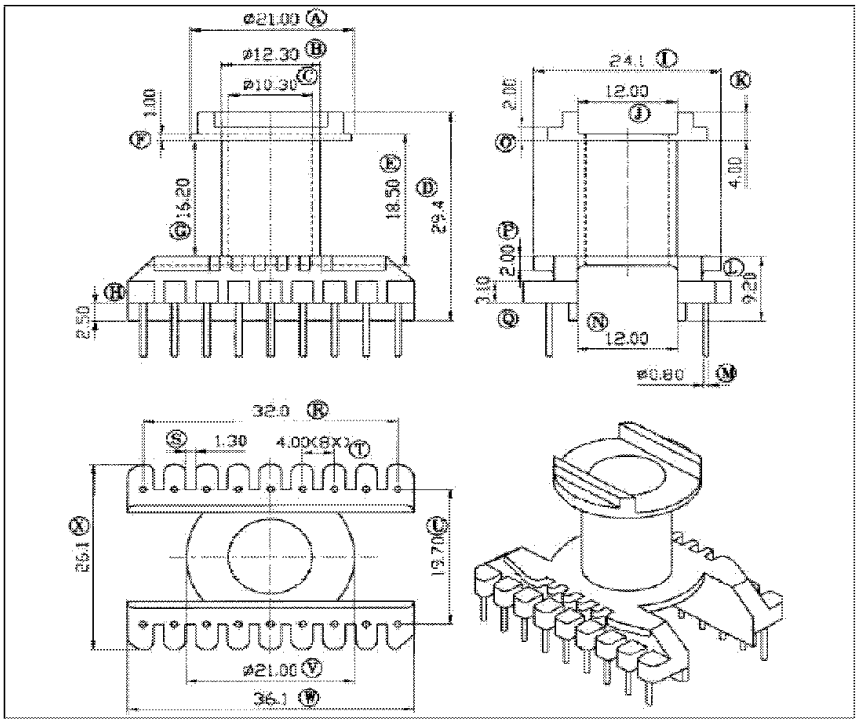
批准： 日期：2015-09-16

N191936822

修订记录

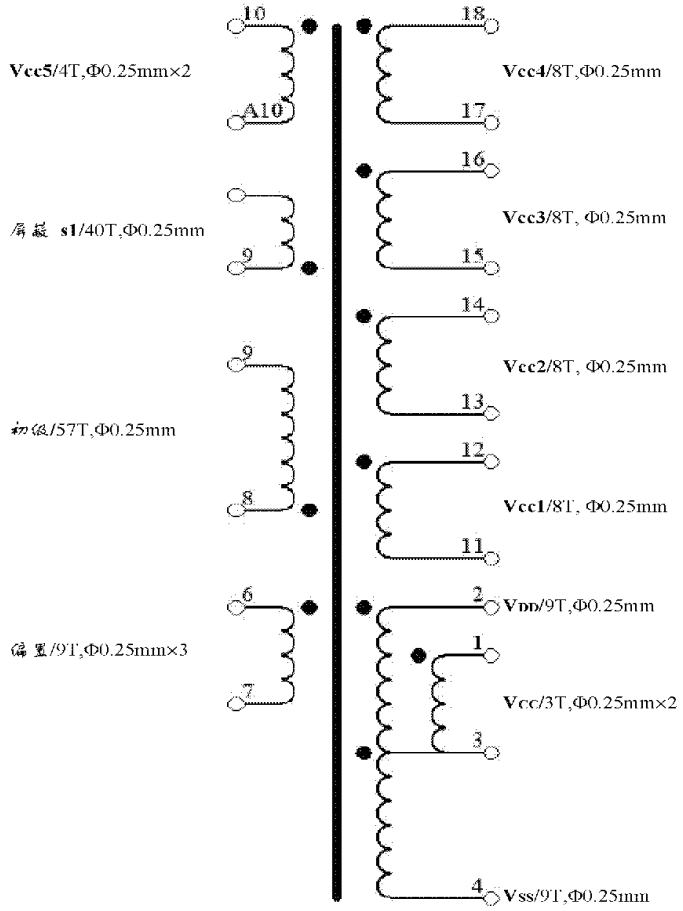
日期	修订版本	描述	作者
2015/09/16	1.00	变压器重新设计（初级采用双层绝缘线）	赵满员

一、骨架外形结构



型号	EER-28(18 PIN)
Bw	10.20mm （实测）
供货商	

二、电气框图



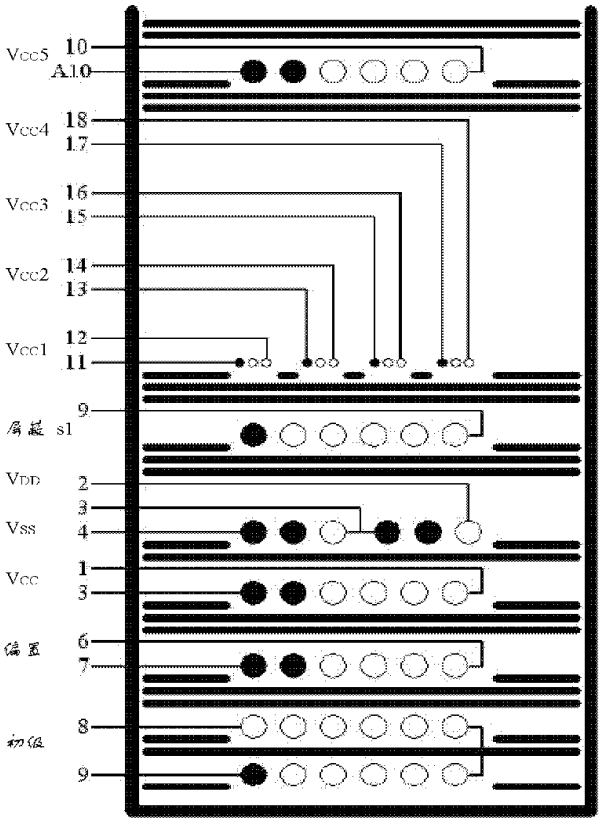
三、电气指标

电气绝缘	初级与次级绕组之间，以及次级各绕组之间	3000V_{AC}
初级电感	8-9 号引脚,其他引脚开路,130kHz	1558μH/±5%
共振频率	8-9 号引脚,其他引脚开路	不低于 0.5MHz
初级漏感	8-9 号引脚,其他引脚短接,130kHz	不大于 47μH

四、材料

序号	描 述
[1]	骨架采用EER-28，18PIN；5 号引脚剪除，**A10** 为 **10** 号
[2]	裸线径为 0.25 漆包线,初级采用双层绝缘线，其它普通漆包线
[3]	电气绝缘胶带
[4]	清漆
[5]	磁芯采用 EER-28，PC44-HF-100C 材质磁芯，ALG=475nH/T[2]

五、绕制示意图



六、绕制说明

初级绕组	用3mm挡墙。9号引脚开始，用Φ0.25mm总线[3]从左至右绕制28圈，并使线圈均匀分布在骨架窗口内；两层之间用两层胶带[4]隔离；再从右至左绕制剩余的29圈，同样均匀分布在骨架的窗口内；终止于8号引脚。
电气绝缘	绕制三层胶带[4]用于基本电气绝缘。
偏置绕组	用3mm挡墙。7号引脚开始，采用Φ0.25mm总线[3]三线并绕方式从左至右绕制9圈，并使线圈均匀分布在骨架的窗口内，终止于6号引脚。
电气绝缘	绕制三层胶带[4]用于基本电气绝缘。
反馈绕组	用3mm挡墙。V_{cc}从3号引脚开始，采用Φ0.25mm总线[3]双线并绕方式从左至右绕制3圈，并使线圈均匀分布在骨架的窗口内，终止于1号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
次级绕组	用3mm挡墙。V_{oo}从4号引脚开始，采用Φ0.25mm总线[3]从左至右绕制9圈，并使线圈均匀分布在骨架的左半边，终止于3号引脚；V_{m}从3号引脚开始，采用Φ0.25mm总线[3]从左至右绕制9圈，并使线圈在骨架的右半边，终止于2号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
屏蔽绕组S1	用3mm挡墙。开始端埋在胶带中，采用Φ0.25mm总线[3]，从左至右绕制约40圈（保证填满窗口即可），并使线圈均匀排列在骨架的窗口中心带，终止于9号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
隔离绕组	用2mm挡墙。分别从11号引脚、13号引脚、15号引脚与17号引脚开始，采用Φ0.25mm总线[3]从左至右绕制8圈，同时用1mm挡墙间隔各绕组，使各绕组均匀分布在骨架的窗口内，分别终止于12号引脚、14号引脚、16号引脚与18号引脚。
电气绝缘	绕制三层胶带[4]用于电气绝缘。
隔离绕组2	用3mm挡墙。铜线外套耐高温套管从10号引脚拿开始并作为A10号引脚，采用Φ0.25mm总线[3]双线并绕方式从左至右绕制4圈，并使线圈均匀分布在骨架的窗口内，终止于10号引脚。
电气绝缘	绕制三层胶带[4]用于加强电气绝缘。
组装	将已开气隙的磁芯[1]，装入骨架中（5号、18号引脚剪除），并用胶带[4]固定。
铜箔	将铜箔包裹于磁芯气隙一周。
浸漆	将组装好的变压器用浸漆均匀浸透。