



File E158873

Vol X15

Authorization Page 1

Issued: 2023-01-16

Revised: 2023-03-17

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - COMPONENT
(AZOT2, AZOT8)

Manufacturer:	SEE ADDENDUM FOR MANUFACTURER LOCATIONS
Applicant: (813307-003)	105140 (Party Site) Hanwha Vision Co Ltd 6, Pangyo-ro 319beon-gil, Bundang-gu Seongnam-si Gyeonggi-do 13488 KR
Recognized Company: (813307-003)	105140 (Party Site) SAME AS APPLICANT

Use of the Mark

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party. The UL Contracting Party for Follow-Up Services is listed in the addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

It is the responsibility of the Applicant, Manufacturer(s), and Recognized Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

Additional Responsibilities

Additional responsibilities, duties and requirements for the Applicant and Manufacturers are defined under Additional Resources at the following website: <https://www.ul.com/fus>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the Follow-Up Service Terms referenced below, please contact UL's Customer Service at <https://www.ul.com/aboutul/locations/>, select a location and enter your request, or call the number listed for that location.

Acceptance of Follow-Up Services

The Applicant and the specified Manufacturer(s) and any Recognized Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable service agreement is a Global Services Agreement ("GSA"), the Applicant, the specified Manufacturer(s), and any Recognized Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of a) use of the prescribed UL Mark, b) acceptance of the factory inspection, or c) payment of the Follow-Up Service fees. The Service Agreement incorporates such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking the following link: <https://www.ul.com/resources/contracts/follow-up-service-terms>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

Use and Ownership of the Follow-Up Service Procedure

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the Applicant, the specified Manufacturer(s), and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding

that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

Definition of Terms

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

No Third Party Liability

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

Certification Body

UL LLC has signed below solely in its capacity as the certification body to indicate that this Follow-Up Service Procedure fulfills the requirements for certification documentation issued by the certification body. The certification body's accreditation status for the applicable certification scheme and identification of the accreditation body can be found at <https://www.ul.com/resources/accreditation>.

Deborah Jennings-Conner
VP Regulatory Services
UL LLC

LOCATION

1846102 (Party Site)
Hanwha Techwin Security Vietnam Co Ltd
Lot O-2 Que Vo Industrial Zone extended area Nam Son Ward
Bac Ninh VN

Factory ID: V

UL Contracting Party for above site is: UL GmbH

135422 (Party Site)
D-TECH CO LTD
173-25 Saneop-ro Gwonseon-gu
Suwon-si Gyeonggi-do 16648 KR

Factory ID: D

UL Contracting Party for above site is: UL GmbH

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<u>Product Type</u>	<u>Model/Type Reference</u>	<u>Report Reference #</u>	<u>Status</u>
CAMERA MODULE	PND-A9081RVX	E158873-A6141-UL	
CAMERA MODULE	PNV-A9081RX	E158873-A6145-UL	
CAMERA MODULE	XNV-8083RX	E158873-A6146-UL	
CAMERA MODULE	XND-8083RVX	E158873-A6147-UL	

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	AZOT2, AZOT8 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	CAMERA MODULE
Model:	XNV-8083RX
Rating:	12 Vdc, 1.67 A or PoE (53 Vdc), 0.43 A
Applicant Name and Address:	HANWHA TECHWIN CO LTD 6, PANGYO-RO 319BEON-GIL, BUNDANG-GU SEONGNAM-SI GYEONGGI-DO 13488 KOREA

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

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

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

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Lawrence Lee / Project Handler Reviewed By: SeulKi Park / Reviewer

Supporting Documentation

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

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

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

Product Description

CAMERA MODULE is RU component. It is supplied from 12 Vdc or PoE (Power over Ethernet) and enclosure will determine end-product.

Model Differences

N/A

Test Item Particulars

Product group	built-in component
Classification of use by	Instructed person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	12 Vdc or PoE (Power over Ethernet)
Considered current rating of protective device	N/A
Equipment mobility	To be determined end-product
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60
IP protection class	IPX0
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.740

Technical Considerations

- ☐ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °C
- ☐ The product is intended for use on the following power systems : No direct connection
- ☐ Considered current rating of protective device as part of the building installation (A) : N/A
- ☐ Mains supply tolerance (%) or absolute mains supply : No direct connection

- ☐ The Risk Group of a lamp or lamp system (including LEDs) is : RG 1

Engineering Conditions of Acceptability

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

- ☐ The following output circuits are at ES1 energy levels : All outputs
- ☐ The following output circuits are at PS2 energy levels : All outputs
- ☐ The investigated Pollution Degree is : 2
- ☐ The following end-product enclosures are required : Electrical, Fire, Mechanical
- ☐ The power supply was evaluated to be used at altitudes up to : 2,000 m
- ☐ This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 12 Vdc, 1.67 A or PoE (53 Vdc), 0.43 A.
- ☐ The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.af or at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.
- ☐ The Risk Group 1 of a LEDs include in the equipment, so should be attached RG1 warning label at the end-product.

Additional Information

4790638829

- Maximum Normal Load: Continuous operation and loaded at 5 Vdc, 0.5 A for USB port. (Optional features: Heater)

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)
Hard copy or Quick Manual	The Risk Group 1 of a LEDs include in the equipment, so should be attached RG1 warning label at the end-product.

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
N/A	N/A	N/A	N/A	N/A	N/A	N/A
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All model					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All model					
BD1.4	Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.					
	All model					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	N/A	N/A	N/A	N/A	N/A

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Case (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm	-	-	
Case (Plastic)	LOTTE CHEMICAL CORPORATION	HN-1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Case (Plastic) - Alternate	Interchangeable	Interchangeable	Min. 1.5 mm thickness, rated Min. V-2, 130 deg. C.	QMFZ2	UL	
Internal Plastic	LOTTE CHEMICAL CORPORATION	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0, 80 deg. C.	QMFZ2	UL (E115797)	
Transformer (T3)	Group-Tek. Electronic Technology Co Ltd	PDT25125SR	130 deg. C, See enclosure for more detail.	-	-	
Line Filter (T1, T4)	Group-Tek. Electronic Technology Co Ltd	PCM10029R	6 mH, 125 deg. C, see enclosure for more detail.	-	-	
Opto-coupler (LS1)	LITE-ON TECHNOLOGY CORP	LTV-816	Isolation Voltage: 5300. Max. Operation Temperature: 110 deg. C.	FPQU2	UL (E113898)	
Lithium Battery (BAT1)	FDK CORPORATION	ML614R	Lithium/manganese dioxide (Coin), Max Charging Current: 300 mA, Max Charging Voltage: 5.0 Vdc	BBCV2	UL (MH13421)	
USB Protection IC (U26)	Texas Instruments Incorporated	TPD3S014	Rated 4.5-5.5 Vdc, Continuous current: 0.5 A, Protection current: 1.05 A	QVGS2	UL (E169910)	
Fuse (F3)	LITTELFUSE INC	449*	125 V, 2.5 A	JDYX2	UL (E10480)	

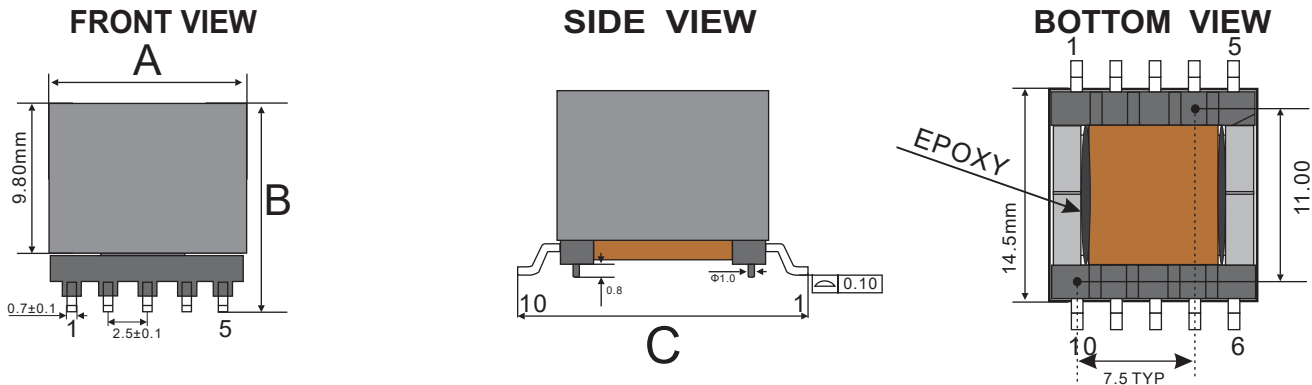
Heater resisters (22EA, R4 to R25)	Interchangeable	Interchangeable	5.6 ohm, 0.05 W each	-	-	
Stepping Motor (Zoom, Focus, motor) (2EA)	DongGuan YuTong Optical Technology CO., Ltd	ELE-6022-B	4.2 - 5 Vdc	-	-	
Stepping Motor (IRCUT)	DongGuan YuTong Optical Technology CO., Ltd	IR0510	3.5 - 6.0 Vdc	-	-	
Stepping Motor (IRIS motor)	DongGuan YuTong Optical Technology CO., Ltd	IRIS0203	3.5 – 5.25 Vdc	-	-	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 1 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Internal Wiring (Secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	-	ECBT2	UL	
Connectors and Receptacles (Secondary circuits) - Alternate	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	UL	
FPWB	Interchangeable	Interchangeable	Min. V-0	ZPXK2 or ZPMV2	UL	
PWB	Interchangeable	Interchangeable	Min. V-0, 130 deg. C	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Min. 60 deg. C if max. surface temperature not specified.	PGDQ2 or PGJI2	UL	
IR LED (4 EA - LD1, LD2, LD3, LD4)	OSRAM	SFH4718A	Vf=2.3Vdc (max)	-	-	
IR LED (2 EA - LD5, LD8)	OSRAM	SFH4713A	Vf=2.3Vdc (max)	-	-	

IR LED (2 EA - LD6, LD7)	LITEON OPTOELECTRONICS	LTE-R38386L-YE5-SS	Vf=2.5Vdc (max)	-	-	
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Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View
Photographs	03-04	Sensor Board
Photographs	03-05	LED Board
Photographs	03-06	Heater Board
Photographs	03-07	Main Board - Top
Photographs	03-08	Main Board - Bottom
Miscellaneous	07-01	Transformer (T3) Specification
Miscellaneous	07-02	Line Filter (T1, T4) Specification
Miscellaneous	07-03	Label (RG1)
Miscellaneous	07-04	Label

2. Mechanical Dimensions:

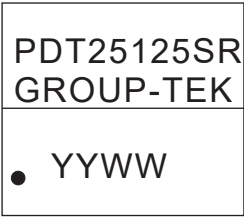


- Note:
- 1.Wrap 2Ts of 7mm kapton tape around the finished part.
 - 2.Fixed the cores with glue,and fixed the case with glue.

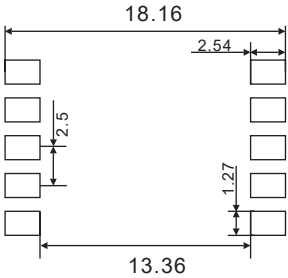
Unit: mm

A MAX	B MAX	C MAX
15.0	14.8	17.8

Laser Marking information



Suggested PCB Paad Layout

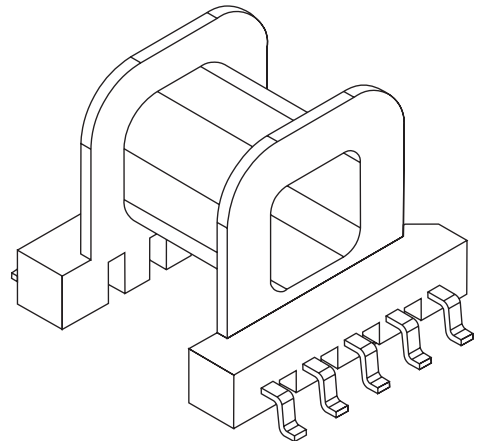
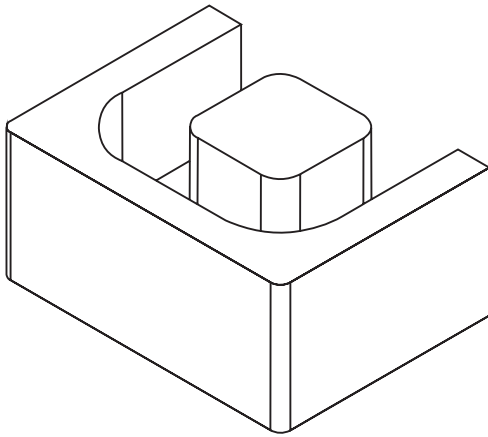


5.Winding Information:

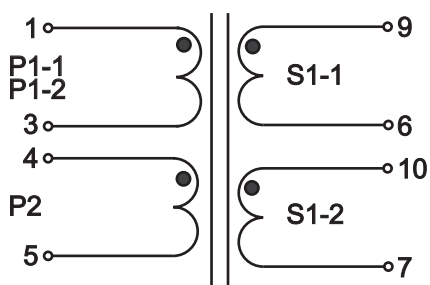
WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
P1-1	1--3	4*0.21mm 2UEW	16	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-1	9--6	4*0.27mm 2UEW (Red)	6	1T w8.0mm (kapton tape)	N/A	N/A	1
P1-2	1--3	2*0.21mm 2UEW (Natural)	16	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-2	10--7	4*0.27mm 2UEW	6	1T w8.0mm (kapton tape)	N/A	N/A	1
P2	4--5	3*0.17mm 2UEW	6	2T w8.0mm (kapton tape)	N/A	N/A	1

NOTE :

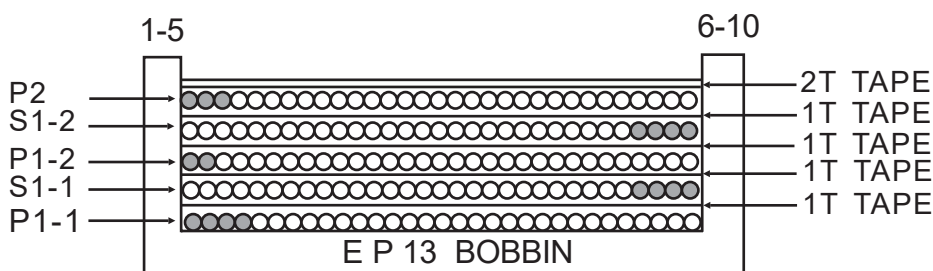
1. -Place the bobbin pin 1 left side of operator.



6.Schematic:



7.Winding construction



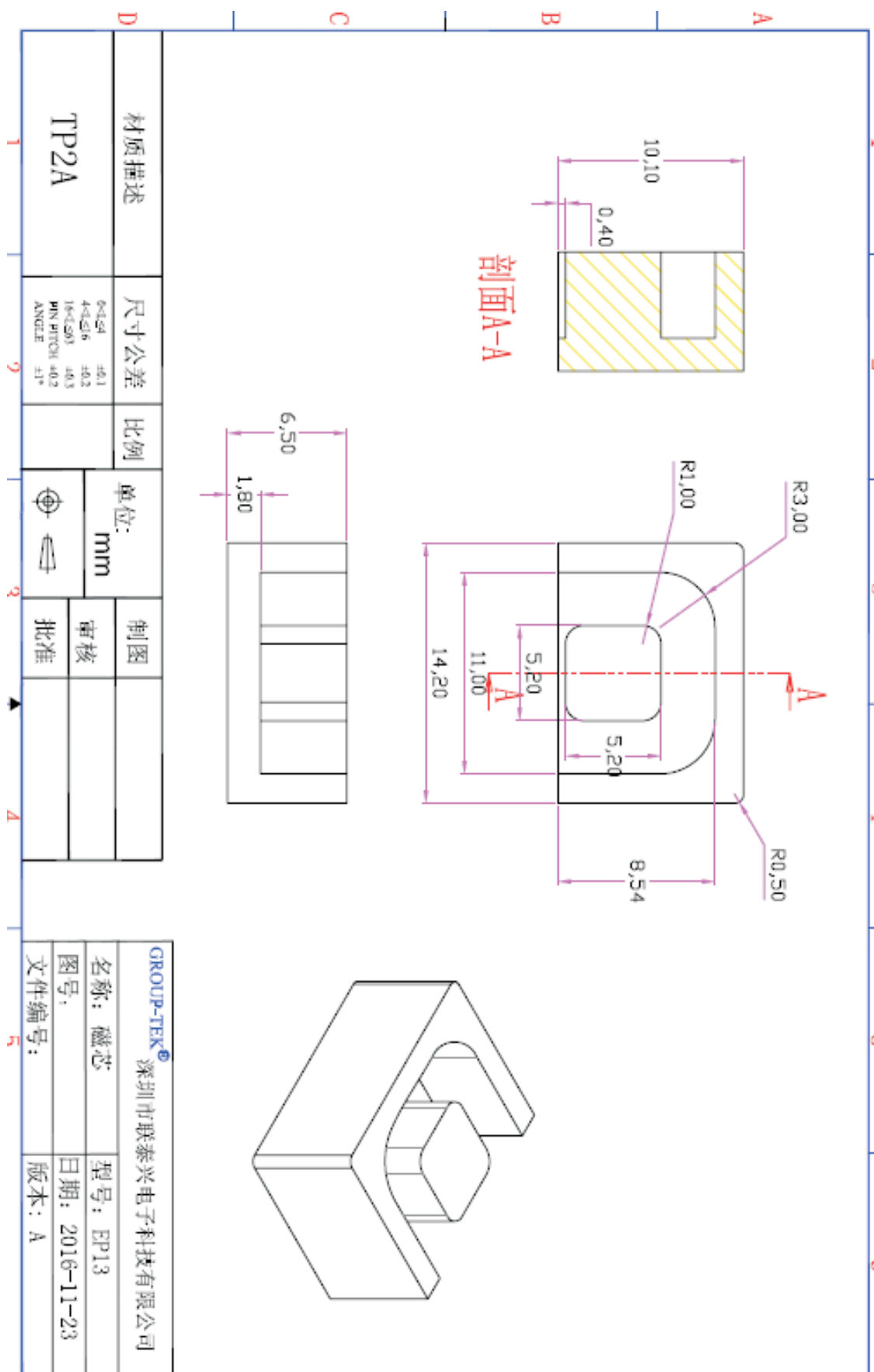
● :Start terminal

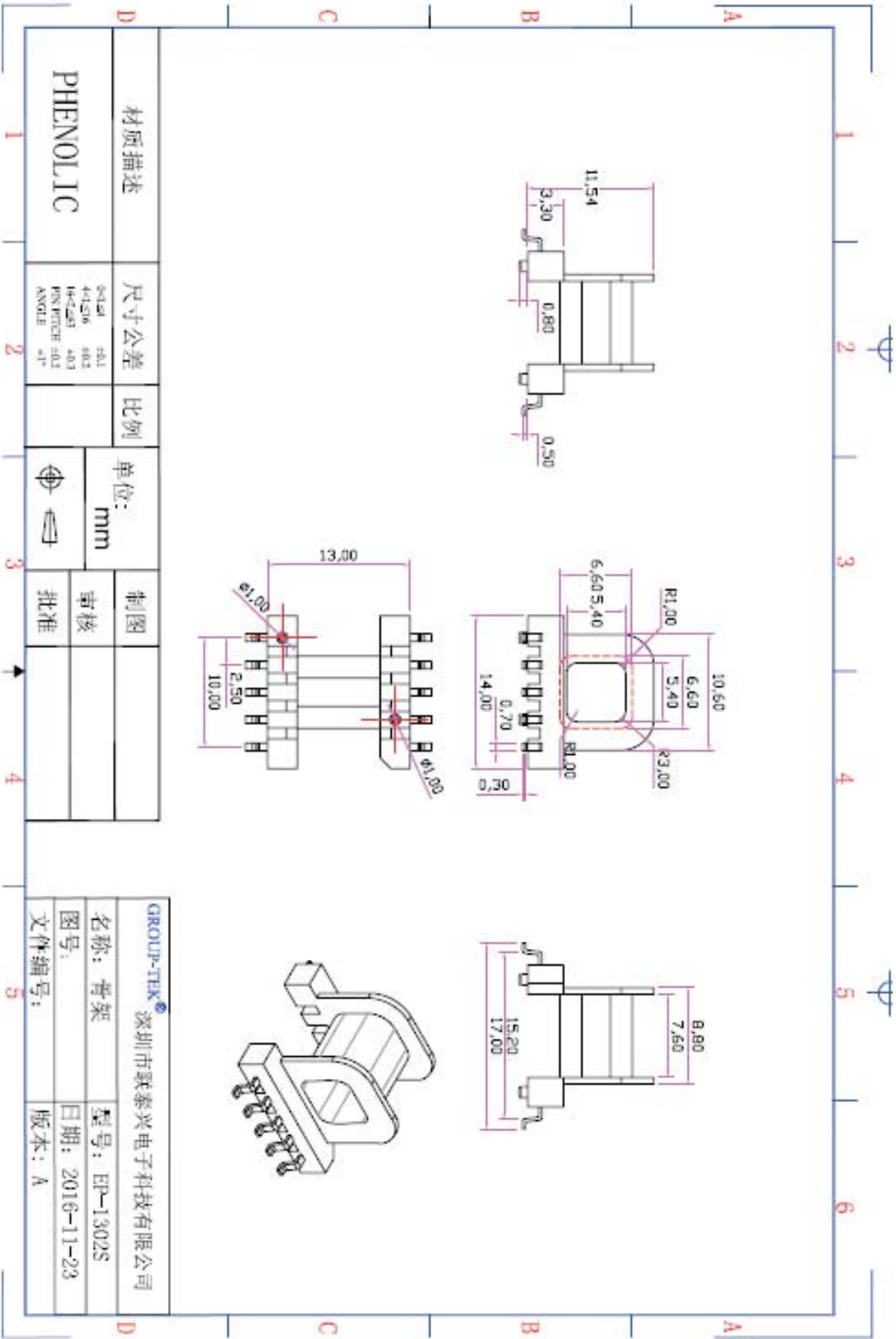
8.Material List:

NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFACTURERS	UL FILE NO.
1	BOBBIN	FABRICATED PLASTIC PART	ZHEN HUI PRECISION PLASTIC &HARDWARE (SHEN ZHEN) CO LTD.	E331681
2	CORE	TP2A	TTS Technology Co.,Ltd.	N/A
3	WIRE	POLYURETHANE ENAMELED TYPE NO: 2UEW THERMAL RATING:180°C	ZHUHAI SUNTEK WIRE CO LTD	OBMW2.E234867
4	TAPE	ADHESIVE POLYESTER TAPE TYPE NO.:CT*(c)(g) THERMAL RATING:130°C yellow tape: for inner coils	JingJiang yahua pressure sensitive glue Co.,Ltd	E165111
5	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co.,Ltd	N/A
6	Glue	E-500(xx)	Dong Guan city eatto electronic material Co.,Ltd	E218090
7	CASE	FABRICATED PLASTIC PART	ZHEN HUI PRECISION PLASTIC &HARDWARE (SHEN ZHEN) CO LTD.	E331681

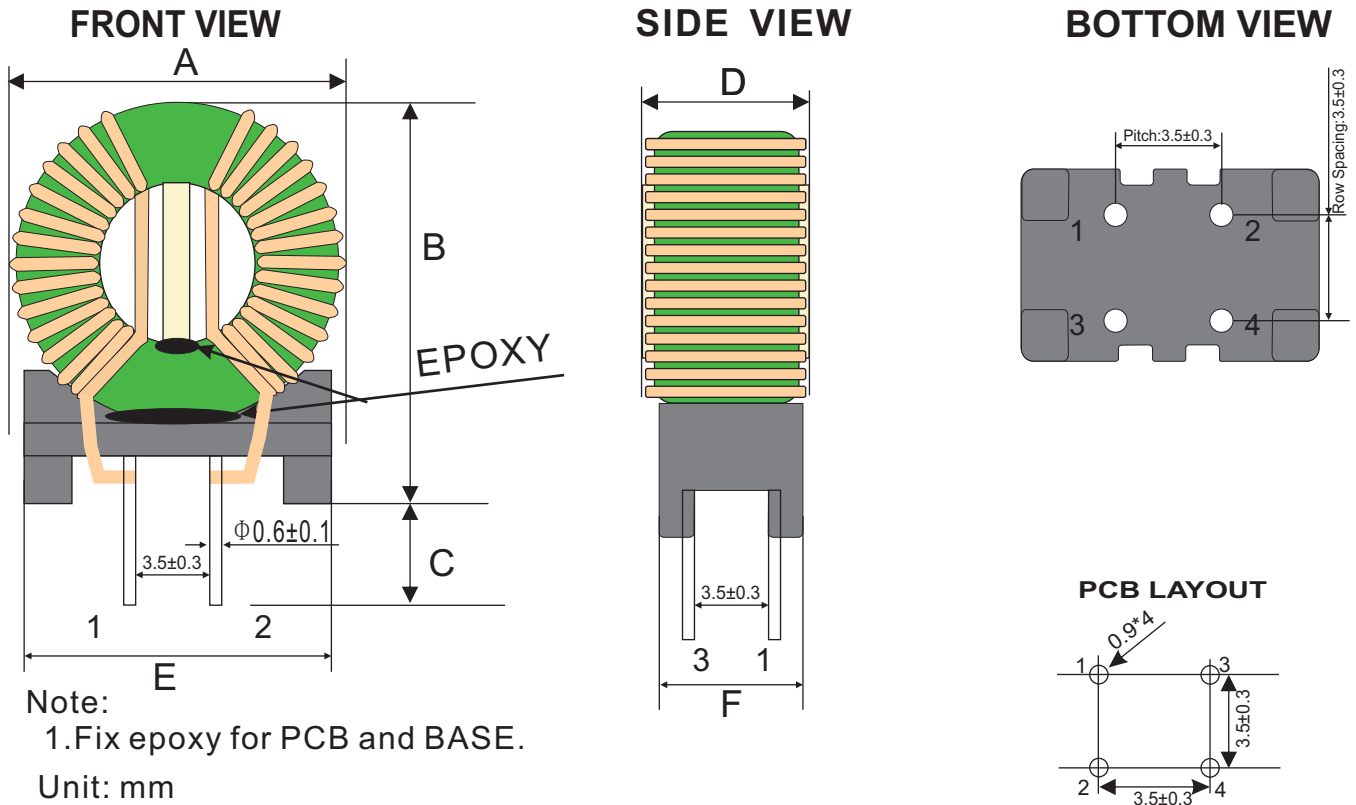
9.PACKING INFORMATION:

DESCRIPTION	QTY
PIECES PER REEL	150
PIECES PER POCKET	1
PIECES PER BOX	450
REEL PER BOX	3
GROSS WEIGHT PER BOX(KG)	TBD
NET WEIGHT PER BOX(KG)	TBD





2. Mechanical Dimensions:



A	B	C	D	E	F
+/-1.0	+/-0.5	+/-0.5	+/-1.0	+/-0.5	+/-0.5
12.0	14.3	3.5	7.0	9.0	5.8

3. Electrical Characteristics :

Specifications: at 25°C. Operating Temperature -40 to +125°C

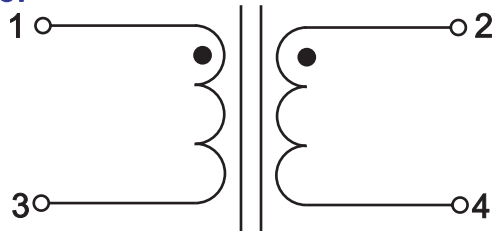
NO.	ITEM	TEST CONDITION	SPECIFICATION	REMARKS
1	Rated Voltage	Line to Line	AC250V	
2	Inductance	(1-3)(2-4) @16KHz, 1.0V	6.0mH+50% -30%.	TH-2819
3	DCR	(1-3)(2-4) @25°C	220.0mΩ Max.	TH-2819
4	HI-POT	(1-3) to (2-4)	1500Vac, 1mA, 2SEC.	RK2670A
5	Rated current	@70°C	1.0A .	
6	ΔL	L(1-3)-L(2-4) @16KHz, 1.0V	0.10mH Max.	TH-2819

Remark: Use manual trigger mode of instrument for test.

4. Winding Information:

WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
1	1---3	0.35mm 2UEW	35±3.0T.				
2	2---4	0.35mm 2UEW	35±3.0T.				

5.Schematic:



6.Material List

NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFAXTURES	UL FILE NO.
1	CORE	T10*6*5 TTS-TH10	TTS TechnologyCo.,Ltd.	N/A
		T10*6*5 SSH-10	SUNSHINE ELECTRONIC TECHNOLOGY Co.,Ltd.	N/A
2	WIRE	xUEW 180	SUNTEK HOLDINGS LIMITED	OBMW2.E234867
		Polysol 180 / MW 82-C THERMAL RATING:180°C	ELEKTRISOLA HANG ZHOU CO.,LTD.	E258243
3	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co.,Ltd	N/A
4	Glue	E-500(XX)	Dong Guan city eatto electronic material Co.,Ltd	QMFZ2.E218090
5	BASE	PHENOLIC T375J	CHANG CHUN PLASTICS CO LTD.	QMFZ2.E59481

7.Packing Information:

DESCRIPTION	QTY
PIECES PER CELL	1
PIECES PER TRAY	560
PIECES PER BOX	3360
GROSS WEIGHT PER BOX(KG)	10.14(kg)
NET WEIGHT PER BOX(KG)	9.50(kg)



TOP



BOTTOM



FRONT



back



left



right



Risk Group 1

WARNING IR emitted from this product.

Do not stare at operating lamp.

Product tested against IEC 62471



CAMERA MODULE, XNV-8083RX

DC 12V  1.67A / PoE(53V ) 0.43A

M/C: XNV-8083RX/KEX **Fac.ID:D**



2023.01 **S/N: Serial No.**

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA







