

File E324690
Project 4790544250

October 13, 2022

REPORT

On



AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT

VIVOTEK INC
NEW TAIPEI, 235 TAIWAN

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, Issued: 2019-12-13, Revision Date: 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, Issued: 2019-12-13, Revision Date: 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	<input checked="" type="checkbox"/> Listing <input type="checkbox"/> Recognized Component <input type="checkbox"/> Unlisted Component <input type="checkbox"/> Listed Accessory
CCN:	<input checked="" type="checkbox"/> AZOT, <input checked="" type="checkbox"/> AZOT7 (Information Technology Equipment)
Product: Model: Rating:	Network Camera SD9161-H-v2, SD9161-H-VVAV (Optionally provided on marking plate) 24V~ 1.0A, 50-60Hz 24V  , 0.71A PoE 42.5-57V  , 0.4-0.3A
Applicant Name and Address:	VIVOTEK INC 6TH FL, 192 LIEN CHENG RD CHUNG HO DISTRICT NEW TAIPEI 235 TAIWAN

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.

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Prepared by: Stanley Tsai

Reviewed by: Max Ma

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
- C. Listing Mark/Recognized Component Mark Data Page - details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

- The equipment is a Network Camera, intended for used with audio/video, information and communication technology equipment.
- The equipment is power supplied from the external power adaptor or Power-over-Ethernet (PoE) device which is complied with the requirement of Limited Power Source (LPS) or Power source class 2 (PS2) & one input at a time; Otherwise, the adaptor which is intended to be used with this equipment in the regional market should be stated in the specified manufacturer and models in the instruction by suitable regional languages.
- The Power over Ethernet (PoE) considered a Network Environment 0 per IEC TR 62102, and thus the interconnected to Audio/video, information and communication technology Equipment circuits are considered ES1 and Power over Ethernet (PoE) can't connected to outside plant.

Model Differences

All models are same except for marking purpose and no impact safety related critical components and construction.

Test Item Particulars (NOT FOR FIELD REPRESENTATIVE'S USE)

Classification of installation and use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input checked="" type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input checked="" type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: <u>not direct connect to mains</u>
Fundamental Frequency.....	<input type="checkbox"/> 50/60 Hz <input type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz <input checked="" type="checkbox"/> other <u>50-60Hz</u> (for AC source)
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	<input checked="" type="checkbox"/> IP X0 <input type="checkbox"/> IP ____
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	<input type="checkbox"/> ____ <input checked="" type="checkbox"/> N/A
Altitude during operation (m)	<input checked="" type="checkbox"/> Up to 2,000 <input type="checkbox"/> Up to ____ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> Less than 2,000 <input type="checkbox"/> Approximately ____
Mass of equipment (kg)	1.17 kg (equipment); 0.09 kg (Ceiling mounted)

Technical Consideration (NOT FOR FIELD REPRESENTATIVE'S USE)

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 55 degree C
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual.
Based upon the product specification provided by the manufacturer, this unit is intended to be supplied by an UL Listed power source suitable for use at Tma 55 degree C whose output meets PS2, LPS and is rated PoE 42.5-57 Vdc , 0.4-0.3A.
- The product is only to be connected to PoE network without routing to outside plant.

Additional Information**Additional Standard**

Markings, instructions and instructional safeguards						
Clause Title		Marking or Instruction Details				
		English			French	
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)				
Inter-connecting cables - External detachable		Listee's Name and Part number (Marking or Instruction)				
Protective earthing is used as a safeguard		See user's manual content related to powered by an adapter with earthing connection.				
User Manual		If the power adapter doesn't ship with the unit, the user manual shall have the description as below or equivalent: "To reduce potential safety issues, only the PoE adaptor provided with the product, a replacement PoE adaptor provided by Vivotek or Agency, or an PoE adaptor purchased as an accessory from Vivotek or Agency should be used with the product".				
User Manual		The equipment is to be connected only to PoE networks without routing to the outside plant or equivalent.				
User Manual		User Instruction/Installation/Safety Manual shall be shipped with unit.				
Special Instructions to UL Representative						
(1) If the Power Supply does not mark with "LPS" or "Limited Power Source", please check the UL report for Power Supply and confirm whether it complies with Limited Power Source or PS2 in Technical Consideration.						
(2) For Power Adaptor without listing Mfr./Model (Interchangeable) in Critical Component table, the Field Representative should verify the Tma (maximum ambient temperature) is minimum 55 degree C, LPS or PS2 from the updated version of UL reports for power source which was/were certified by UL60950-1, 2nd edition, date 2014-10-14 or UL 62368-1, 2nd Edition, 2014-12-01 or newest (provide from customer).						
Production-Line Testing Requirements						
<u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A	N/A	N/A	N/A	N/A	N/A	N/A
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
All models						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
All models						
<u>Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:</u>						
N/A						
<u>Sample and Test Specifics for Follow-Up Tests at UL</u>						
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 or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01. Label	Interchangeable	Interchangeable	Min. 70 degree C to metal surface	PGDQ2 or PGJI2	UL	--
02. POE adaptor (Optional)	Interchangeable	Interchangeable	O/P: 42.5-57Vdc, 0.4-0.3A min., Tma=55 degree C marked or complied with "L.P.S." or "Limited Power Source" or PS2	QQGQ or QQJQ	UL	--
02a. Power adaptor (Optional)	Interchangeable	Interchangeable	O/P: 24Vdc, 0.71A min., Tma=55 degree C marked or complied with "L.P.S." or "Limited Power Source" or PS2	QQGQ or QQJQ	UL	--
02b. Power adaptor (Optional)	Interchangeable	Interchangeable	O/P: 24Vac, 1.0A min., Tma=55 degree C marked or complied with "L.P.S." or "Limited Power Source" or PS2	QQGQ or QQJQ	UL	--
03. Plastic Enclosure	Covestro Deutschland AG	6557 + (z)(f1)	V-2, min. 115 degree C, min. 3.0 mm thick.	QMFZ2	UL	--
04. Lens cover	MITSUBISHI ENGINEERING-PLASTICS CORP	S-2000+(f1), S-2001+(f1), S-2003+(f1)	V-2, min. 115 degree C, min. 2.0 mm thick.	QMFZ2	UL	--
05. POE Transformer (T3)	Semitel International Ltd	EFD20-502	125 degree C	--	--	--
05a. POE Transformer (T3) (Alternate)	Matrix Electronics Co., Ltd.	MTSE015	125 degree C	--	--	--
06. Electric double layer capacitor (BT1)	ELNA Co., Ltd	DX series	0.33F, 100 degree C.	--	--	--
07. DC Fan	SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO., LTD.	HA40101V4-1D070-G99	12Vdc, 26mA max., 0.32W max., 3800 rpm.	GPWV2	UL	--
08. PWB	Interchangeable	Interchangeable	Min. V-1, 105 degree C min.	ZPMV2	UL	--
09. Stepper Motor (two provided)	Interchangeable	Interchangeable	DC 2.72V, 0.8A/Phase; On Drive @ DC 24V, 0.8A/Phase	--	--	--

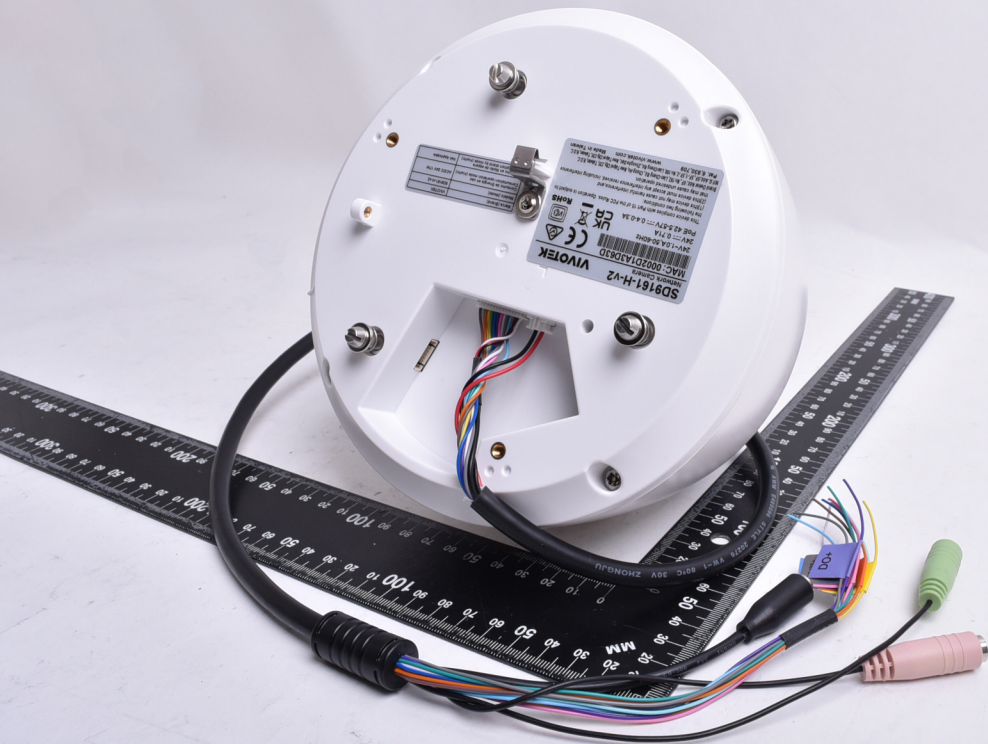
10. Mounting means	Covestro Deutschland AG	6557 + (z)(f1)	V-0, min. 115 degree C, min. 3.0 mm thick.	QMFZ2	UL	--
10a. Screws	--	--	3 pcs provided for M4 type by 32 mm .	--	--	--
11. Wiring, internal ES1 circuits	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 57 V, 80 degree C.	AVLV2	UL	--
12. Interconnecting Cable (Optional)	Interchangeable	Interchangeable	Maximum length 3.05 m. FEP, PTFE, PVC, TFE, neoprene, polyimide or rated VW-1 or FT- 1. Minimum 80 degree C. Minimum 30 V for non-POE circuit & 60V for POE circuit.	AVLV2	UL	--
12a. Interconnecting Cable (Optional)	Interchangeable	Interchangeable	Type CMP or CMR or CMG or CM or CMX or CMUC or CMH, 3.05 m long maximum.	DUXR or DUXZ	UL	--
13. Connectors and Receptacles (ES1 circuit)	Interchangeable	Interchangeable	Minimum 60 V	ECBT2, DUXR2	UL	--
13a. Connectors and Receptacles (ES1 circuit) (Alternate)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of (QMFZ2), and V-2 minimum.	QMFZ2	UL	
13b. Connectors and Receptacles (ES1 circuit)	Interchangeable	Interchangeable	Minimum 60 V	ECBT2, DUXR2	UL	
13c. Connectors and Receptacles (ES1 circuit) (Alternate)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of (QMFZ2), and V-2 minimum.	QMFZ2	UL	
14. Internal plastic parts/material	Interchangeable	Interchangeable	HB or HBF minimum	QMFZ2	UL	
14a. Internal Plastic Part Materials (Optional) (Alternate)	Interchangeable	Interchangeable	Flammability level is ignored, when small parts (1750mm ³ maximum) are mounted on V-1 class material	--	--	--

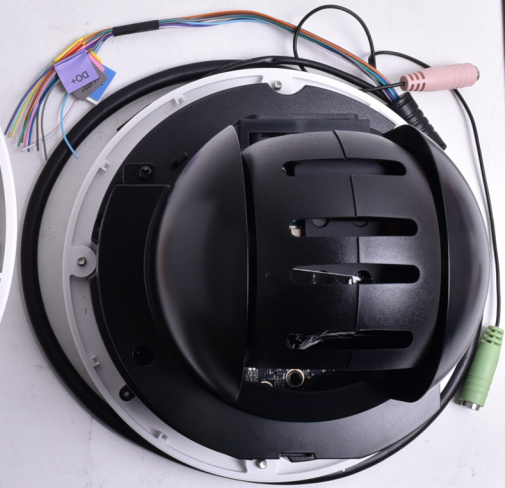
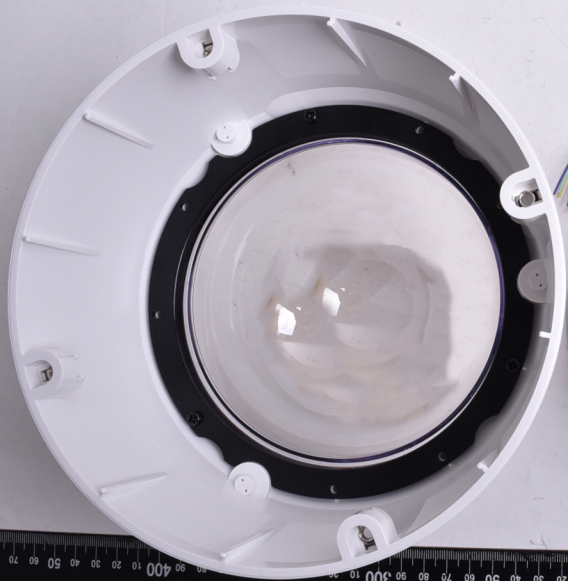
ENCLOSURES

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Figure	Figure-1	Overall View-1
	Figure-2	Overall View-2
	Figure-3	Overall View-3
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	Figure-6	Inside View-3
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	Figure-15	PB Board Trace side (T3:Semitel # EFD20-502)
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	Illustration-5	Electric double layer capacitor (BT1)
	Illustration-6	Mounting means
	Illustration-7	Screws for mounting means
	Illustration-8	User Manual



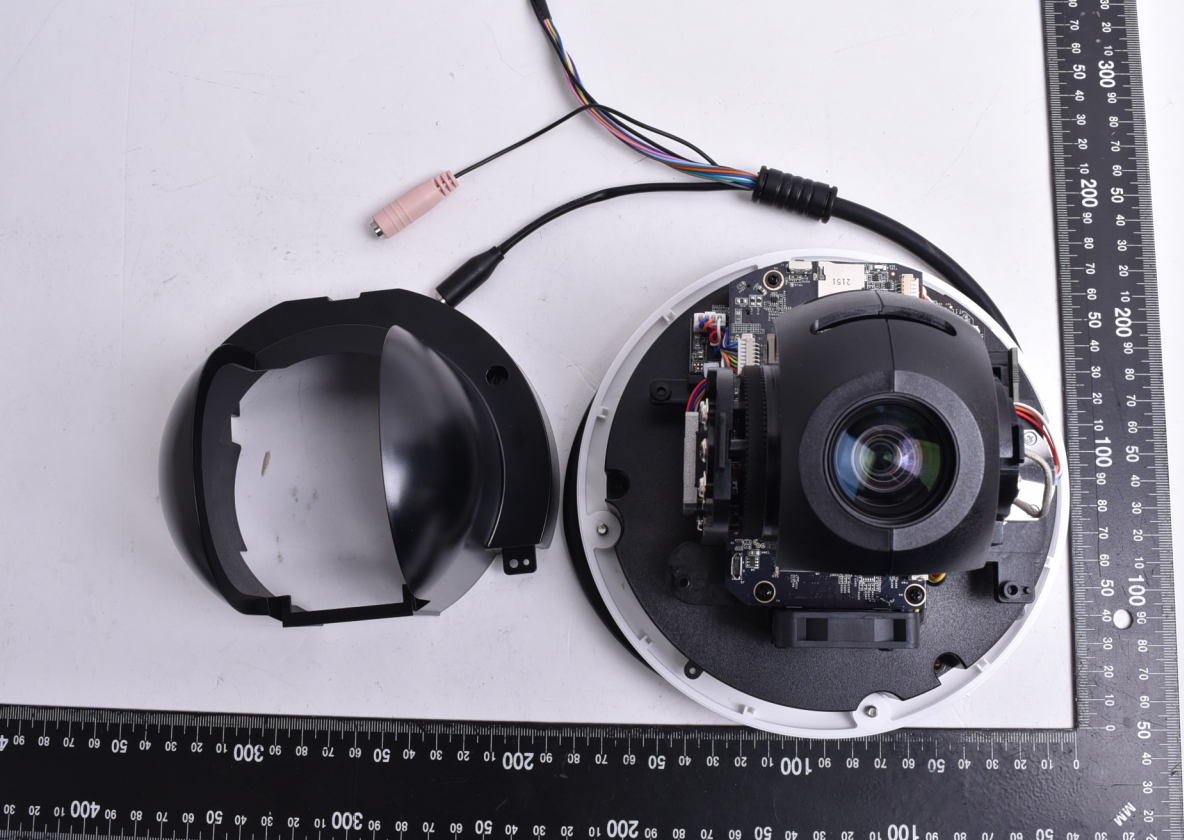


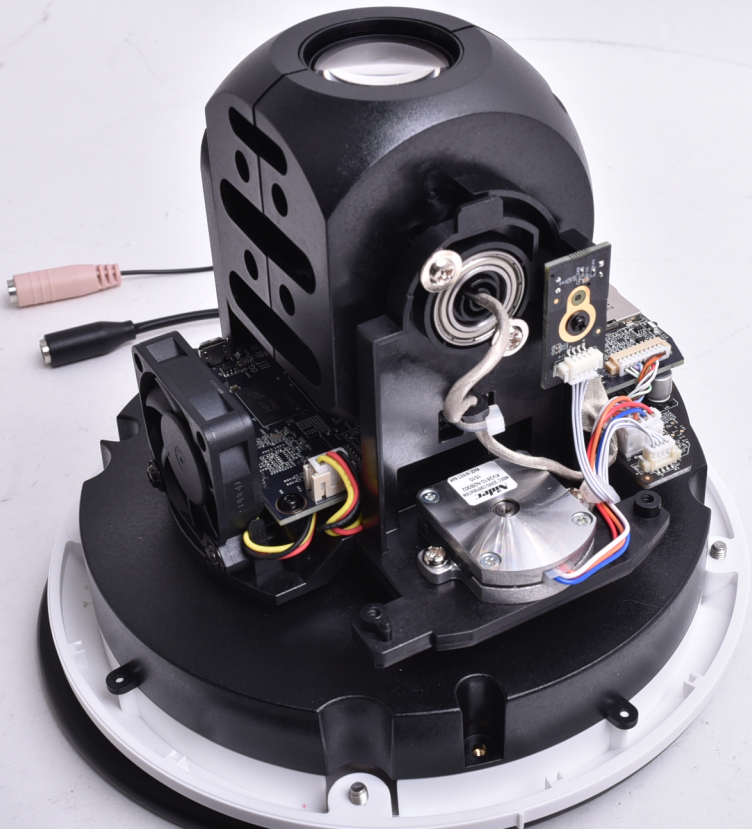




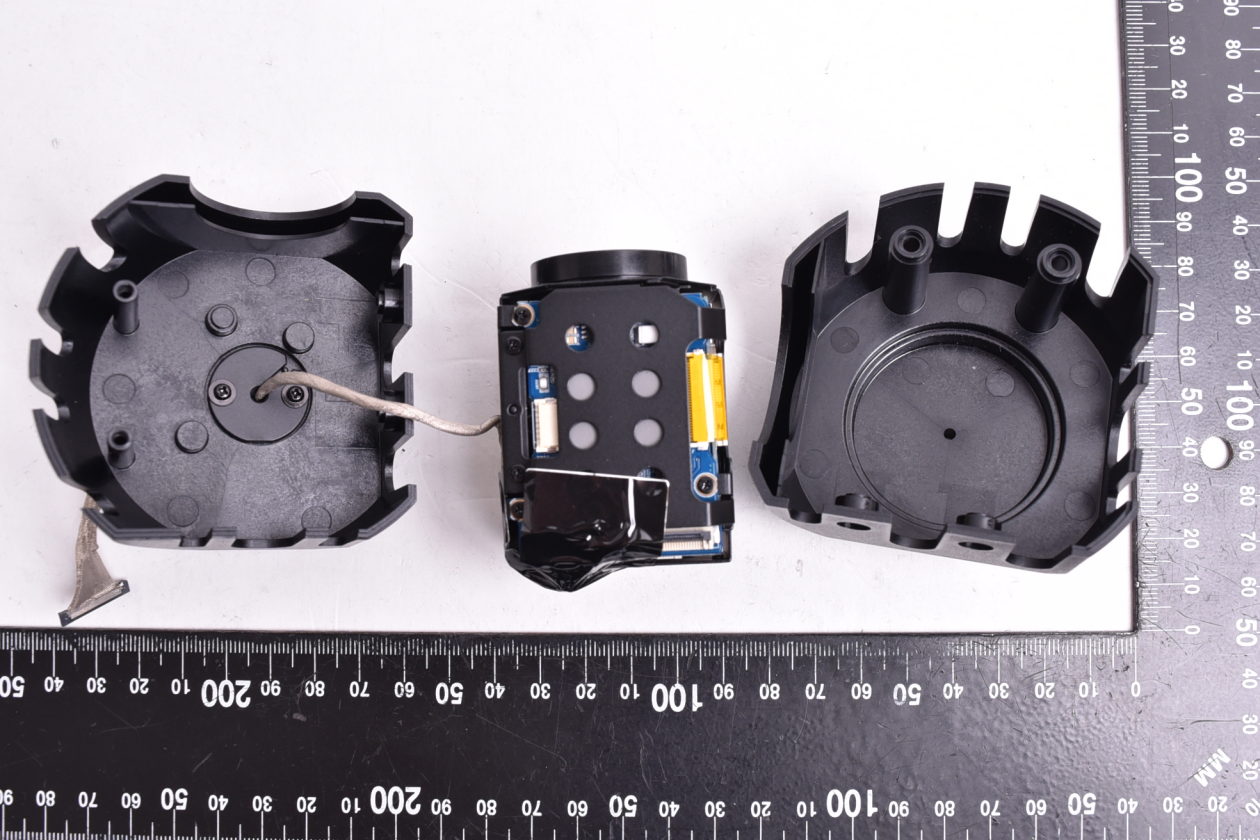




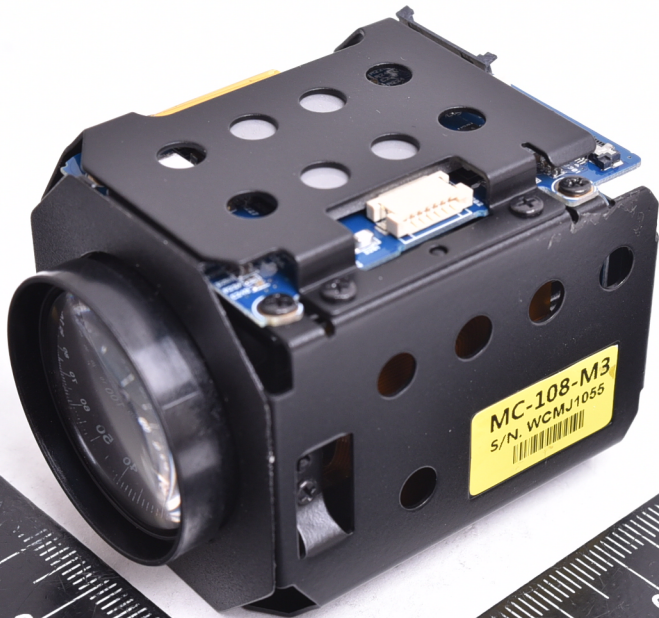




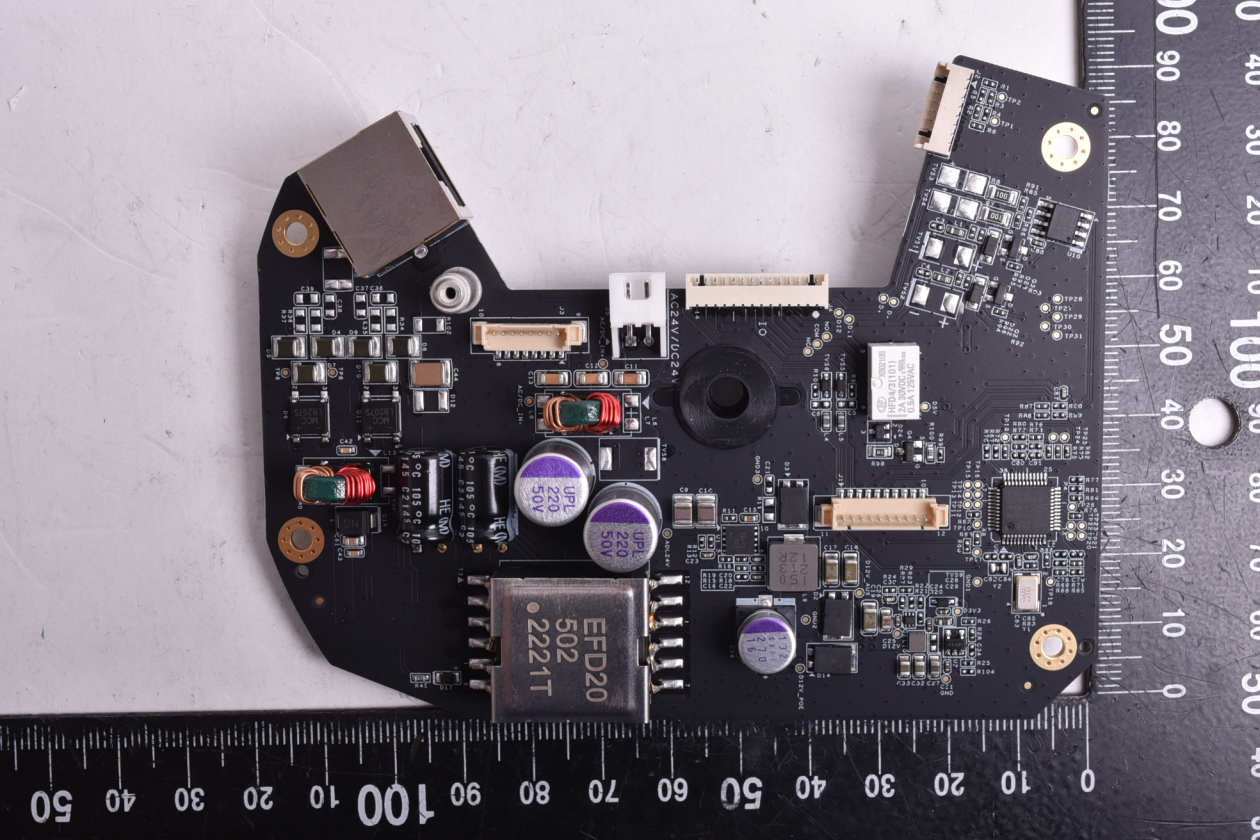


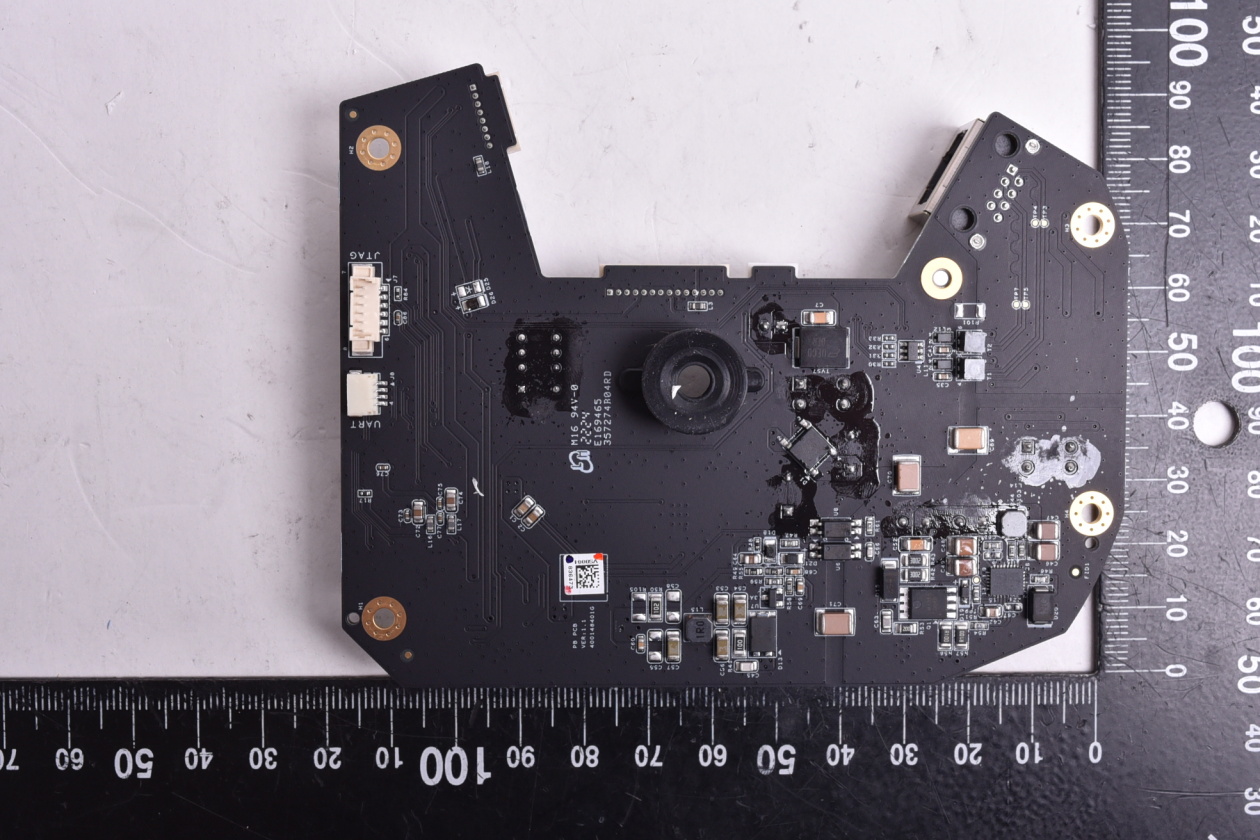










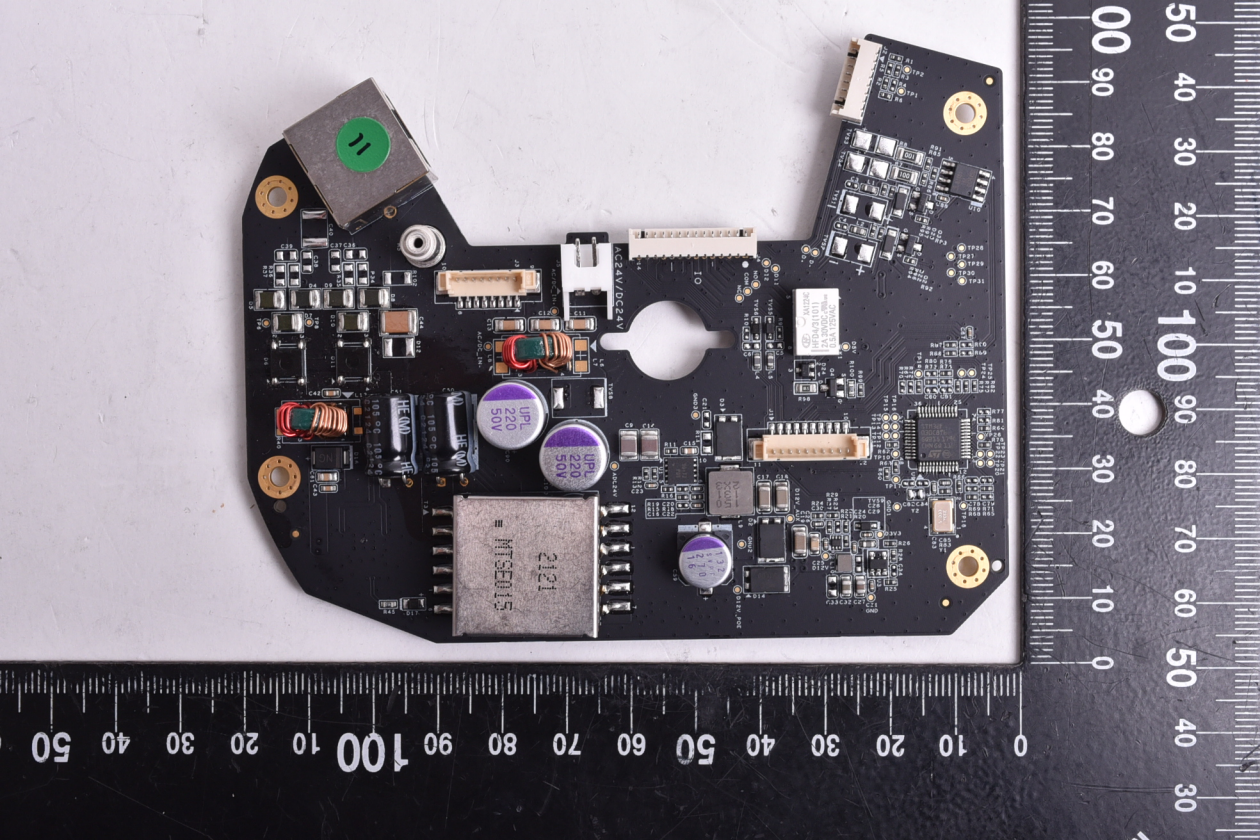


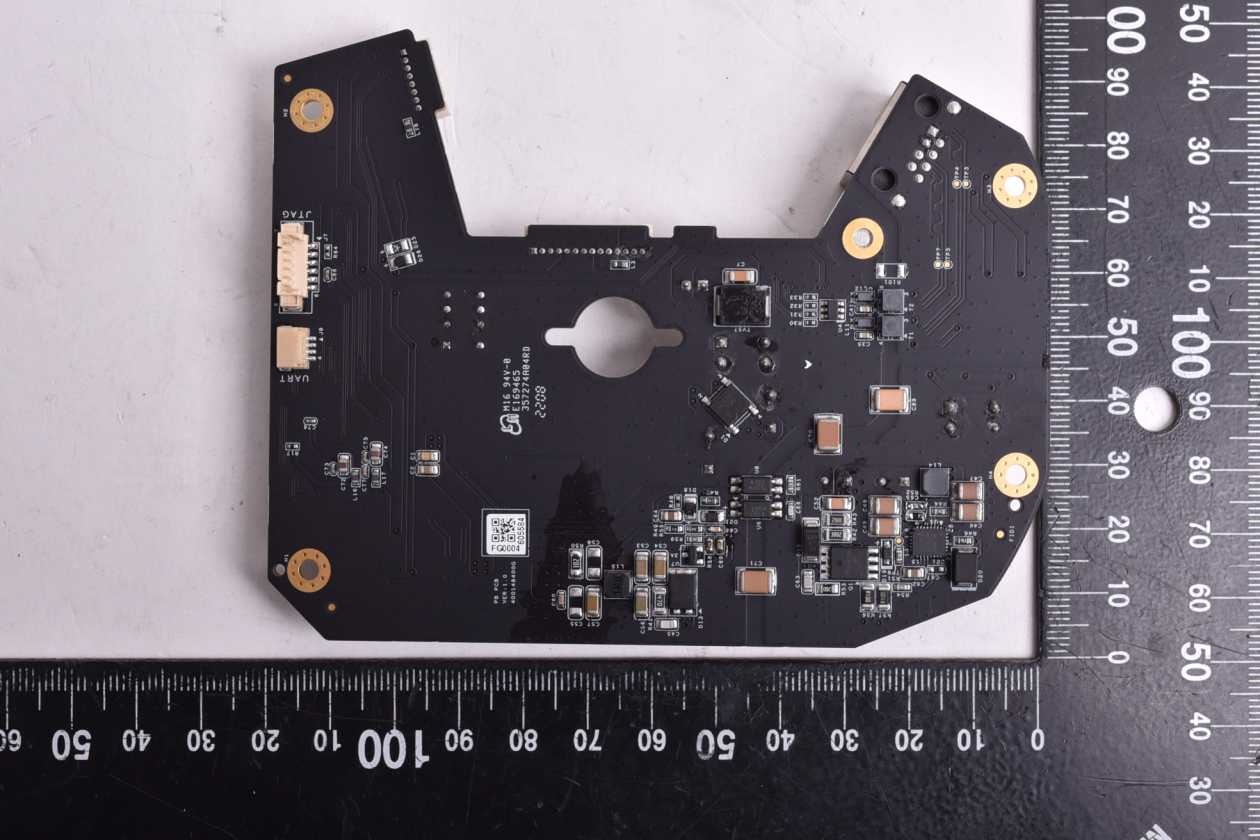
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2024
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357274R04RD







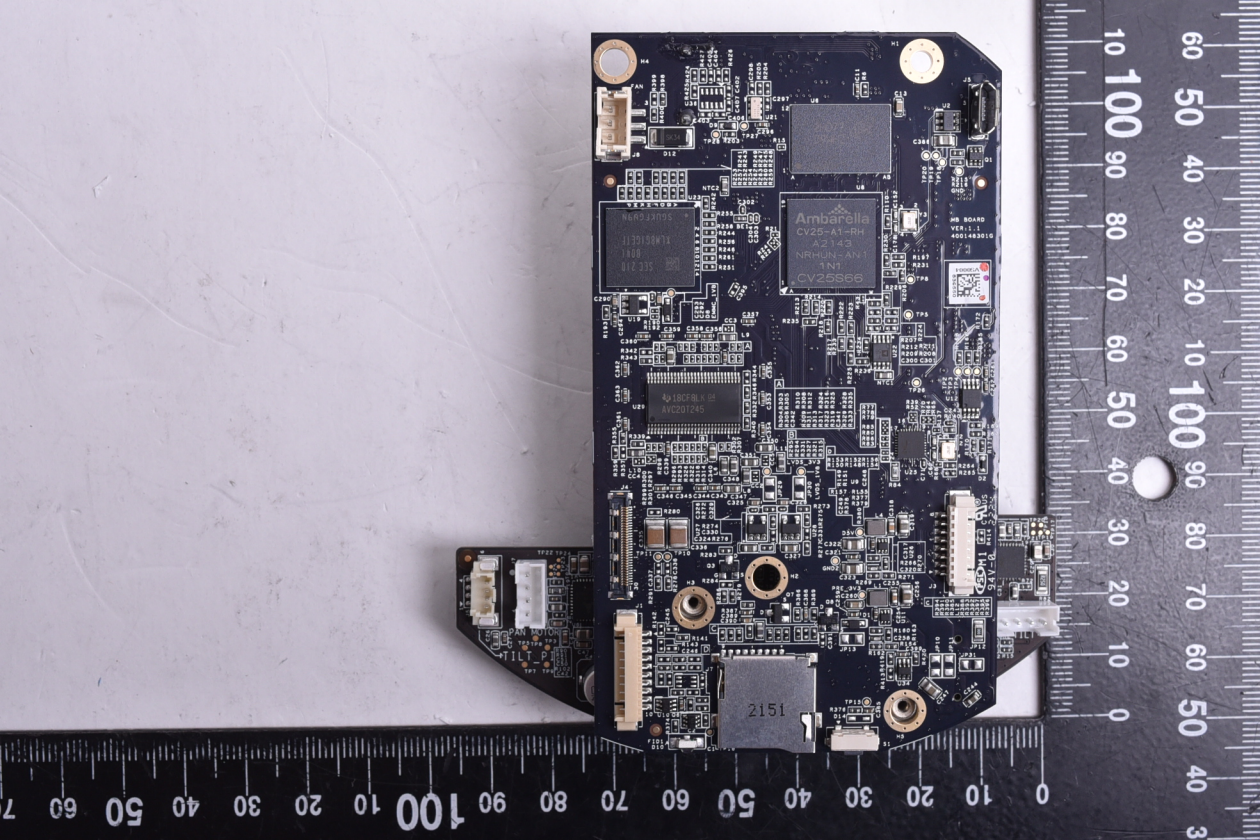
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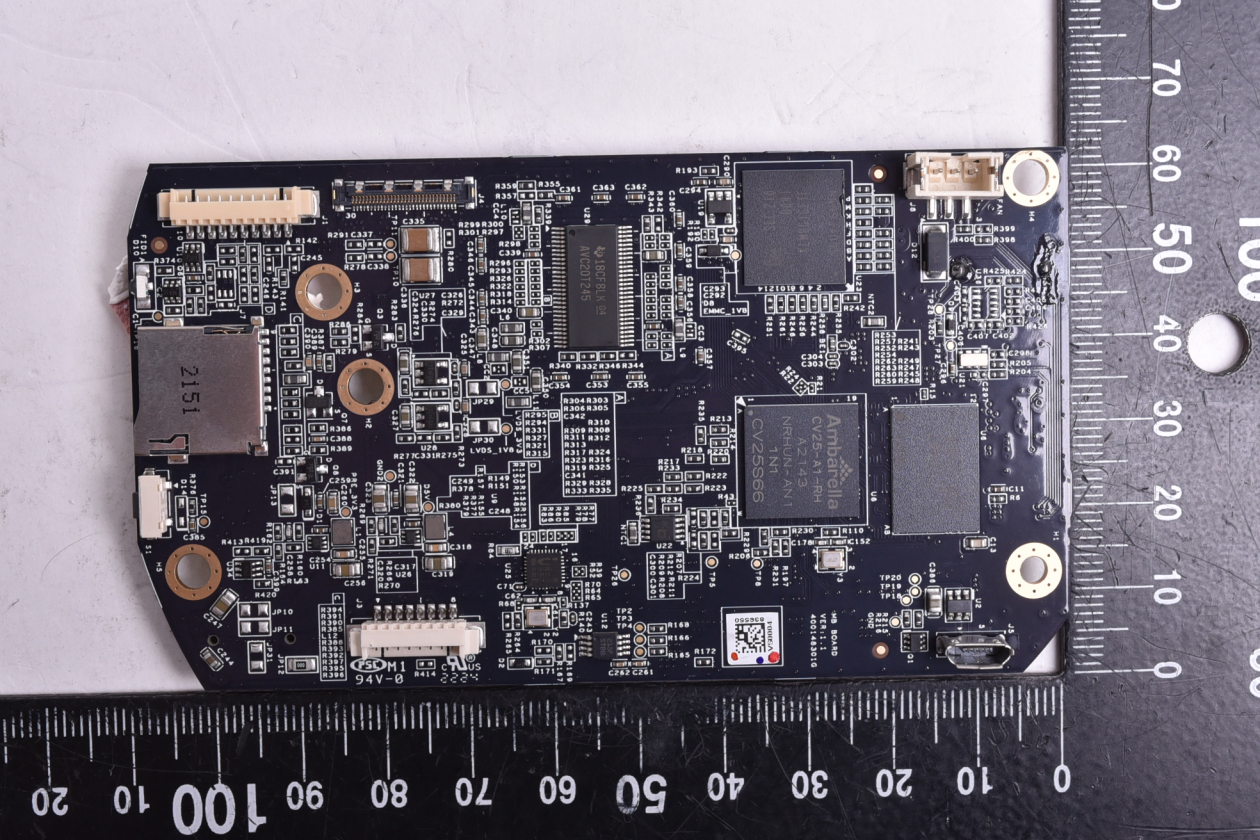


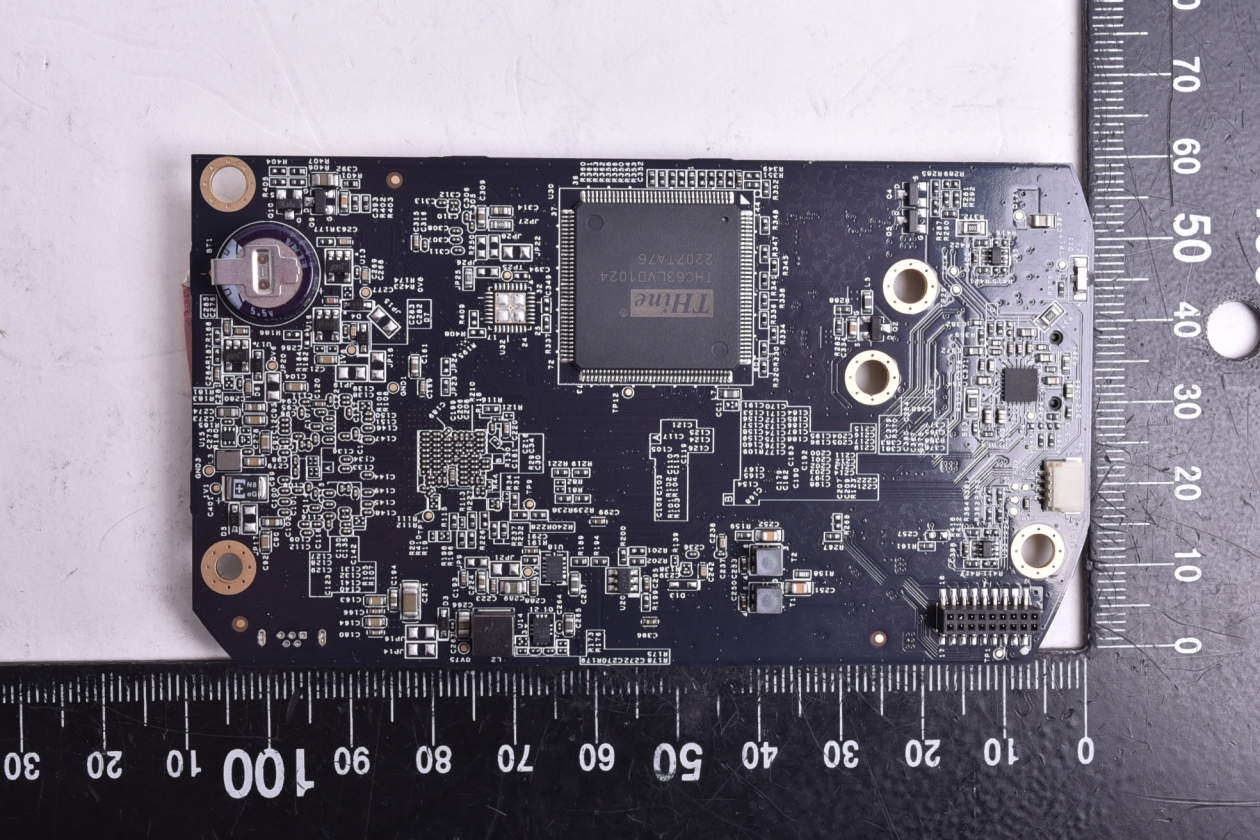
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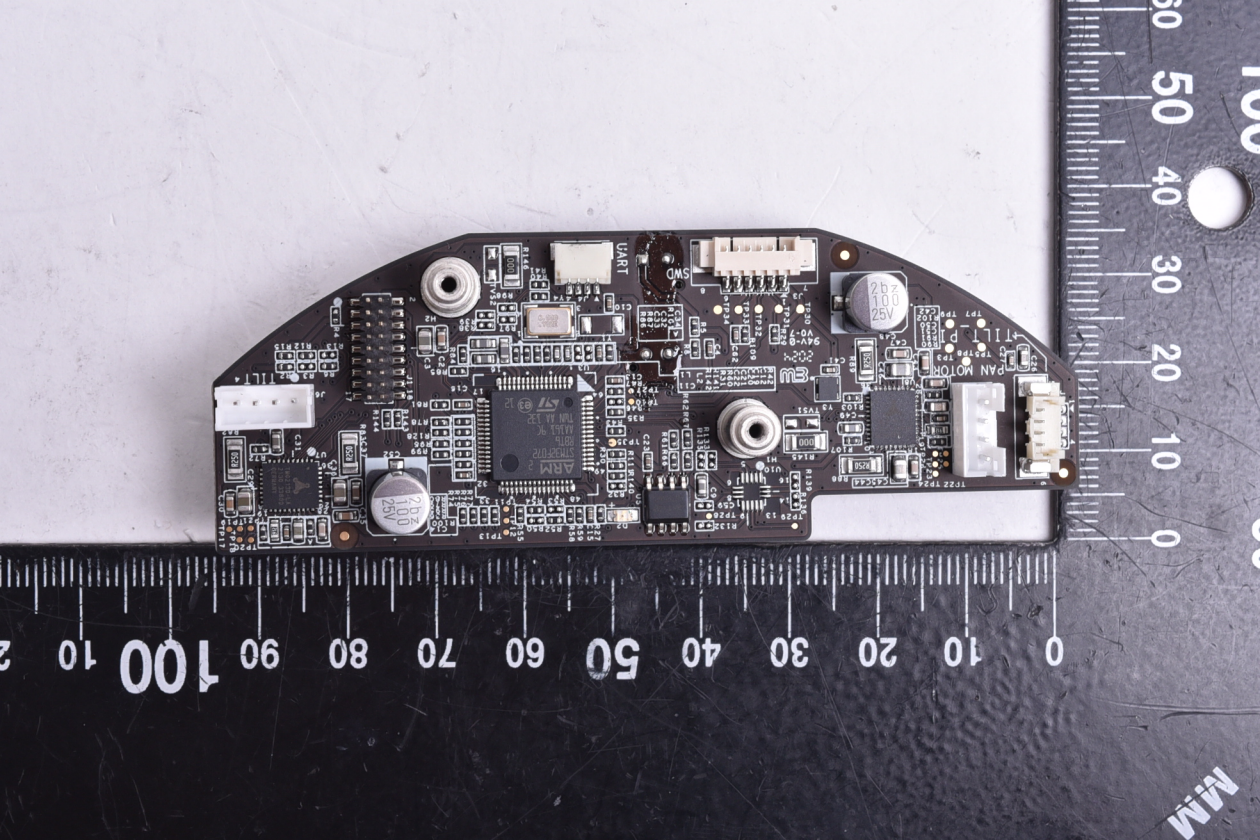
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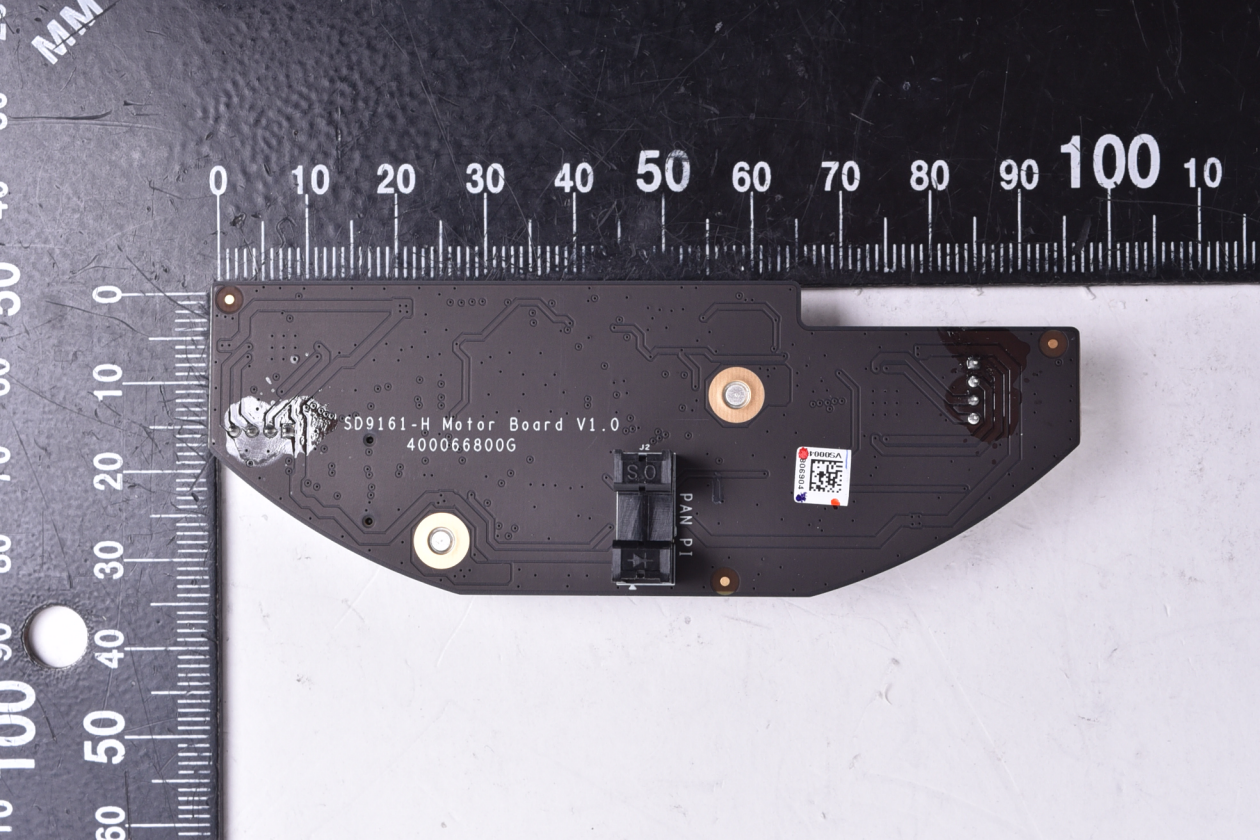
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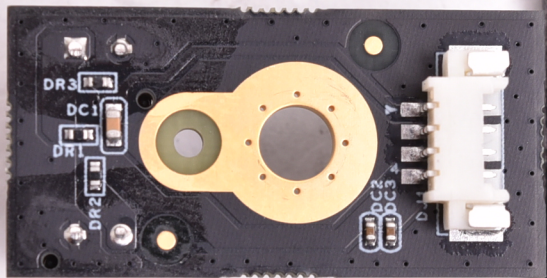


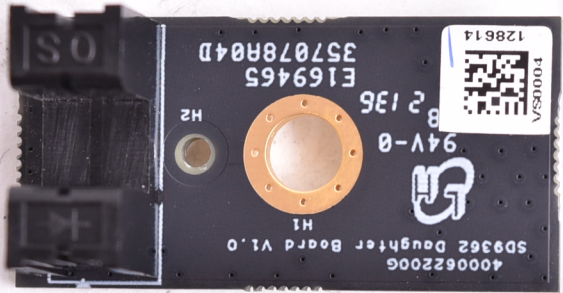


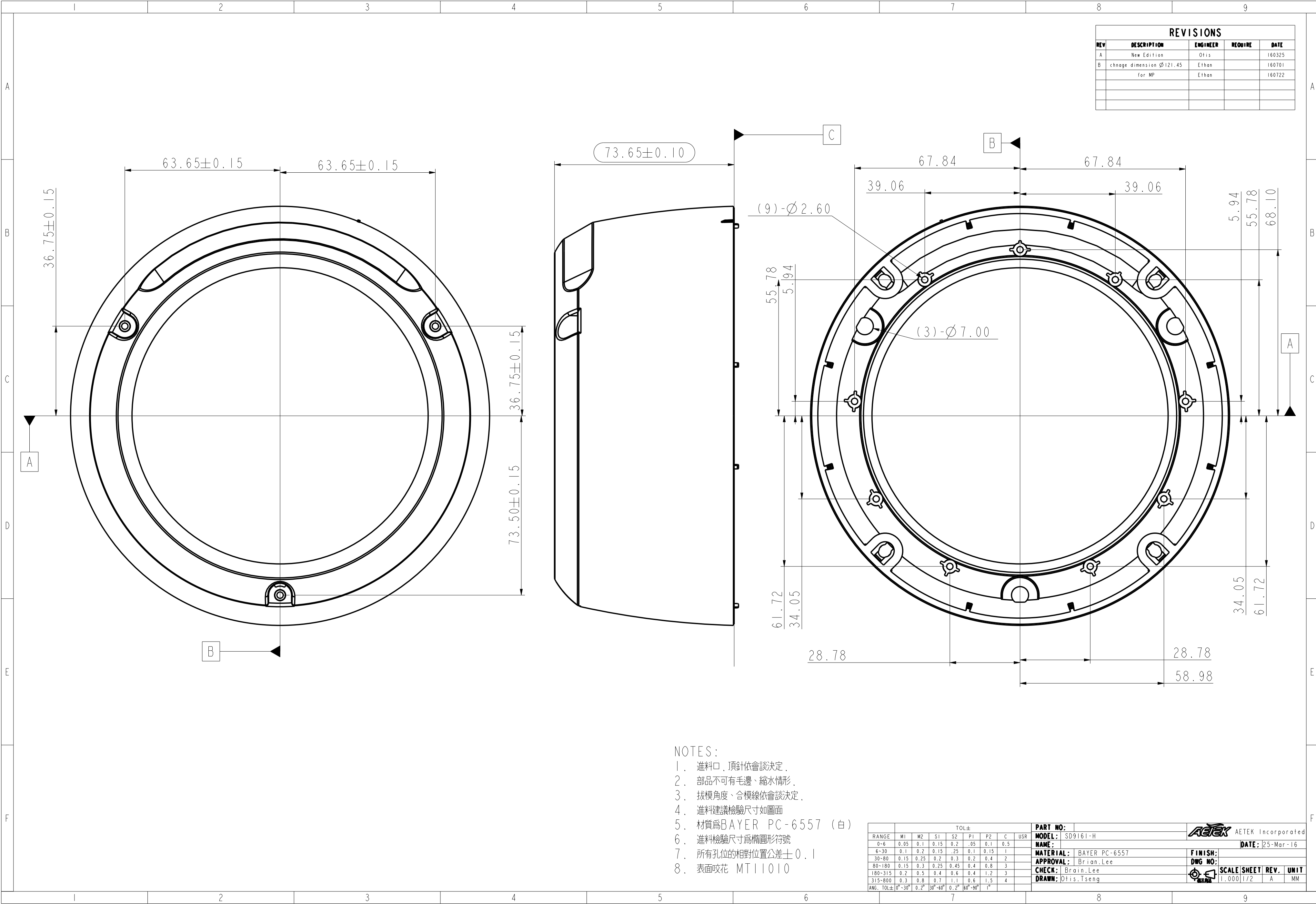


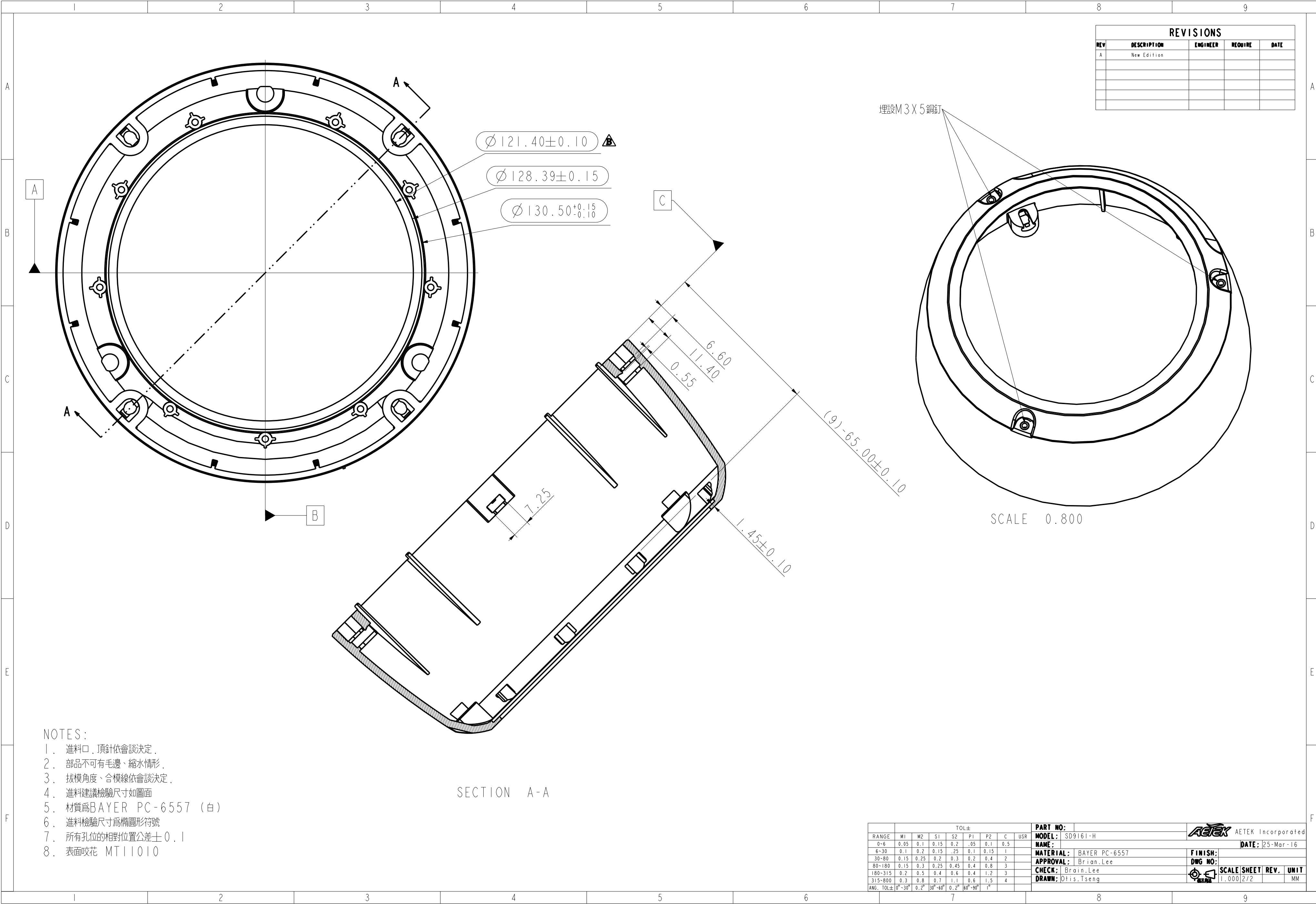












REVISIONS				
REV	DESCRIPTION	ENGINEER	REQUIRE	DATE
A	New Edition			

埋設M3X5銅釘

SCALE 0.800

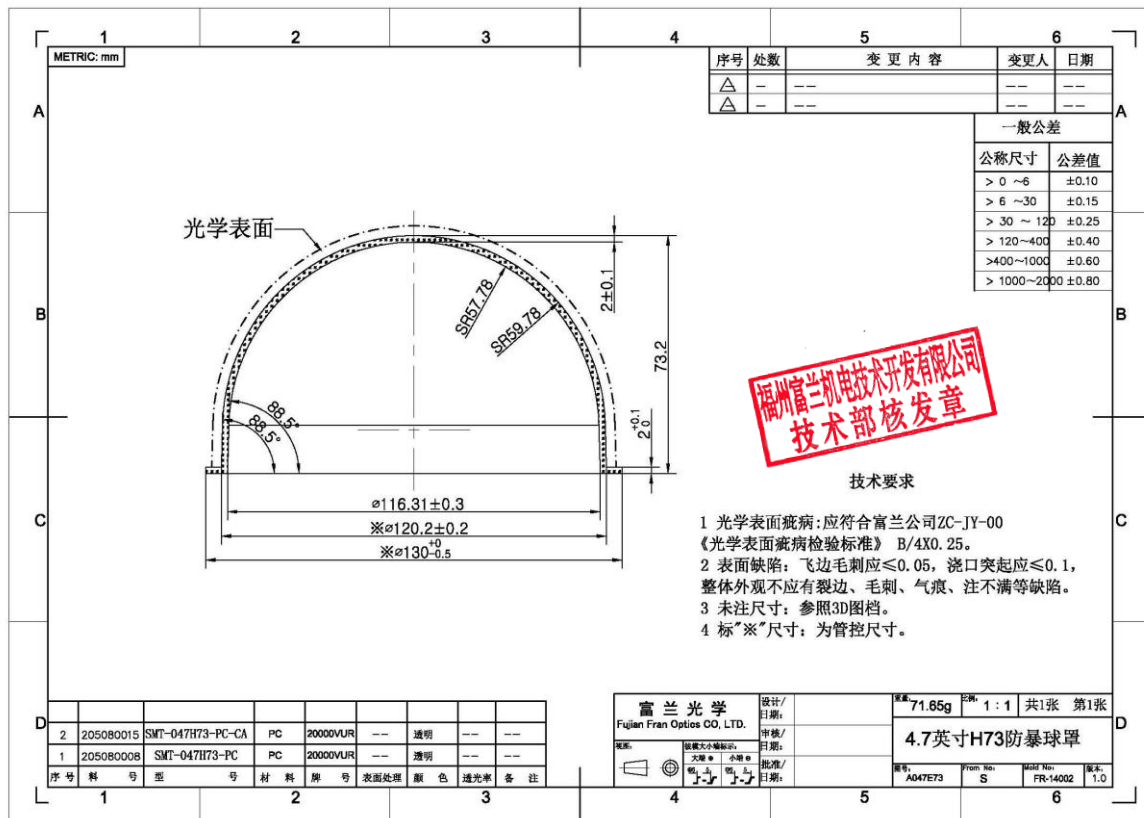
TOL±										PART NO:	AETEK Incorporated	
RANGE	M1	M2	S1	S2	P1	P2	C	USR		MODEL:	DATE: 25-Mar-16	
0-6	0.05	0.1	0.15	0.2	.05	0.1	0.5			NAME:		
6-30	0.1	0.2	0.15	.25	0.1	0.15	1			MATERIAL:	BAYER PC-6557	FINISH:
30-80	0.15	0.25	0.2	0.3	0.2	0.4	2			APPROVAL:	Brian.Lee	DWG NO:
80-180	0.15	0.3	0.25	0.45	0.4	0.8	3			CHECK:	Brain.Lee	SCALE SHEET REV. UNIT
180-315	0.2	0.5	0.4	0.6	0.4	1.2	3			DRAWN:	Otis.Tseng	1.000/2/2 MM
315-800	0.3	0.8	0.7	1.1	0.6	1.5	4					
ANG. TOL±	0°-30°	0.2°	30°-60°	0.2°	60°-90°	1°						



福建富兰光学有限公司
FUJIAN FRAN OPTICS CO., LTD.

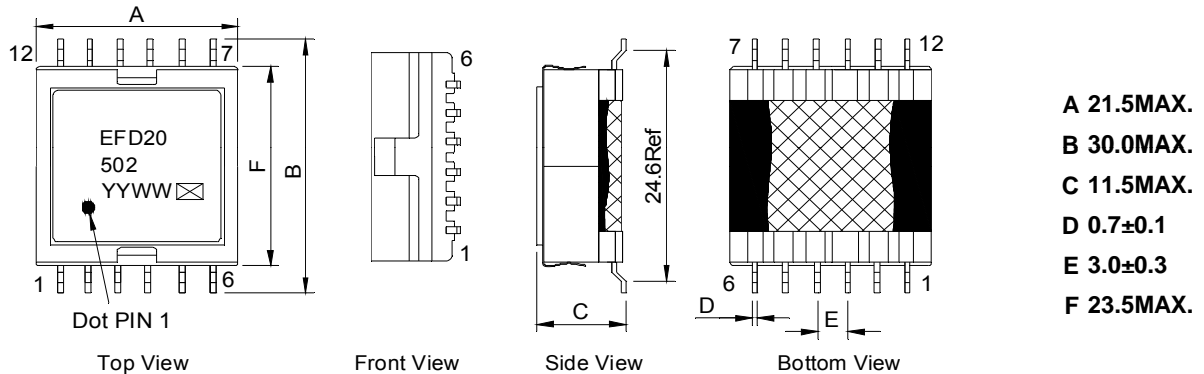
1. 产品图纸

名称	光学透明罩, MS8392-EV, TBD
型号	SMT-047H73-PC-CA





Product Specification

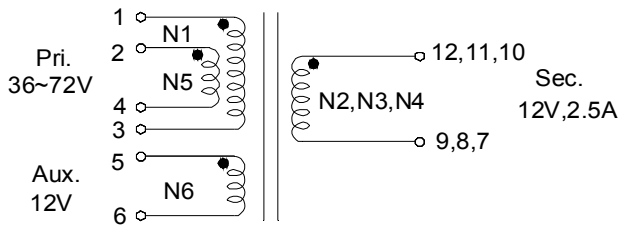
1. Physical Dimensions (Unit:mm)



Notes:

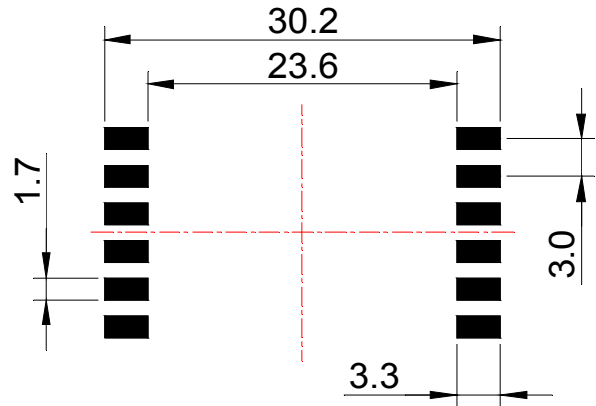
- *Marking type is laser printing
- *YY: Year Code; WW: Week Code
- *  :When making samples, S is used to represent the product is a sample.
- *  :Use different letters or numbers to represent the products are produced from different production lines .
- *Size B not including soldering tags
- *Coplanarity Requirement: Less than 0.10mm

2. Connection

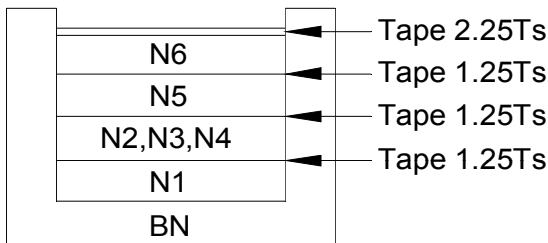


- " • "Start of winding
- *Customer to tie terminals 7&8&9 and 10&11&12 on PC board.
- *Application of the transformer allows for the leadwires between terminals 7&8&9 and 10&11&12 to solder bridge.

3. Recommended Pad Layout (Unit:mm)



4. Structure of Products



5. No of Turns & Wire Spec

No	No of Pin	Turns	Wire Spec
N1	1--3	15 Ts	ø0.25 mm*3P P180
N2,N3,N4	12,11,10--9,8,7	5 Ts	ø0.32 mm* 6P P180
N5	2--4	15 Ts	ø0.25 mm* 3P P180
N6	5--6	5 Ts	ø0.32 mm* 3P P180



Semitel'S MODEL NO. :	EFD20-502	CUSTOMER'S MODEL NO.:	
VERSION :	C	CUSTOMER'S PART NO. :	
DATE :	2022/3/4		

Product Specification

6. Electrical Characteristics

*Operating temperature:-40℃ to +125℃.

*Storage temperature range: -40℃ to +125℃ .

Items	Winding	Specifications	Test Conditions
Inductance	L(1,2-3,4)	42uH±10%	at 250kHz,0.1V
LK-Inductance	LK(1,2-3,4) Tie other	0.6uH MAX.	at 250kHz,0.1V
DCR	R(1,2-3,4)	61mΩ MAX.	at 25℃
	R(5-6)	195mΩ MAX.	
	R(12,11,10-9,8,7)	15mΩ MAX.	
Turns Ratio	(1,2-3,4):(12,11,10-9,8,7):(5-6)	3:1:1;±3%	at 250kHz,0.1V
Hi-Pot	Pri.To Sec.	1500VAC	5mA.1Sec
	Win.To Core	500VAC	5mA.1Sec

7.Bill of Material

No	Items	Material Name	Manufacturer	UL File No	SGS File No
1	Core	FERRITE CORE JCP-95	FCRI or Equivalent	NIL	A2200234874101001R1
2	Bobbin	PM-9630	SUMITOMO (SumiDurez) or Equivalent	E41429	SHAEC2002442505
3	CLIP	SUS301	TONG FENG or Equivalent	NIL	SZXEC2001378801
4	Copper Wire	Polyurethane bare wire (Cu) Polysol 180	ELEKTRISOLA or Equivalent	E258243	CE/2020/34972
OR	Copper Wire	Polyurethane wire UEWH/U	PACIFIC or Equivalent	E201757	A220035992510301E
5	Polyimide Tape	Brown adhesive plastic HN NC 0.025mm V-0	RUNSEA (RAYITEK)or Equivalent	E339977	SZXEC2000536905
OR	Polyimide Tape	Polyimide Adhesive Tape PF-301	YAHUA or Equivalent	E165111	CANEC2008940301
6	Epoxy	EB-360	DIDA or Equivalent	NIL	SHAEC2022446003
OR	Epoxy	H907-HF	HUA CHUANG or Equivalent	E304477	A2210247400101001
7	Varnish	ZS-NJ-D938XX	ZHAOSHUN or Equivalent	E329120	CANEC2003028910
8	Solder	Lead free solder	HONGTAIZHOU or Equivalent	NIL	SZXEC2001415205

Semitel'S MODEL NO. :	EFD20-502	CUSTOMER'S MODEL NO.:	
VERSION :	C	CUSTOMER'S PART NO. :	
DATE :	2022/3/4		



Matrix Electronics Co.,Ltd.

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Taoyuan County 330, Taiwan (R.O.C)

Tel: (03)3566050

Fax: (03)3566051

APPROVAL SHEET

Customer: 晶睿通訊股份有限公司

Description: Flyback Transformer

No	Matrix Part No.	Customer Part Number
1	MTSE015	350040200G
2		
3		
4		
5		
6		

AUTHORIZED SIGNATURES

Matrix Electronics Co., Ltd



CUSTOMER

Date of Submission :

Date of Approval :



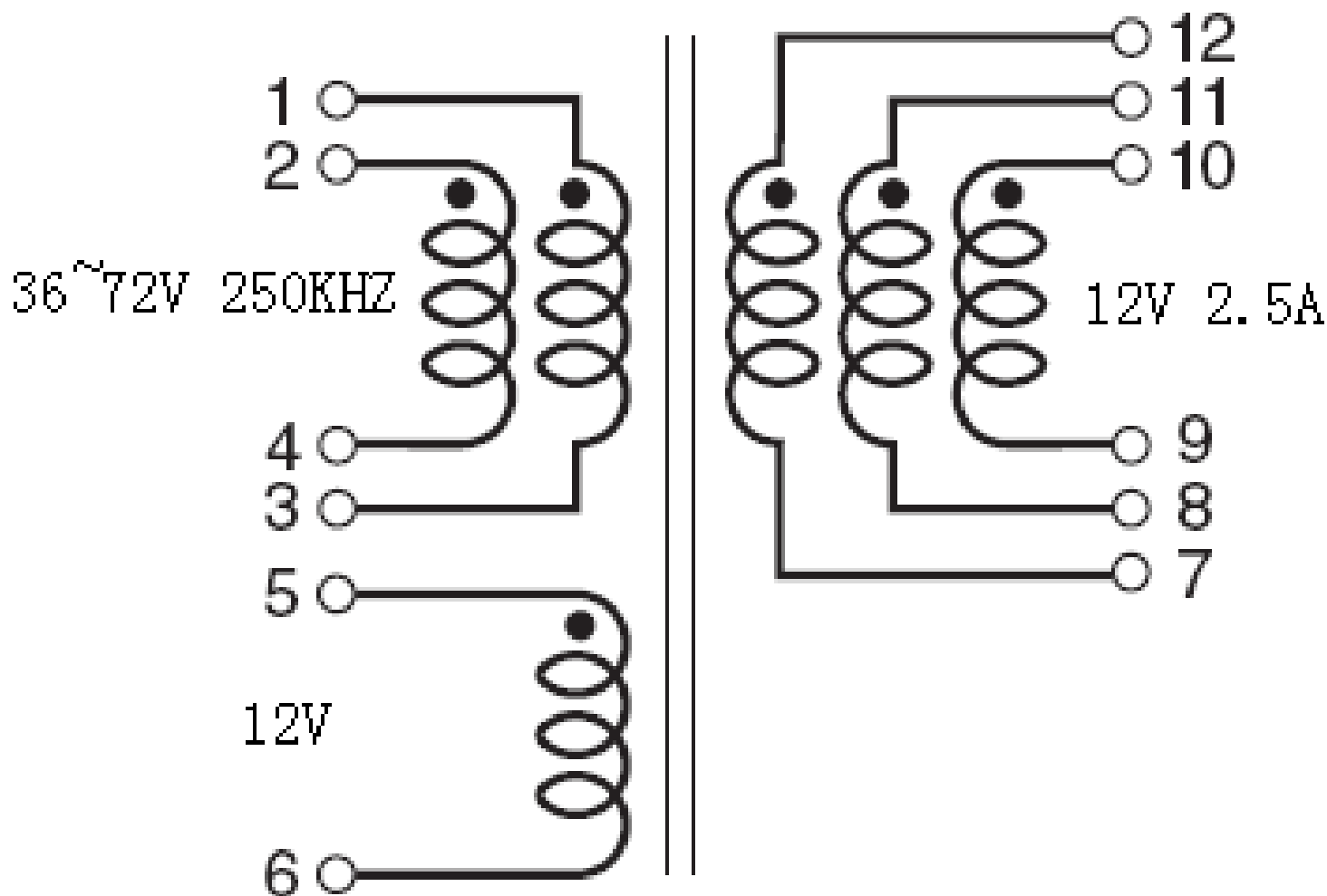
Feature

- Flyback Transformer
- RoHS Compliance Product
- Operating temperature range:-40° C to +125° C
- Storage temperature range:-25° C to +125° C

Electrical Specifications @ 25°C

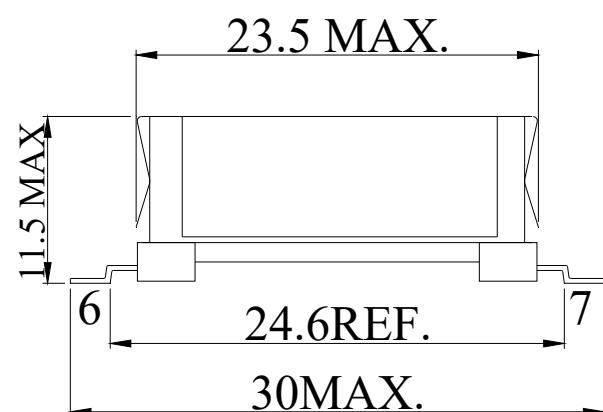
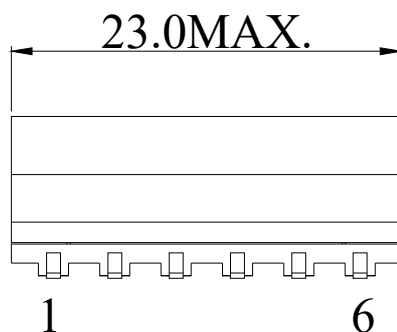
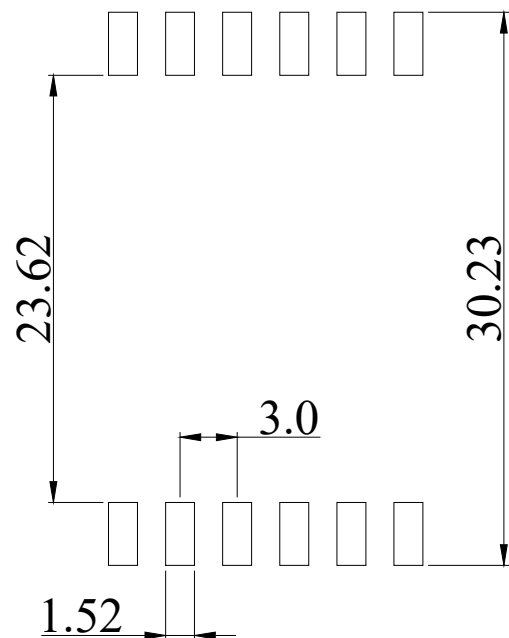
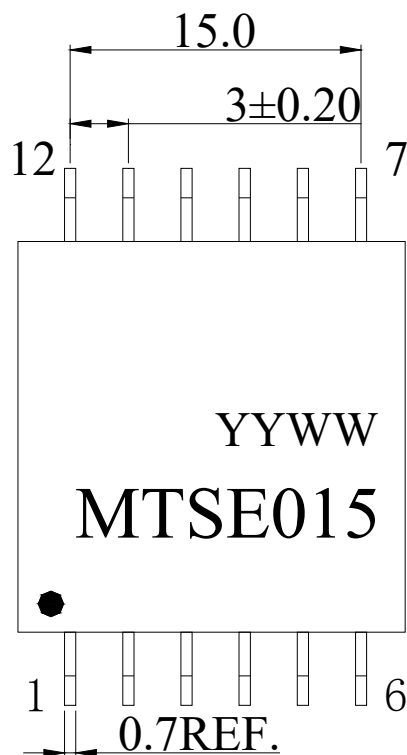
Part Number	Turns Ratio		OCL @250KHz 100mV	LL @250KHz 100mV	DCR			Hi-Pot (0.5mA/3S)
	PRI:SEC	PRI:Bias	1,2-3,4	1,2-3,4 (5-6-7-8-9-10-11-12short)	1,2-3,4	5-6	12,11,10-9,8,7	PRI-SEC
MTSE015	3:1±2%	3:1±2%	42uH±10%	0.6uH Max	61mΩ Max	195mΩ Max	15mΩ Max	1500 Vrms

Schematic





Mechanical



Dimension (mm) : Unless otherwise specified, all tolerances are ± 0.25 mm

To : _____

電気二重層コンデンサ納入仕様書 ELECTRIC DOUBLE LAYER CAPACITORS DRAWING

貴社部品番号

CUSTOMER PART NUMBER : _____

弊社品名

ELNA SERIES NAME

:

DXシリーズ

DX series

鉛フリー品

Pb-free products

納入仕様書番号

DRAWING NUMBER

:

SL-0535

受 領 印 欄
DRAWING ACCEPTED

和文／英文の表記に疑義が生じた場合は、和文を優先します。

Should any doubts arise in representation between the Japanese and English versions, the Japanese version shall prevail.

DATE : 2 APR. 2012

DRAWN BY :

A. Oyama
A. OYAMA

APPROVED BY :

I. Tanaka
I. TANAKA

エルナー株式会社
ELNA CO., LTD.

海外営業

〒222-0033

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YOKOHAMA-SHI, KANAGAWA, 222-0033 JAPAN

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FAX : +81-45-470-7260

納入仕様書提出理由
The purpose for submission

エルナー株式会社
ELNA CO., LTD.
コンデンサ事業本部
CAPACITOR DIV.

担 当	照 査	確 認
		

ここに御提出致します納入仕様書番号 SL-0535 は下記の理由によるものであります。
御検討くださるようお願い申し上げます。

We hereby submit our drawing No. SL-0535 as the following reason.
Would you please give us your considerations.

1. 提出理由

The purpose for submission

理由 Reasons	主な内容 (又は相違点) Main content (or points of difference)
<input checked="" type="checkbox"/> 新規部品 New parts	
<input type="checkbox"/> 貴社御指示による仕様変更 Specification change according to your requirement	
<input type="checkbox"/> 弊社仕様変更に伴う変更 Modification due to our specification change	
<input type="checkbox"/> 一部貴社仕様と異なるため There is a difference from your specification	
<input type="checkbox"/> その他 Others ()	

2. 実施時期

We effect from

- ☒ 納入仕様書御返却後納入分より
The first delivery after specification sheet is returned.
- ☐ 納入仕様書御返却後御注文より
The first order after the specification sheet is returned.
- ☐ 納入仕様書御返却後自然切り替え
Automatically switch after specification sheet is returned.
- ☐ 別途御打ち合わせさせて戴きます。
Conditions to be decide separately.

別紙 Attached

[illegible]

電気二重層コンデンサ納入仕様書
ELECTRIC DOUBLE LAYER CAPACITORS DRAWING
DX シリーズ 鉛フリー品
DX series Pb-Free Products

1. 品名 DX シリーズ : ダイナキャップ (電気二重層コンデンサ)
Description DX series : DYNACAP (ELECTRIC DOUBLE LAYER CAPACITOR)

2. カテゴリ温度範囲
Category temperature range $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$

3. 最大使用電圧
Max. operating voltage 5.5V DC

4. 電気的性能
Electrical performance

表 1 table 1

No.	項 目 Item	性 能 Performance	試 験 方 法 Test conditions
1	定格静電容量 (F) Rated capacitance	0.047 ~ 1.5	14. 測定方法参照 Refer to 14. Measuring method
2	静電容量許容差 (%) Capacitance tolerance	-20 ~ +80	-
3	内部抵抗 (Ω 以下) Internal resistance (Ω Max.)	12. 品種表参照 Refer to 12. Standard rating	14. 測定方法参照 Refer to 14. Measuring method

5. 耐候性
Climatic performance

表 2 table 2

No.	項 目 Item	規 格 Performance requirements		試 験 方 法 Test conditions			
1	高温及び低温特性 Characteristics at high and low temperature	静電容量変化率 Change in capacitance	20℃値の±30% 以内 Within ±30% of measured value at 20℃.	順序 Step	1	2	3
		内部抵抗 Internal resistance	20℃値の 500%以下 Not exceed 500% of measured value at 20℃.				
				上表に規定の温度で保持し、熱平衡に達してから測定する。 Time at each step : Time until thermal equilibrium (Temperature stability) is achieved then the each measurement shall be made.			
2	耐久性 Endurance	静電容量変化率 Change in capacitance	初期値の±30%以内 Within ±30% of initial measured value.	70±2℃の恒温槽に於いて最大使用電圧を印加し1000 ^h 時間後放電し、標準状態に放置した後測定する。 The capacitor shall be placed in a circulating air oven at an temperature of 70±2℃. DC Max. operating voltage shall be applied for a period of 1000 ^h hours, after which it shall be discharged and it shall be subjected to standard atmospheric condition of 20℃.			
		内部抵抗 Internal resistance	初期規格値の 400%以下 Not exceed 400% of Initial specified value.				

担
当



照
査



確
認



エルナー株式会社
コンデンサ事業本部

SL-0535

1/13

No.	項 目 Item	規 格 Performance requirements		試 験 方 法 Test conditions
3	高温無負荷特性 Shelf life	耐久性に準ずる。 The same as the endurance values.		70±2℃の恒温槽に於いて 1000 ⁴⁸ 時間無負荷 放置後常温に復帰させ、標準状態に放置した後 測定する。 The capacitor shall be placed in a circulating air oven at an ambient temperature of 70±2℃ for a period of 1000 ⁴⁸ hours with no voltage, after which it shall be subjected to standard atmospheric condition of 20℃.
4	高温高湿 (定常) Damp heat (Steady state)	耐久性に準ずる。 The same as the endurance values.		温度 40±2℃, 相対湿度 90～95%の状態におい て 500 ²⁴ 時間無負荷放置後、常温に復帰させ 標準状態に放置した後測定する。 The capacitor shall be placed in a circulating air oven at an ambient temperature of 40 ± 2 °C and relative humidity of 90 to 95% for a period of 500 ²⁴ hours with no voltage, after which it shall be subjected to standard atmospheric condition of 20℃.
5	電圧保持性 Self discharge	1. 初期規格 4.0V 以上 2. 上記 (No2～4) 試験後は 3.6V 以上 1. Initial specified values : More than 4.0V 2. After test (No2～4) : More than 3.6V		5.0V 1時間充電後、常温にて 24時間放置し、 保持している電圧を測定する。 After 5.0V applied for 1 hour, it is kept at room temp. for 24 hours and measure item' s voltage.
6	温度急変 Rapid change of temperature	静電容量変化率 Change in capacitance	初期値の±10%以内 Within ±10% of initial measured value.	-25℃ → 常温 (30±3 分間) (3 分間以下) ↑ ↓ 常温 ← +70℃ (3 分間以下) (30±3 分間) 5 サイクル/無負荷 -25℃ → Room temp. (30±3min) (Less than 3min) ↑ ↓ Room temp. ← +70℃ (Less than 3min) (30±3min) 5cycles/No voltage
		内部抵抗 Internal resistance	初期規格値以下 Not exceed initial specified value.	

6. 機械的性能 Mechanical performance

表 3 table 3

No.	項 目 Item	規 格 Performance requirements		試 験 方 法 Test conditions
1	端子引張り強さ Lead strength (Tensile)	端子の切断、折れなどの異常がないこと No visible damage		引張り力：5N 保持時間：10 秒間 Pull test, 5N for 10s
2	端子曲げ強さ Lead strength (Bending)	端子の切断、折れなどの異常がないこと No visible damage		曲げ力：2.5N 回数：2 回 Bending test, 2.5N for 2 times.
3	振動 Vibration	静電容量変化率 Change in capacitance	初期値の±10%以内 Within ±10% of initial measured value.	振動方向と時間：X, Y, Z, の互いに直角な 3 方向に各 2 時間、計 6 時間 周波数：10～55Hz 往復 1 分間 全振幅：1.5mm 印加電圧：無負荷 Direction and duration of vibration : 3 orthogonal directions mutually each for 2h, total 6 hours Frequency: 10 to 55Hz reciprocation for 1min Total amplitude : 1.5mm Applied voltage : No voltage
		内部抵抗 Internal resistance	初期規格値以下 Not exceed initial specified value.	
		外観 Appearance	異常が見られないこと。 No visible damage.	

No.	項 目 Item	規 格 Performance requirements	試 験 方 法 Test conditions
4	はんだ付け性 Solder ability	浸漬したところまでの表面の周囲方向の 3/4 以上が新しいはんだで覆われていること。 Shall cover more than 3/4 of the lead surface.	はんだ温度 : 245±5℃ 浸漬時間 : 2±0.5 秒間 はんだの種類: Sn-3.0Ag-0.5Cu フラックス : ロジンのメタノール溶液 (25wt%) Soldering temp. : 245±5℃ Immersion time : 2±0.5s Solder : Sn-3.0Ag-0.5Cu Flux : Methanol solution of rosin concentration of rosin is about 25wt%.
5	はんだ耐熱性 Resistance to soldering heat	静電容量変化率 Change in capacitance	はんだ温度 : 260±5℃ 浸漬時間 : 5±0.5 秒間 はんだの種類: Sn-3.0Ag-0.5Cu 浸漬の深さ : 熱遮へい板使用し、根本から 1.5~2.0 mm Soldering temp. : 260±5℃ Immersion time : 5±0.5s Solder : Sn-3.0Ag-0.5Cu Immersion depth : 1.5~2.0mm use heat shunt board (t=1.6mm).
		初期値の±10%以内 Within ±10% of initial measured value.	
		内部抵抗 Internal resistance	
		初期規格値以下 Not exceed initial specified value.	
6	耐溶剤性 Resistance to solvent	外観 Appearance	試験温度 : 20~25℃ 浸漬時間 : 30±5 秒間 溶剤の種類 : イソプロピルアルコール Test temp. : 20~25℃ Immersion time : 30±5s Solvent : Isopropyl alcohol
		異常が見られないこと。 No visible damage.	
6	耐溶剤性 Resistance to solvent	著しい異常がなく表示は容易に判読できること。 No visible damage and the marking shall be legible.	

7. その他 Others

■ JIS C 5160-1 : 2009 に準拠

Conforms to JIS C 5160-1 2009 (IEC 62391-1 : 2006)

■ この製品は、鉛フリー品で、RoHS 指令及び WEEE 指令に対応している。

The product was Pb (Lead) free product and RoHS Directives and WEEE Directives.

8. 表示

Marking

製品には最大使用電圧、定格静電容量、陰極を表す記号、エルナーマーク及び製造年週コードをバイオレットブルースリーブに白色インク及び灰色インクにて連続的に印刷表示する。

Max. operating voltage, Rated capacitance, polarity, Elna logo and year and weekly date code are printed on a PET sleeve continuously.

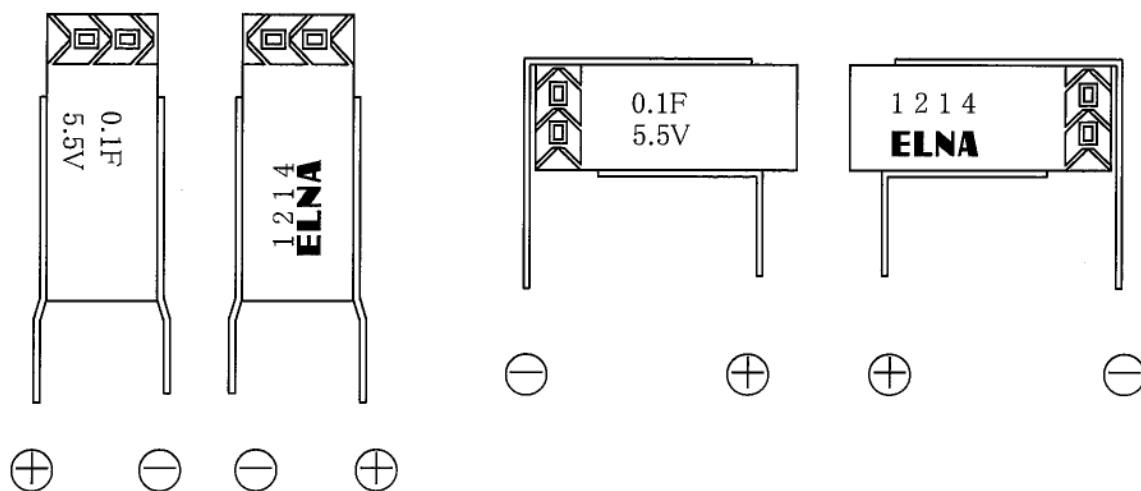
And the violet blue sleeves shall marked in white ink and gray ink.

表示例

Example

端子形状 V
Lead form V

端子形状 H
Lead form H



- 注) ・スリーブの極性表示の矢印方向はマイナス側を表示しています。
・極性表示の製品例は参考であり、マイナス表示位置については一定ではありません。

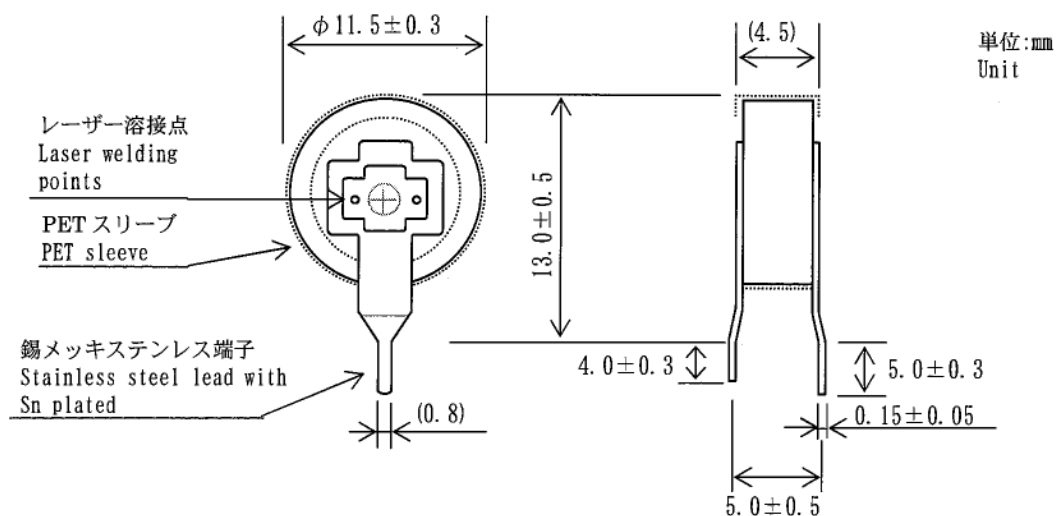
- Cautions) ・The arrow direction of the polarity marking on the sleeve indicates the negative side.
・The example of the polarity marking on the product is for reference; the negative marking position is not fixed.

9. 外形図

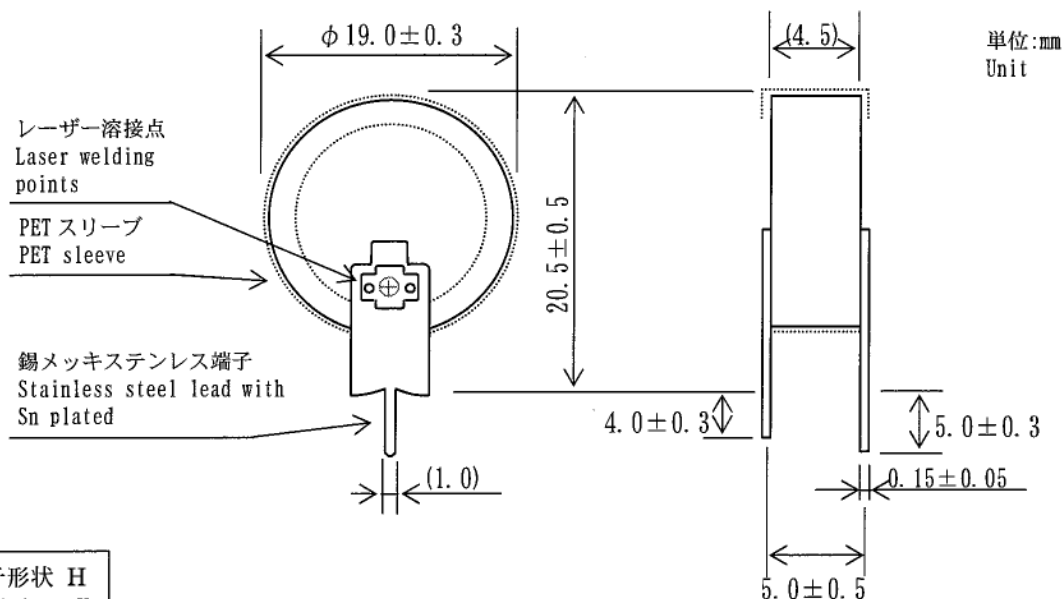
Outline drawing

端子形状 V
Lead form V

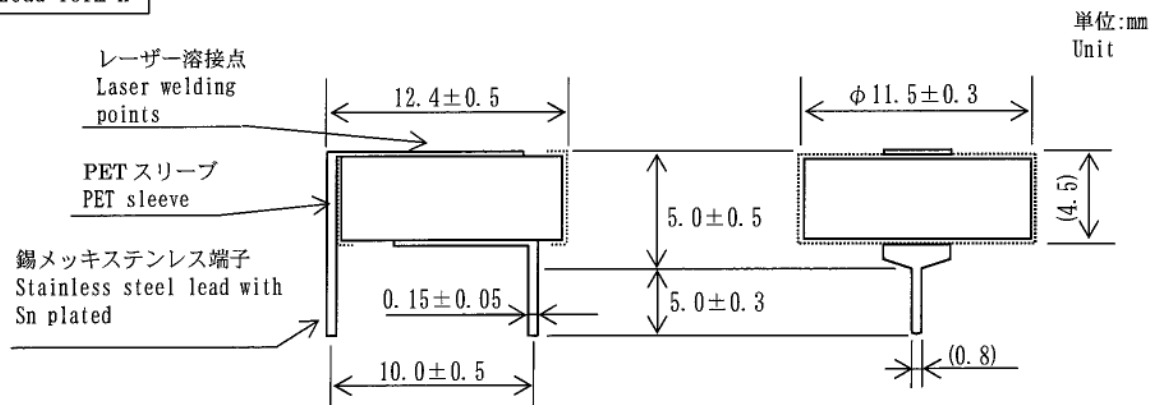
5. 5V 0.047F~0.33F



5. 5V 1.0F~1.5F

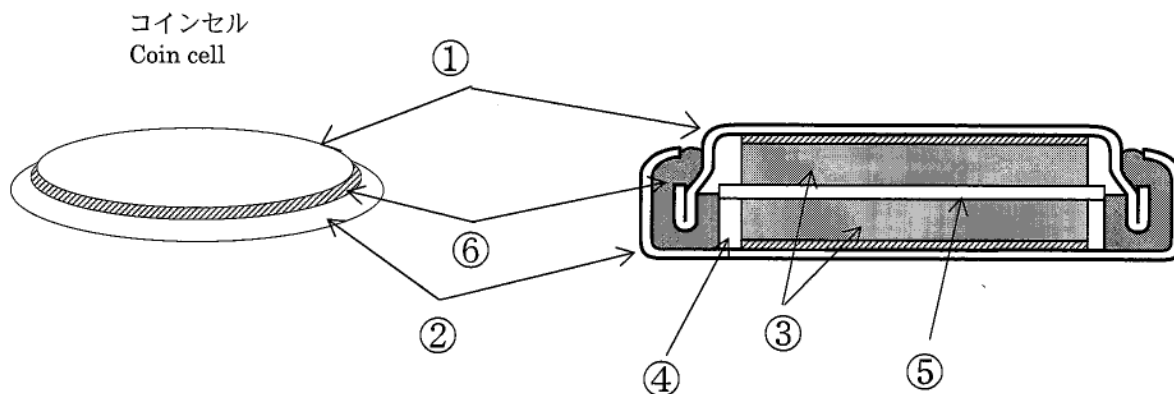


端子形状 H
Lead form H

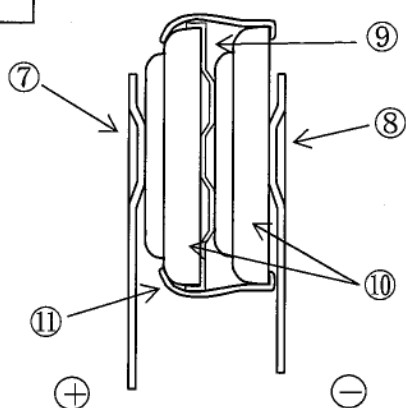


10. 構造図

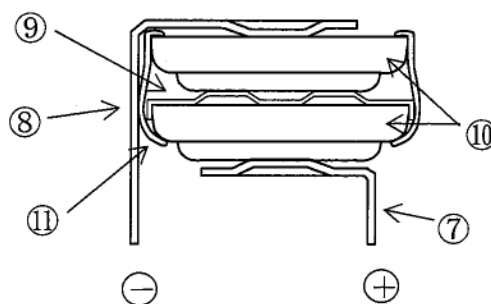
Construction



DX-V



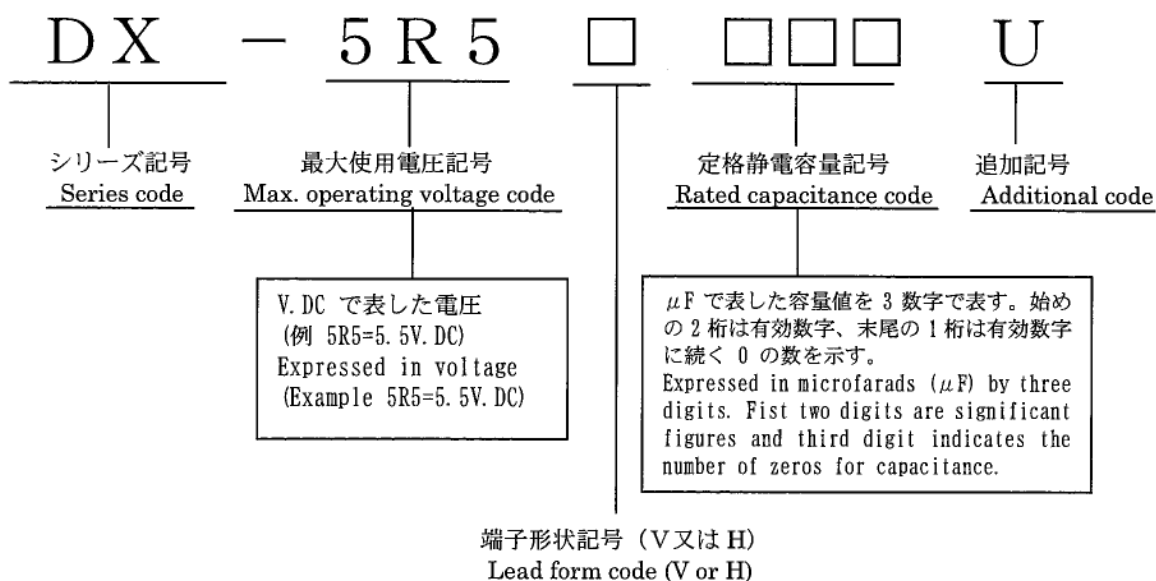
DX-H



No.	構造部品 Components	No.	構造部品 Components
①	⊕ キャップ Cap (ステンレス Stainless steel)	⑧	⊖ 端子 Negative terminal lead 錫メッキステンレス端子 Stainless steel lead with Sn plated
②	⊖ ケース Case (ステンレス Stainless steel)		
③	電極 Electrode	⑨	カップ Cup (ステンレス Stainless steel)
④	電解液 Electrolyte	⑩	コインセル Coin cell
⑤	電解紙 Electrolytic paper	⑪	PET スリーブ PET sleeve
⑥	ガスケット Gasket (PP ポリプロピレン)		
⑦	⊕ 端子 Positive terminal lead 錫メッキステンレス端子 Stainless steel lead with Sn plated		

11. 記号呼称方法

Part number system



12. 品種表

Standard ratings

表 4 table 4

部品番号 Part No.	製品記号 ELNA Part No.	最大使用電圧 Max. operating voltage (V.DC)	定格静電容量 Rated capacitance (F)	内部抵抗 Internal Resistance (Ω)	外形寸法 Dimensions (mm)	
					φ D	L
	DX-5R5V473U	5.5	0.047	120 以下 Max.	11.5±0.3	13.0±0.5
	DX-5R5H473U				11.5±0.3	5.0±0.5
	DX-5R5V104U	5.5	0.1	75 以下 Max.	11.5±0.3	13.0±0.5
	DX-5R5H104U				11.5±0.3	5.0±0.5
	DX-5R5V224U	5.5	0.22	75 以下 Max.	11.5±0.3	13.0±0.5
	DX-5R5H224U				11.5±0.3	5.0±0.5
	DX-5R5V334U	5.5	0.33	75 以下 Max.	11.5±0.3	13.0±0.5
	DX-5R5H334U				11.5±0.3	5.0±0.5
	DX-5R5V105U	5.5	1.0	30 以下 Max.	19.0±0.3	20.5±0.5
	DX-5R5V155U	5.5	1.5	30 以下 Max.	19.0±0.3	20.5±0.5

13. 梱包方法

Packing

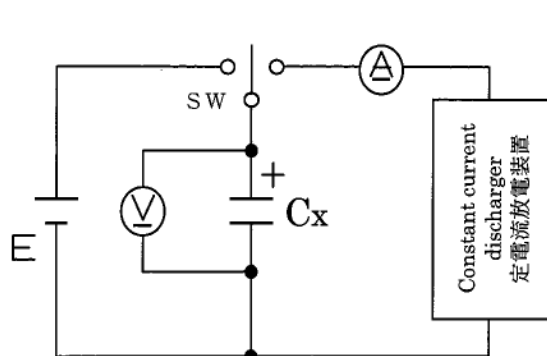
φ11.5: 200 個入り ポリ袋
200 pcs. in bag.

φ19.0: 100 個入り ポリ袋
100 pcs. in bag

14.測定方法 (測定温度: 20℃)

Measuring method (Measurement temperature: 20℃)

- 静電容量 最大使用電圧Eにて30分間充電後、 $I(\text{mA}) = 1 \times C(\text{F})$ で定電流放電を行ない
 V_1 から V_2 になるまでの時間T (秒) を測定し次式より算出。
 Capacitance The capacitor is charged with the max. operating voltage for 30 minutes.
 It is discharged with $I(\text{mA}) = 1 \times C(\text{F})$, from V_1 to V_2 .
 The time T(s) is measured and capacitance is calculated from the following formula.



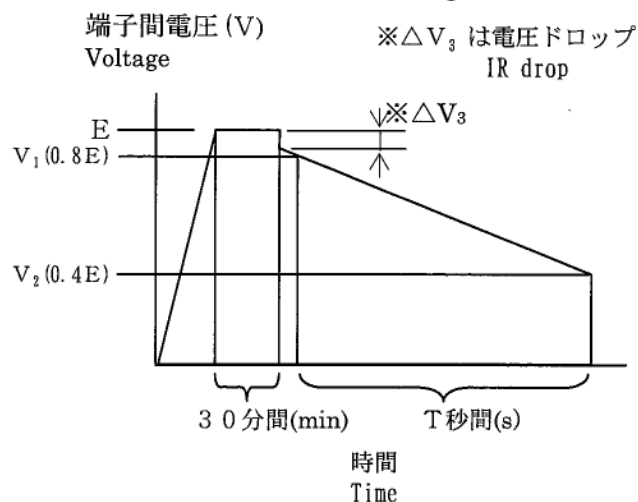
$C(\text{F})$: 定格静電容量
 Rated capacitance

$V_1(\text{V}) = 0.8 \times \text{最大使用電圧 } E(\text{V})$
 Max. operating voltage

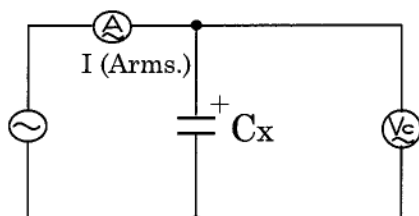
$V_2(\text{V}) = 0.4 \times \text{最大使用電圧 } E(\text{V})$
 Max. operating voltage

$$\text{静電容量 (F)} = \frac{(1 \times C(\text{F}) \times 10^{-3}) \times T(\text{s})}{V_1 - V_2}$$

Capacitance



- 内部抵抗 (測定周波数: 1 kHz)
 Internal resistance (Measurement frequency: 1 kHz)



$$\text{内部抵抗 } (\Omega) = \frac{V_c (\text{Vrms.})}{I (\text{Arms.})}$$

Internal resistance

$I(\text{Arms.}) : 0.001 \sim 0.010$

DYNACAP 電気二重層コンデンサ

DYNACAP (Electric Double Layer Capacitor)

■電気二重層コンデンサのご使用上の注意事項

Cautions for Using DYNACAP (Electric Double Layer Capacitor)

■ご使用に際して

Usage

1. 電気二重層コンデンサは導電性の有機電解液を使用しております。
過度の実装温度やカテゴリ上限温度を超えるご使用の場合、電解液が漏液する危険性があります。
特にコイン、コイン積層タイプ (DB, DBN, DBJ, DX, DXJ, DX-L, DH, DK, DC, DCK, DS, DSK シリーズ) はセル構造はボタン型電池と同じで封止材には弾性度の低いプラスチックを使用しており、急激な温度変化を伴う自動車機器等やモーター、リレー、トランス、パワーIC等の発熱体の近傍でのご使用に際しては、電解液が漏れる危険性が有りますのでお避け下さい。

Electric double layer capacitor (EDLC) uses conductive organic electrolyte.

The use at excessive mounting temperature or exceeding the upper category temperature can cause the electrolyte to leak. Especially coin and multilayer coin types (DB, DBN, DBJ, DX, DXJ, DX-L, DH, DK, DC, DCK, DS and DSK series) use a low elastic plastic as the sealant in the cell construction like coin batteries; therefore, avoid using such capacitors in the vicinity of automotive equipment with steep temperature change, and heating element such as motor, relay, transformer, power IC, etc. because of the risk of leakage of electrolyte.

2. 電気二重層コンデンサには極性があります。
極性をご確認下さい。逆電圧を長時間印加されますと漏れ電流が極端に増加し、静電容量の減少や内部抵抗の増加をきたしたり、時によっては漏液や破損等が起きる場合があります。

Since EDLC is polarized, do not apply a reversed voltage.

EDLC is polarized. If a reversed voltage is applied for a long time, the leakage current will increase abruptly, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

3. 最大使用電圧を超える電圧を加えないようにして下さい。使用電圧は可能な限り 電圧軽減する事をお奨めします。
最大使用電圧を超える電圧を加えると漏れ電流が極端に増加し発熱が甚しくなり静電容量の減少をきたしたり、内部抵抗の増加をきたしたり、時によっては漏液や破損等が起きる場合があります。
使用電圧は信頼性上可能な限り電圧軽減して頂き、最大使用電圧の80%以下を推奨します。

Do not apply any voltage higher than the operating maximum voltage (this means the surge voltage in the case of short-time charge). It is recommended to derate operating voltage as far as reliability allows.

If an overvoltage is applied to the product, the leakage current will increase abruptly and the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

It is recommended to derate operating voltage as far as reliability allows, and operating voltage recommends 80% or less of the operating maximum voltage.

4. 電源部の平滑用 (リプル吸収) にはご使用にならないで下さい。
電気二重層コンデンサは内部抵抗が大きいので電源部の平滑用 (リプル吸収) にご使用されますと、発熱が甚しくなり静電容量の減少や内部抵抗の増加をきたしたり、時によっては漏液や破損等が起きる場合があります。

Do not use smoothing a power supply (for absorbing its ripple).

Since the internal resistance of EDLC is high, the product will be overheated if it is used for smoothing a power supply (for absorbing its ripple), which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases.

5. 急激な充放電を繰り返すような回路でのご使用について
急激な充放電を頻繁に繰り返すような回路では、発熱が甚しくなり静電容量の減少や内部抵抗の増加をきたしたり、時によっては漏液や破損等が起きる場合がありますので、充放電電流は少なくして内部抵抗の低い製品を選択し、製品表面温度が上昇しないことを確認してください。

Do not use in a circuit where quick charge and discharge are repeated very often.

In a circuit where quick charge and discharge are repeated very often, the product will become overheated, which may cause a decrease in the capacity, an increase in the internal resistance, and causing leakage or damage to the product in some cases. Reduce the charge and discharge currents while selecting a product with low internal resistance, and make sure that the product surface temperature does not rise.

6. 電気二重層コンデンサの寿命について

電気二重層コンデンサの寿命は有限です。

①電気二重層コンデンサの寿命は周囲温度の影響が強く、10℃下がることによって寿命は約2倍に延びます。

従って、発熱部からできるだけ離してご使用下さい。

②カテゴリ上限温度を超えて使用した場合、寿命が短くなるばかりでなく、電解液の蒸気圧の上昇や電気化学反応により、内圧が上昇し漏液や破損等が起きる場合があります。

EDLC life depends heavily on the ambient temperature.

①The lifetime of EDLC is seriously affected by change in ambient temperature. If the temperature is lowered by 10℃, the lifetime will be approximately doubled. Therefore, the product should be used at a temperature lower than the guaranteed maximum value for maximum life.

②If the capacitor is used at a temperature exceeding its maximum guaranteed temperature, not only is its life shortened, but increased vapor pressure of electrolyte or electrochemical reactions may increase the internal pressure, And causing leakage or damage to the product in some cases.

7. バックアップ時の電気二重層コンデンサの電圧降下について

放電電流が大きい場合や、瞬間的に大電流が流れるような場合、放電開始時に電気二重層コンデンサの直流内部抵抗と放電電流との積による電圧降下 (IR ドロップ) が大きくなり、動作しなくなる場合があります。

各シリーズにより内部抵抗は異なりますので、放電電流が大きい場合は、弊社までご相談下さい。

なお、メモリーバックアップ用途の製品 (DZ, DZN, DP を除くシリーズ) の最大放電電流は 1mA/F (at 20℃) 以下とすることをお勧めします。

Note that a voltage drop in EDLC occurs during backup.

In a case where discharge current is large, or a large current flows instantaneously, an electric double layer capacitor (EDLC) may not operate at the start of discharge because of a large voltage drop (IR drop) caused by the product with the DC internal resistance.

Please consult us for a large discharge current (in the case of other series except DZ, DZN, DP series: when larger than $I \text{ (mA)} = 1 \times C \text{ (F)}$) as the internal resistance varies by each series. (Recommendation discharge current: 1mA/F at 20℃)

8. ご使用雰囲気について

水滴や結露、有毒ガスの雰囲気中ではご使用にならないで下さい。

電気二重層コンデンサの特性劣化や、漏液及びリード線やケースを腐食させ断線の原因となります。

また、急激な温度変化は結露の原因となり、製品の劣化及び漏液につながりますので避けて下さい。

Do not use the product in an ambient atmosphere containing water drops (condensation) or toxic gases.

Although EDLC is sealed, water droplets or toxic gases may do degradation characteristics, a leakage and corrode the lead wires and the case, which may cause a breaking of the wires.

Avoid abrupt temperature changes, which may cause water droplets, resulting in product deterioration and electrolyte Leakage.

9. 電気二重層コンデンサの直列接続について

電気二重層コンデンサを直列接続してご使用する場合、電圧バランスがくずれるとコンデンサに過電圧が加わることになり、時によっては漏液や破損等が起きる場合があります。

直列に接続して使用する場合は、コンデンサに加わる電圧のアンバランス分も考慮して、コンデンサの定格電圧に対するマージンを十分とるか、バランスを取る回路 (分圧抵抗器など) を付加してください。

また、コンデンサ間に温度差が生じない様な配置をして下さい。

Contact us before connecting the products in series.

A series connection will cause an imbalance in the voltage, charged to the capacitors and an overvoltage may be charged to one or more them. This may cause a decrease in the capacity, an increase in the internal resistance and causing leakage or damage to the product in some cases.

When using series connection for several capacitors, please derate the applied voltage from the operating maximum voltage or use balancing circuits (bleeder resistor, etc) to compensate for the imbalance in the applied voltage for each capacitor.

Moreover, please ensure the arrangement does not cause temperature fluctuation between capacitors.

10. 振動について

過度の振動を加えることにより、はんだ付け部の外れ、リード端子部の曲がり、折れが発生することがありますので、十分にご注意下さい。また、場合によっては特性劣化、漏液、破損、等を起こす恐れがありますので過度の振動になる場合は当社にご相談下さい。

About vibration.

A terminal blank, a terminal bend, and a crease may occur by adding too much vibration to a capacitor.

Moreover, depending on the case, an EDLC may do degradation of the characteristic, breakage, and a leakage.

When you become too much vibration, please contact our company.

11. 両面配線基板について

電気二重層コンデンサを両面配線基板にご使用の場合、配線パターンがコンデンサの取り付け部にかからぬようご注意ください。万が一電解液が漏れた場合、回路パターンが短絡しトラッキング又はマイグレーションを起こす場合があります。

When used on a double sided printed circuit board, do not overlap the wiring patterns on the mounted part.
A short circuit may be created by certain wiring conditions. Should the electrolyte leaks, the circuit pattern may cause a short circuit, resulting in tracking or migration.

12. 電気二重層コンデンサの保管について

- ①保管の際、高温、多湿環境、直射日光が当たるような場所には保管しないようご注意ください。
- ②保管は温度 5~30℃、湿度 60%以下の場所をお願いします。
また、急激な温度変化は、結露や製品の劣化・漏液につながりますので避けて下さい。
- ③電気二重層コンデンサに直接水、塩水及び油がかかる環境で保管しないで下さい。
- ④電気二重層コンデンサを有害ガス（硫化水素・亜硫酸・亜硝酸・塩素・オゾン・アンモニアなど）が充満する環境で保管しないでください。
- ⑤船便などの防虫対策としてコンテナの木枠ごと有害ガスでくん（燻）蒸処理などを行うと、有害ガスが残留する場合があります。
- ⑥電気二重層コンデンサを紫外線及び放射線が照射される環境で保管しないで下さい。

Do not keep in high temperature and high humidity atmospheres.

- ①Avoid high temperature or high humidity or direct rays when storing capacitors.
- ②Keep the product in a place where the temperature is 5℃ to 30℃ and the humidity is lower than 60%. Avoid an abrupt temperature change, which may cause condensation or deterioration of the product or liquid leakage.
- ③Do not store EDLC at a place where there is a possibility that they may get water, salt or oil spill.
- ④Do not store EDLC at place where the air contains dense hazardous gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine ammonia, etc.).
- ⑤Fumigation treatment with toxic gas covering the whole wooden container frames as moth proofing during shipment may leave residual toxic gas.
- ⑥Do not store EDLC at a place where it gets ultraviolet ray or radioactive ray.

■実装に際して

Mounting

1. はんだディップ時に、過度の熱が製品に加わらないようご使用下さい。

配線基板の種類、大きさにより、製品に過度の熱が加わり気密不良を起こし製品寿命を大幅に減少させたり、液漏れを起こす場合があります。

配線基板の厚さが 1.6mm 片面基板の場合、はんだディップ条件、260℃5.5 秒以内でご使用下さい。

また、配線基板の厚さが 1.6mm 未満の場合や多層基板の場合は、弊社までご相談下さい。

尚、手はんだの場合は、こて先温度 360℃、4 秒以内でご使用下さい。

リフロー対応コインタイプ (DS, DSK) を除くコインタイプ・コイン積層品タイプは封止のパッキン材にポリプロピレンを使用しており過度の熱に対して弱いため、プリヒートも含めて部品本体温度が 90℃を超えないように管理してください。プリヒートの推奨条件を下記に示します。

条件：フロー時、熱遮蔽板の裏面ピーク温度 110℃以下、トータル加熱時間 30 秒以内でその後はんだ温度 260±3℃の槽中に部品の端子先端を 5±0.5 秒 浸漬させる。フローを 2 回通す場合は、一度部品本体の温度を常温にしてから実施下さい。

上記以外の条件でご使用する場合は当社にご相談下さい。

Do not overheat when soldered.

Depending on the type and size of the board, the product may be subjected to overheat, leading to loss of airtightness. This may greatly shorten the product life or cause liquid leakage.

In case of a 1.6mm-thick and single side printed board, for example, keep the following soldering conditions: temperature lower than 260℃, time shorter than 5.5 seconds.

When a board thinner than 1.6 mm or multi-layer printed board is used, contact us.

In the case of hand soldering, the iron tip temperature is lower than 360℃, time is shorter than 4 seconds.

The coin types and multilayer coin types excluding the DZ and reflow-compatible coin types (DS, DSK) use polypropylene as the pacing material for sealing and therefore susceptible to excessive heat. Note that the component body temperature shall be controlled so as not to exceed 90℃ including preheating.

Recommended preheating conditions are as shown below : Conditions : At the time of flow, the peak temperature on the rear of the thermal shield shall be 110℃ or less, with the total heating time within 30 seconds. After that, dip the terminal tip of the component into the bath soldering temperature of 260±3℃ for 5 ±0.5 seconds. The second flow, if conducted, shall be done after the product temperature has been cooled down to room temperature.

2. はんだディップ後の基板洗浄について
溶剤の種類によっては、電気二重層コンデンサ内部に浸透し悪い影響を与える場合がありますので弊社までご相談下さい。

Contact us when cleaning is necessary after soldering.
Certain types of solvents are not compatible and may cause damage.
3. 固定用接着剤コーティング剤について
ボンド等の接着剤を用いて配線基板等への接着、あるいはコーティングにより電気二重層コンデンサに悪影響を及ぼすことがありますので弊社までご相談下さい。
また、接着やコーティングによりコンデンサの封口部が被われる場合もご相談下さい。
接着剤、コーティング剤を硬化させる際は、カテゴリ上限温度を超えるような条件で作業しないようお願いします。

Contact us when the product is attached by adhesive bonding.
Certain types of adhesives are not compatible.
Paste bond partially between the product and the board so that the product will not adhere completely to the board.
Do not raise the temperature over the guaranteed value while the bond is hardening.
4. 接着剤硬化炉等の加熱条件について
接着剤硬化炉等の加熱において、過度の熱が加わり製品寿命を大幅に減少させたり液漏れを起こす場合があります。
許容雰囲気温度 110℃以下、許容加熱時間 30 秒以下とし、本体温度が 90℃を超えないように管理して作業下さるようお願いします。
上記以外の加熱条件になる場合は、温度プロファイル条件を提示の上当社にご相談下さい。

Heating conditions of adhesive curing oven
During heating of the adhesive curing oven, application of excessive heat may significantly shorten the product life or cause liquid leakage. Control the body temperature so as not to exceed 90℃ during work while setting the allowable atmospheric temperature below 110℃, and allowable heating time within 30 seconds.
For the heating conditions deviating from the above, consult with us providing your temperature profile conditions.
5. コンデンサ本体及び端子やリード線に強い力を加えないように注意してください。
①コンデンサの端子間隔とプリント配線板穴間隔とが合っていることを確認してから取り付けてください。
②コンデンサ本体を掴む、倒す、押す、捻る、曲げる等のストレスを加えると端子はずれ、オープン、ショート、液漏れ等を起こすことがあります。

Be careful not to apply an excessive force to the capacitor body, terminals or lead wires.
①Mount the capacitor while making sure that the terminal spacing of the capacitor and the spacing of the holes in the printed wiring board are aligned.
②If the capacitor body is subjected to stress such as grabbing, falling, bend, pushing or twisting, its terminals may come off, leading to open, short or liquid leakage.

■その他の注意事項

Other cautions

1. 万ーの場合

電気二重層コンデンサが異常に加熱したり、異臭が発生した場合、すぐに機器の主電源を切るなどして使用を中止して下さい。
また、電気二重層コンデンサが万が一高温になったときは、破損及びやけどの原因となる場合があるため顔や手を近づけないで下さい。

Emergency procedures

If the EDLC overheats or starts to smell, immediately switch off the units main power supply to stop operation.
Keep your face and hands away from the DYNACAP, since the temperature may be high enough to cause the EDLC to ignite and burn.

2. 産業用機器に使用されている電気二重層コンデンサについては、定期点検をして下さい。

点検項目は次の内容を行ってください。

①外 観：液漏れなどの著しい異常の有無

②電気的性能：漏れ電流、静電容量、ESR 及びカタログ又は納入仕様書に規定の項目。

Periodical inspections should be established for the EDLC used in industrial appliances.

The following items should be checked:

①Appearance : Check if there is leakage.

②Electronic performance : Check the leakage current, the electrostatic, the internal resistance and other items described in the catalog or the product specifications.

3. コンデンサを廃棄する場合には、次のいずれかの方法を取って下さい。

①電気二重層コンデンサを焼却する場合は、穴をあけるか又は十分つぶしてから高温で焼却して下さい。(爆発の防止)

②電気二重層コンデンサを焼却しない場合は、専門の産業廃棄物処理業者に渡して、埋立てなどの処理をして下さい。

Disposing of EDLC.

①Punch a hole or crush the EDLC (to prevent explosion) before incineration at approved facility.

②If they are not to be incinerated, bring them to a professional industrial waste disposal company.

4. その他

ご使用に際しては、この納入仕様書及びカタログの記載事項の他、下記の内容についてもご確認の上、ご使用いただくようお願いいたします。

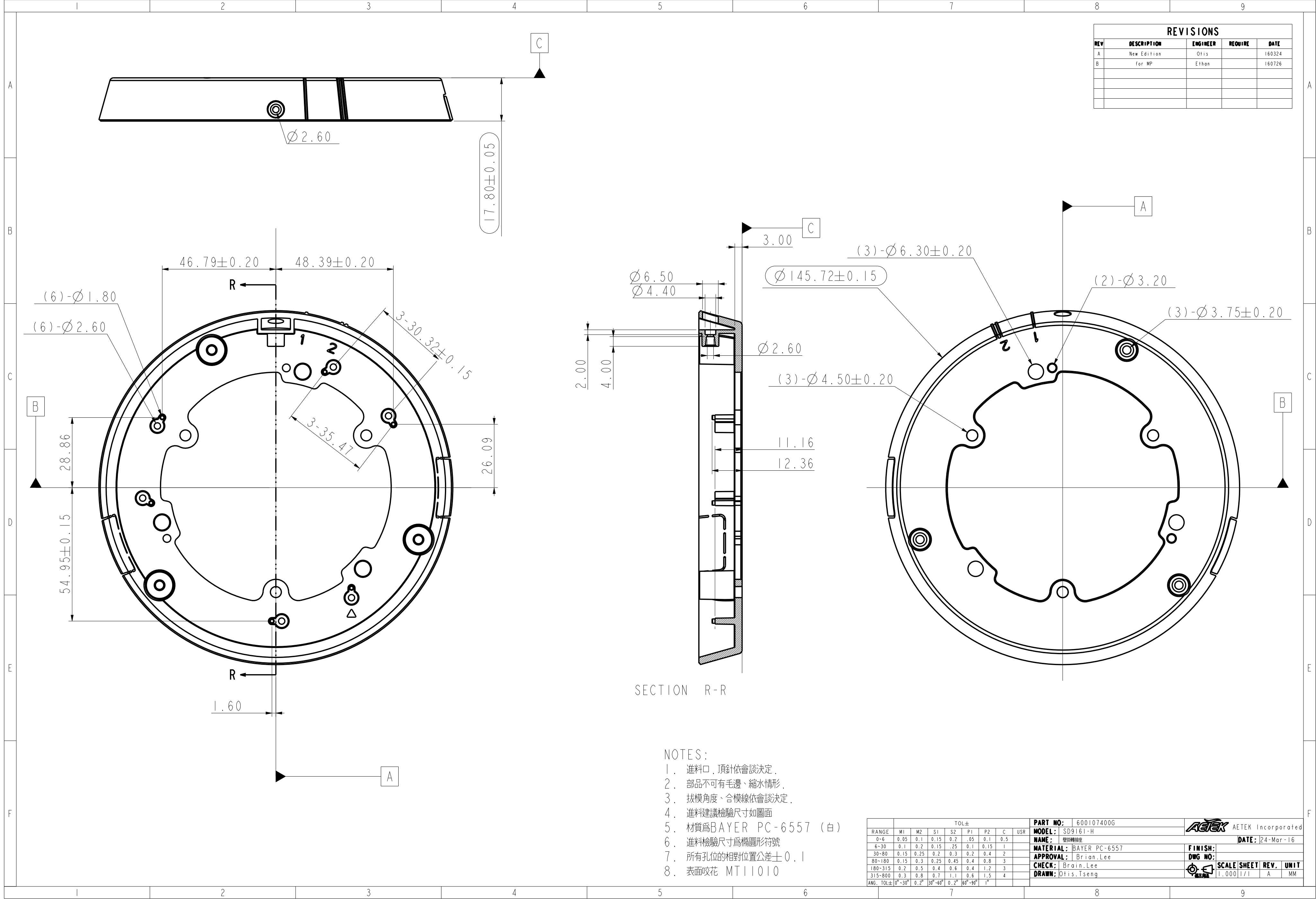
電子情報産業協会技術レポート

EIAJ RCR-2370C

(電気二重層コンデンサの安全アプリケーションガイド)

Other notes.

Please refer to the following literature for anything not described in the product specifications or the catalog. (The Electronics Industry Association of Japan technical report #EIAJ RCR-2370B "Safety Application Guide for fixed electric double layer capacitors")



金國螺絲工業有限公司

承認書

APPROVAL SHEET

品號/ladex mark : 660019200G

品名/PART NAME : 螺絲配件組, SD9161-H

規格/DESCRIPTION :	傘頭 M4 X 32 尖尾自攻牙螺絲(三鉍)	3PCS
	壁塞 1 1/4 "(灰)	3PCS
	圓頭 M2 X 12 機械牙螺絲/華司(黑)	1PCS
	L 型梅花板手 T20(鎳)	1PCS
	夾鍊袋#2	

日期/ISSUE DATE : 105.06.28

重量/ WEIGHT : 18.95g

公司:台北縣三重市成功路 41 巷 25 弄 1 號

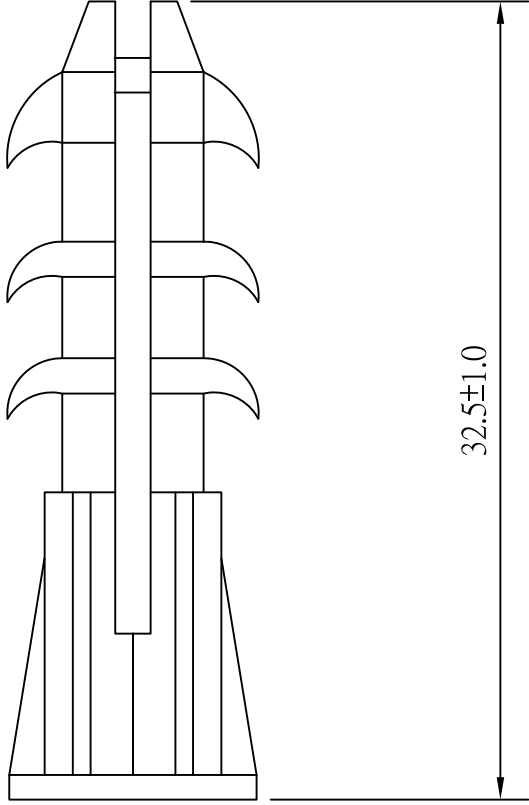
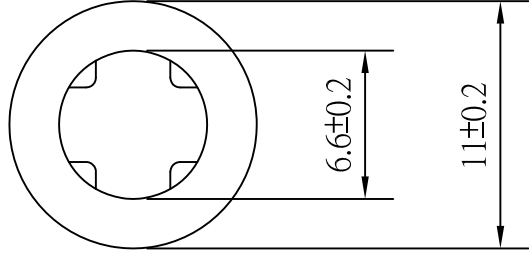
統一編號:35896572

廠房:台北縣五股鄉中興路一段 151 巷 13 號

Tel: (02)2977-2443 & (02)2978-7471

Fax:(02)2977-4580

E-Mail:yeh2443@yahoo.com.tw



金國螺絲工業有限公司

圖名

壁塞33*6.5

圖號

材質

高密度聚乙烯

表面處理

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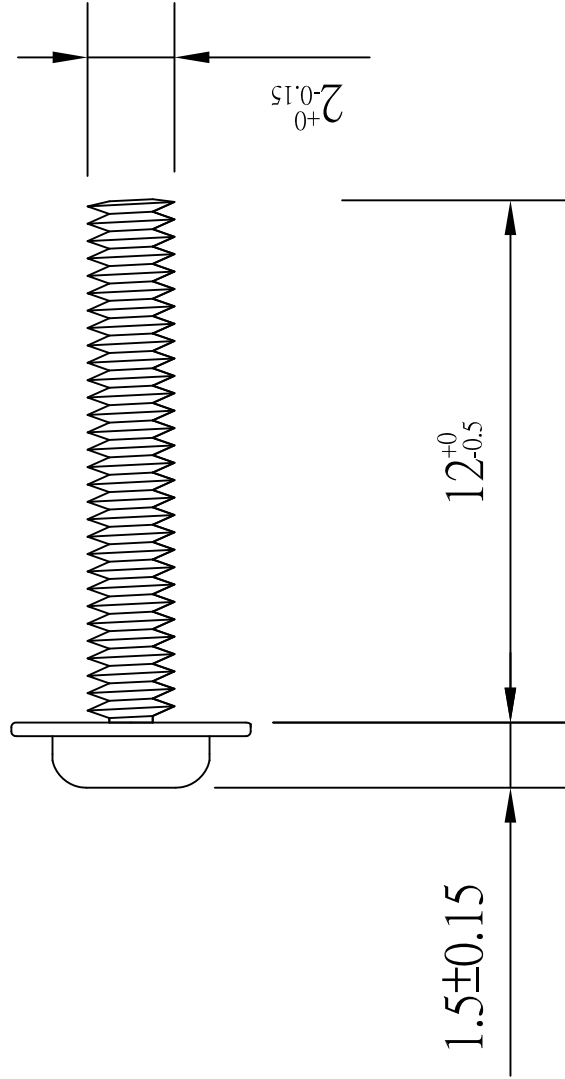
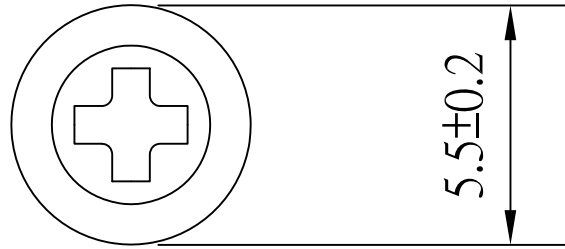
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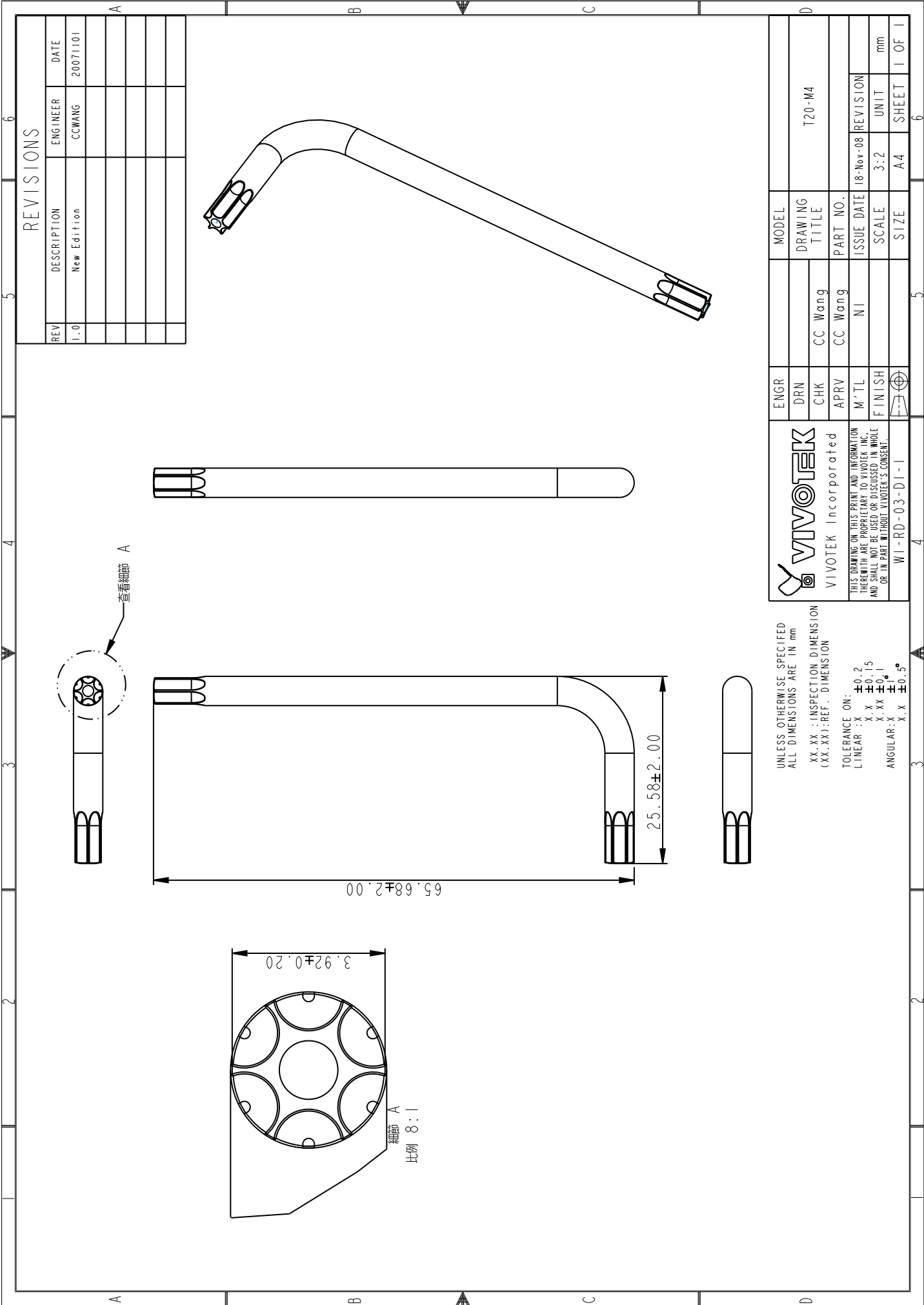
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比例

1:1



金國螺絲工業有限公司				圖名		圓頭M2 X 12機械牙/華司		圖號				
材質	1006	表面處理		黑	日期	2015/11/23	單位	mm	比例	1:1		



REVISIONS

REV	DESCRIPTION	ENGINEER	DATE
1.0	New Edition	CCWANG	20071101

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN mm

xx.xx : INSPECTION DIMENSION
(xx.xx):REF. DIMENSION

TOLERANCE ON:

LINEAR : X ±0.2
 X X ±0.15
 X.XX ±0.1
ANGULAR: X ±1.5°
 X X ±0.5°



VIVOTEK Incorporated

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ENGR	MODEL	D		
DRN	DRAWING TITLE	T20-M4		
CHK	CC Wang			
APRV	CC Wang	PART NO.		
M'TL	NI	ISSUE DATE	I8-Nov-08	REVISION
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		SIZE	A4	SHEET
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晶睿通訊股份有限公司 VIVOTEK INC.

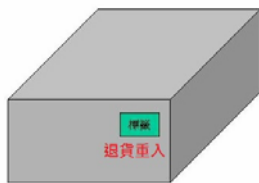
(機構) 零組件承認需求單

廠商名稱	金國螺絲工業有限公司	廠商連絡人	葉啟弘	連絡電話	(02)2977-2443
零件料號	660019200G			填表日期	2016/06/28
品名	螺絲配件組, SD9161-H				
項次	承認文件需求項目	有提供請打 V	無法提供請說明原因/備註事項		
1	圖面				
2	包裝方式	包/200PCS			
3	試模重點尺寸量測				
4	試產色差值(<1.5)		(為外觀機構件需提供) N 不適用		
5	組裝 SOP		(609 料號組合件需提供) N 不適用		
6	信賴性試驗報告		(為外觀機構件需提供) N 不適用		

承認文件與出貨物料需符合以下事項

- 出貨外箱或外盒上都需要有晶睿料號與品名，標示可參考下圖。
- 退貨或是庫存品退回重工 Sorting 情形，重工完畢後需於外箱標籤下方 標示” **退貨重入**” 字樣

晶睿料號	
品名規格	
數量	PCS
供應廠商	廠商檢驗記錄
進貨日期	
P/O No.	進貨批量 PCS



- 出貨時請提供電子檔出貨報告與材質證明, Mail 主旨與檔案名稱如下:

* 出貨報告 mail 主旨: (廠商名稱-日期 出貨報告) 例: 晶睿-20150925 出貨報告

* 出貨報告名稱: (出貨報告-料號-日期) 例: 出貨報告-600035501G-0925

* 材質證明 mail 主旨: 廠商名稱-日期塑膠材質證明 例: 晶睿-20150925 塑膠材質證明

* 材質證明報告名稱: 材證-料號-日期 例: 材證-600035501G-0925

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連絡事項

VIVOTEK SD9161-H-v2
A Delta Group Company
Quick Installation Guide

P/N: 625075400G

Warning Before Installation / Warnung vor der Installation / Waarschuwing voor installatie

● Power off the Network Camera as soon as smoke or unusual odors are detected.
Netzwerkamera bei Rauchentwicklung oder ungewöhnlichem Geruch sofort abschalten.
Schakel de Netwerk Camera uit zodra u rook of ongebruikelijke geuren waarneemt.

● Do not place the Network Camera on unsteady surfaces.
Netzwerkamera nur auf feste Unterlagen abstellen.
Plaats de Netwerk Camera niet op een instabiel oppervlak.

● Do not insert sharp or tiny objects into the Network Camera.
Keine Fremdkörper, z. B. Nadeln, in die Netzwerkamera einführen.
Steek geen scherpe of zeer kleine objecten in de Netwerk Camera.

● Replacing or failing to properly install the waterproof components, e.g., cables or cable glands, will void our IP65/66/67 warranty.
Ein Austausch oder die unsachgemäße Installation der wasserdichten Komponenten, z.B. Kabel oder Kabelverschraubungen, führt zum Verlust unserer IP65/66/67 Garantie.
Als de waterdichte componenten, zoals kabels of kabelwartels, niet correct worden geplaatst of vervangen, is de garantie van de IP65/66/67 ongeldig.

● Refer to your user's manual for the operating temperature.
Hinweise zur Betriebstemperatur siehe Benutzeranleitung.
Zie de gebruikershandleiding voor informatie over de gebruikstemperatuur.

● Do not touch the Network Camera during a lightning storm.
Netzwerkamera bei Gewittern nicht anfassen.
Raak de Netwerk Camera niet aan tijdens onweer.

● Do not drop the Network Camera. Netzwerkamera nicht fallen lassen.
Netzwerkamera nicht fallen lassen.
Laat de Netwerk Camera niet vallen.

Avertissement avant installation / Aviso antes da instalação / Advertencia antes de la instalación

● Éteignez rapidement la caméra réseau si elle dégage de la fumée ou une odeur inhabituelle.
Desligue a Câmara de Rede se vir fumo ou sentir cheiros estranhos.
Apague la cámara de red si aparece humo o algún olor no habitual.

● Ne disposez pas la caméra réseau sur des surfaces instables.
Não coloque a Câmara de Rede em superfícies instáveis.
No coloque la cámara de red sobre superficies que no sean firmes.

● N'insérez pas d'objet dans la caméra réseau (p. ex. des aiguilles).
Não introduza nenhum objecto dentro da Câmara de Rede, como agulhas.
No inserte ningún objeto en la cámara de red, como agujas.

● Remplacer ou installer incorrectement les composants étanches, par exemple les câbles ou des presse-étoupes, annulera la garantie de votre IP65/66/67.
Substituição ou falha ao instalar corretamente os componentes impermeáveis, por exemplo, cabos os receptáculos de cabos, anularão nossa garantia IP65/66/67.
La sustitución o la incorrecta instalación de los componentes impermeables, como los cables o los prensa-cables, invalidarán la garantía de su IP65/66/67.

● Consultez le guide d'utilisateur pour obtenir la température de fonctionnement.
Consulte o manual do utilizador para obter informações sobre a temperatura de funcionamento.
Consulte el manual del usuario para ver la temperatura de funcionamiento.

● Ne touchez pas à la caméra réseau lors d'un orage.
Não toque na Câmara de Rede quando houver trovada.
No toque la cámara de red si hubiera tormentas.

● Ne laissez pas tomber la caméra réseau.
Não deixe cair a Câmara de Rede.
No deje caer la cámara de red.

Package Contents / Packungsinhalt kontrollieren / Inhoud van de verpakking
検査包装内容物 / 検査包装内容 / パッケージ内容の確認
Vérifier le contenu de l'emballage / Verifi que o conteúdo da embalagem / Compruebe el contenido del embalaje
Sprawdź zawartość pakietu / Проверка комплекта поставки / Obsah balení
Verifi care il contenuto della confezione / Ambalajın İçindekileri Kontrol Edin / Paketinnehåll / Kassens indhold / Isi Kemasan مكونات الحزمة

● 安裝前應注意事項 / 安裝警告 / インストール前の注意

● 如果發現網路攝影機出現煙霧或聞到異味時，請立即關閉電源。
如果网络摄像头冒烟或有异常气味，请立即关闭。
煙や異常なおいに気が付いたら、直ちにネットワークカメラの電源を切ってください。

● 請勿將網路攝影機擺放在不穩定的物體上。
切勿将网络摄像头放置在不穩定的表面上。
不安定な場所にネットワークカメラを置かないでください。

● 請勿將任何物件插入網路攝影機，例如細針。
切勿在网络摄像头中插入任何物体，如针状物等。
ネットワークカメラに針のような物を差し込まないでください。

● 如果更換或是沒有正確安裝防水元件（例如膠線或膠線固定頭），將使本公司 IP65/66/67 的保固失效。
如果替換了防水部件，或者防水部件安裝不正確，如電纜或電纜密封套等，相關 IP65/66/67 項质保将会失效。
ケーブルまたはケーブルグランドなどの防水部品を置き替えるか、または適切にインストールすることができない場合、当社の IP65/66/67 の保証は無効になります。

● 有關操作時的溫度，請參閱使用者說明書。
工作溫度请参考用户手册。
使用溫度については、ユーザーマニュアルを参照してください。

● 閃電時，請勿碰觸網路攝影機。
闪电时不要接触网络摄像头。
雷が鳴っている時は、ネットワークカメラに触れないでください。

● 請勿讓網路攝影機掉落地面。
切勿使网络摄像头坠落。
ネットワークカメラを落とさないでください。

● セキュリティ基準（新規則第 34 条の 10）

「本製品は 電気通信事業者（移动通信会社、固定通信会社、インターネットプロバイダ等）の通信回線（公衆無線 LAN を含む）に直接接続することができません。本製品をインターネットに接続する場合は、必ずルータ等を経由し接続してください。」

Avvertenza prima dell'installazione / Kurulum Öncesi Uyarılar / Varning innan installation

● Spegnerne immediatamente la videocamera di rete se questa presenta fumo o un odore insolito.
Ağ Kerasından duman çıktığı görülür veya normal olmayan bir koku duyulursa Ağ Kerasının elektrik bağlantısını kesin.
Stäng av strömmen till nätverkskameran om det skulle ryka om den eller lukta konstigt.

● Non collocare la videocamera di rete su superfici instabili.
Ağ Kerasını dengersiz yüzeylere koymayın.
Placera inte nätverkskameran på ostadiga ytor.

● Non inserire alcun oggetto nella videocamera di rete.
Ağ Kerasına herhangi bir nesne (örneğin, iğne) sokmayın.
Sätt inte in några föremål i nätverkskameran såsom t.ex. nålar.

● La sostituzione o l'installazione non corretta di componenti a tenuta stagna, ad esempio cavi o premistoppa, determineranno l'annullamento della garanzia IP65/66/67.
Kablo veya kablo rakoru gibi su geçirmez parçaların değiştirilmesi veya uygun şekilde monte edilmemesi IP65/66/67 garantimizi geçersiz kılacaktır.
Att byta eller felaktigt montera vattentäta komponenter såsom kablar eller kabelgenomföringar kommer att göra förverka vår IP65/66/67-garanti.

● Consultare il manuale dell'utente per le temperature di esercizio.
Çalıştırma sıcaklığı için kullanım kılavuzuna başvurun.
Se din användarmanual för drifttemperatur.

● Non toccare la videocamera di rete durante i temporali.
Şimşek çakarken Ağ Kerasına dokunmayın.
Rör inte nätverkskameran när den åskar.

● Non far cadere la videocamera di rete.
Ağ Kerasını düşürmeyin.
Tappa inte nätverkskameran.

Hardware Installation / Hardwareinstallation / Hardware installeren
硬體架設 / 硬件安裝 / ハードウェア・インストレーション
Installation du matériel / Instalacao de Hardware / Instalación del hardware
Instalacja sprzętu / Монтаж оборудования / Instalace hardwaru
Installazione hardware / Donanım Montajı / Installation av hårdvara
Installation af hardware / Pemasangan Perangkat Keras تركيب الأجهزة

1

Network Camera VIVOTEK
Model No: XXXXXX
MAC: 0002D1083236
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Pat. 6,930,709
Made in Taiwan

● 消費電力
PoE 802.3at Class 4 - 42.5V/0.4A 17W, 57V/0.3A 17.1W (PoE midspan or endspan)
DC 24V – 17.04W 0.71A
AC 24V – 14W 1A

Avertissement avant installation / Aviso antes da instalação / Advertencia antes de la instalación

● Éteignez rapidement la caméra réseau si elle dégage de la fumée ou une odeur inhabituelle.
Desligue a Câmara de Rede se vir fumo ou sentir cheiros estranhos.
Apague la cámara de red si aparece humo o algún olor no habitual.

● Ne disposez pas la caméra réseau sur des surfaces instables.
Não coloque a Câmara de Rede em superfícies instáveis.
No coloque la cámara de red sobre superficies que no sean firmes.

● N'insérez pas d'objet dans la caméra réseau (p. ex. des aiguilles).
Não introduza nenhum objecto dentro da Câmara de Rede, como agulhas.
No inserte ningún objeto en la cámara de red, como agujas.

● Remplacer ou installer incorrectement les composants étanches, par exemple les câbles ou des presse-étoupes, annulera la garantie de votre IP65/66/67.
Substituição ou falha ao instalar corretamente os componentes impermeáveis, por exemplo, cabos os receptáculos de cabos, anularão nossa garantia IP65/66/67.
La sustitución o la incorrecta instalación de los componentes impermeables, como los cables o los prensa-cables, invalidarán la garantía de su IP65/66/67.

● Consultez le guide d'utilisateur pour obtenir la température de fonctionnement.
Consulte o manual do utilizador para obter informações sobre a temperatura de funcionamento.
Consulte el manual del usuario para ver la temperatura de funcionamiento.

● Ne touchez pas à la caméra réseau lors d'un orage.
Não toque na Câmara de Rede quando houver trovada.
No toque la cámara de red si hubiera tormentas.

● Ne laissez pas tomber la caméra réseau.
Não deixe cair a Câmara de Rede.
No deje caer la cámara de red.

Advarsel inden installation / Peringatan Sebelum Pemasangan

● Slå strømmen fra kameraet så snart der kan lugtes røg eller usædvanlige lugte.
Segera matikan Network Camera jika keluar asap atau tercium bau yang aneh.

● Placér ikke netværkskameraet på ustabile underlag.
Jangan meletakkan Network Camera pada permukaan yang tidak stabil.

● Indfør ikke skarpe eller små objekter i netværkskameraet.
Baca panduan pengguna untuk suhu pengoperasian.

● Udskiftning eller fejlagtig installation af de vandtætte komponenter, fx kabler eller kabelpakninger, vil sætte garantien for din IP65/66/67 ud af kraft.
Penggantian atau kesalahan pemasangan komponen kedap air, misalnya kabel atau selubung kabel, akan membatalkan garansi IP65/66/67.

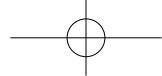
● Der henvises til brugervejledningen for driftstemperaturen.
Jangan memasukkan benda tajam atau benda berukuran kecil ke dalam Network Camera.

● Berør ikke netværkskameraet i tordenvejr.
Jangan menyentuh Network Camera saat terjadi badai kilat.

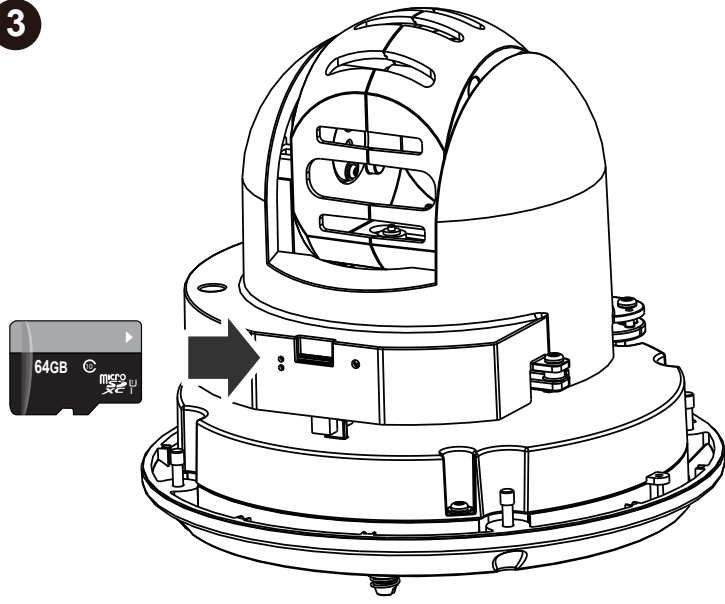
● Tab ikke netværkskameraet.
Jangan menjatuhkan Network Camera.

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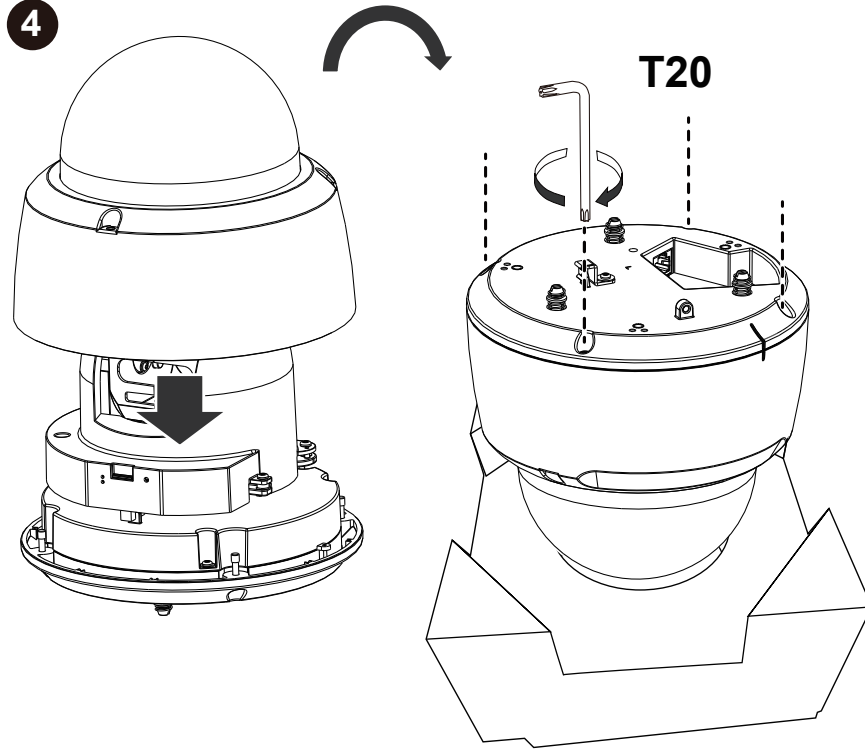
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3

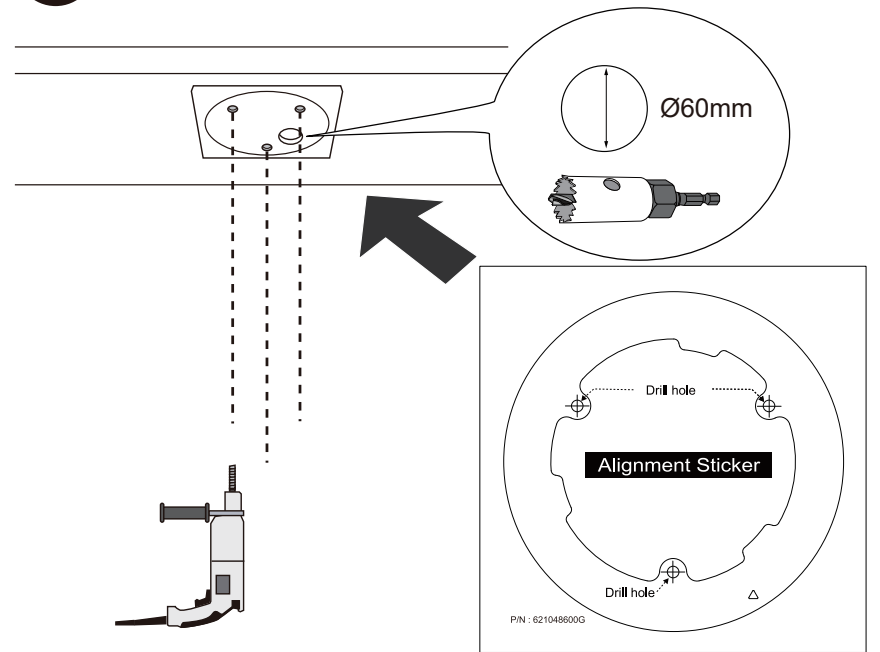


4

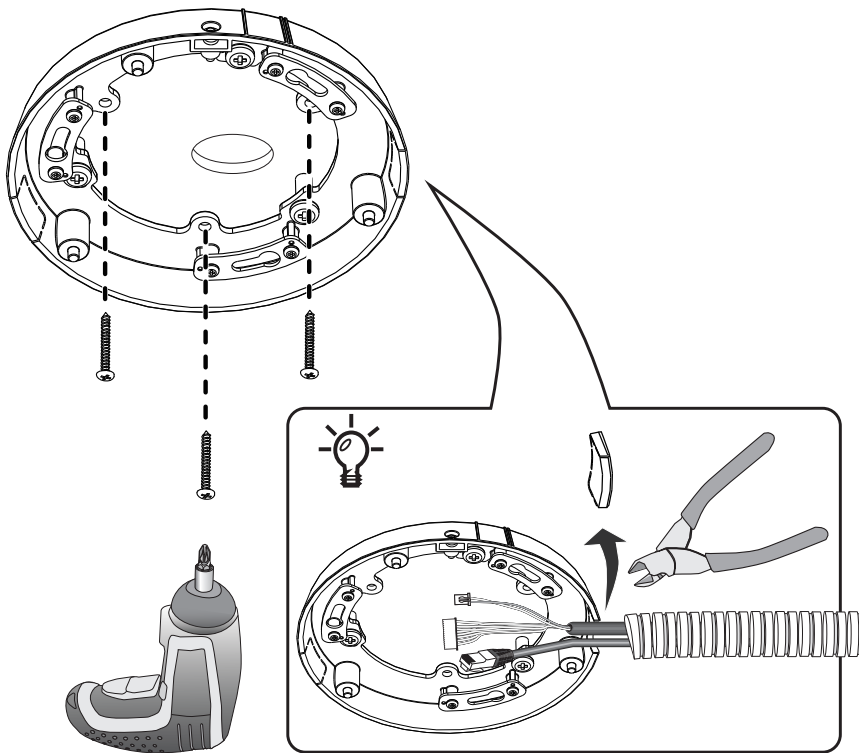


A

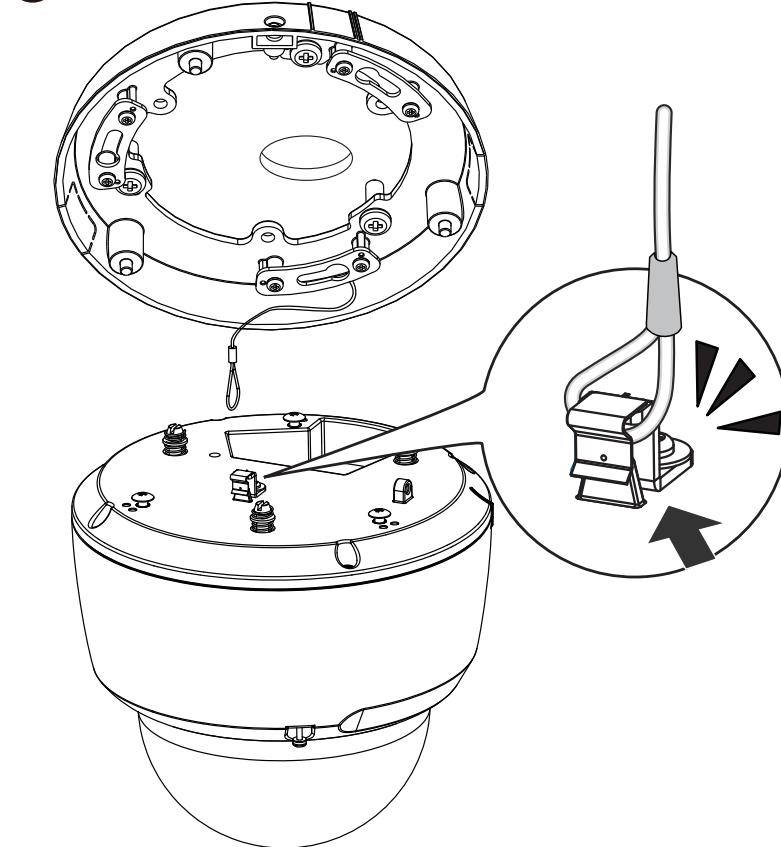
A1



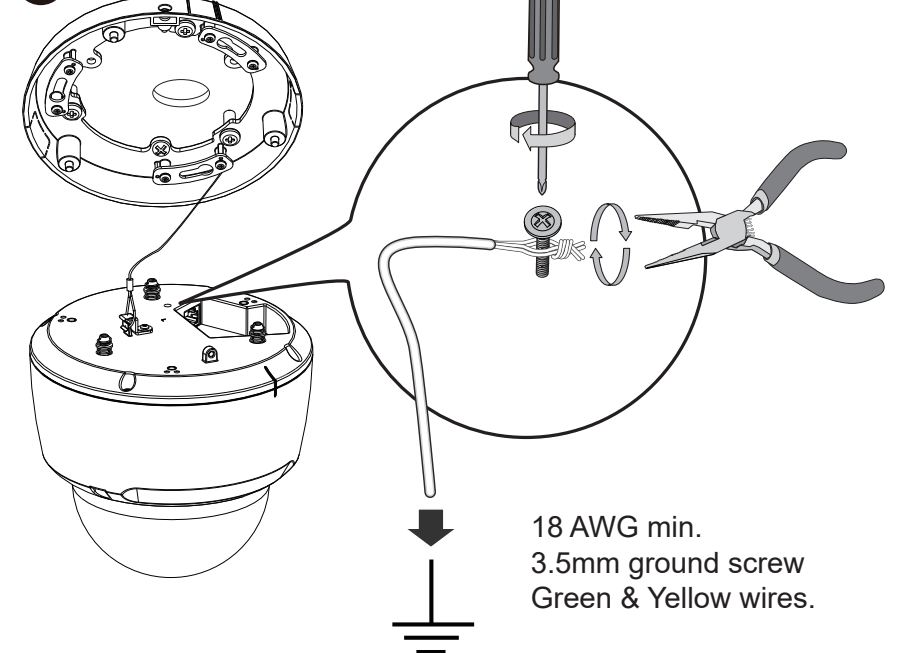
A2



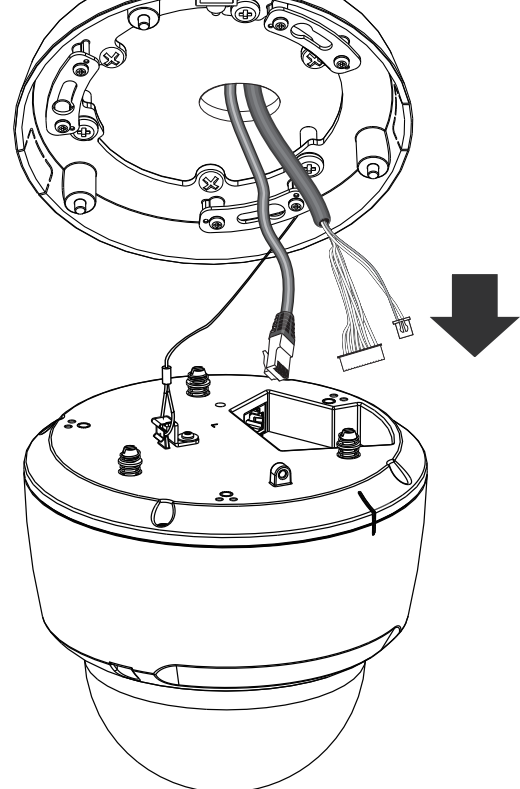
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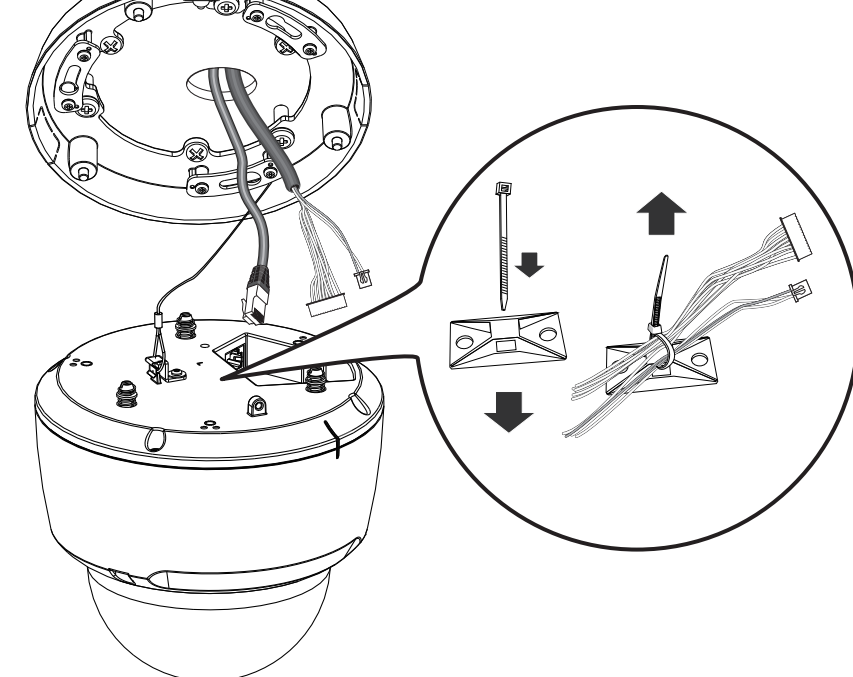
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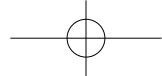
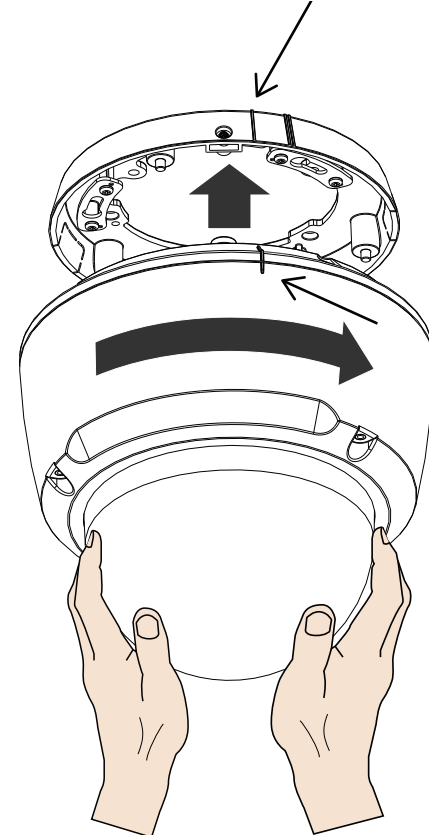
A5



A6

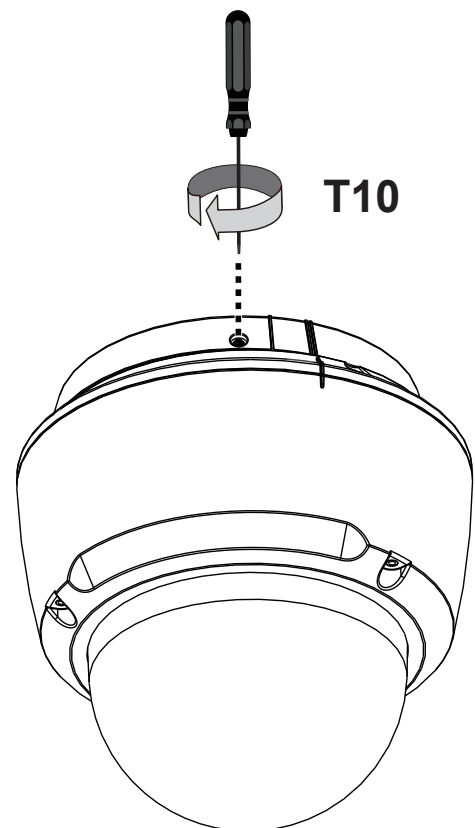


A7



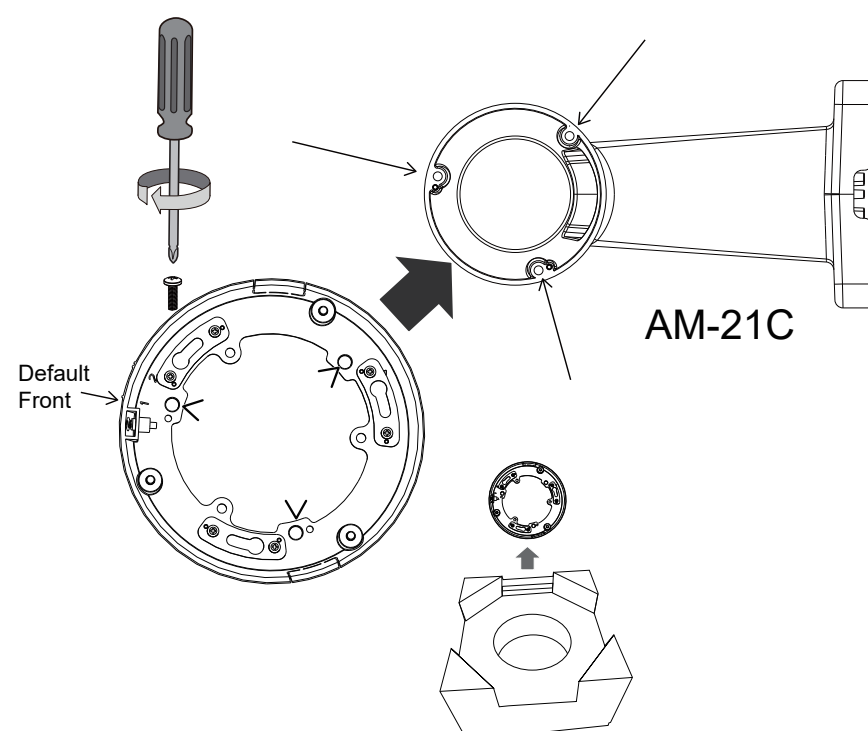


A8

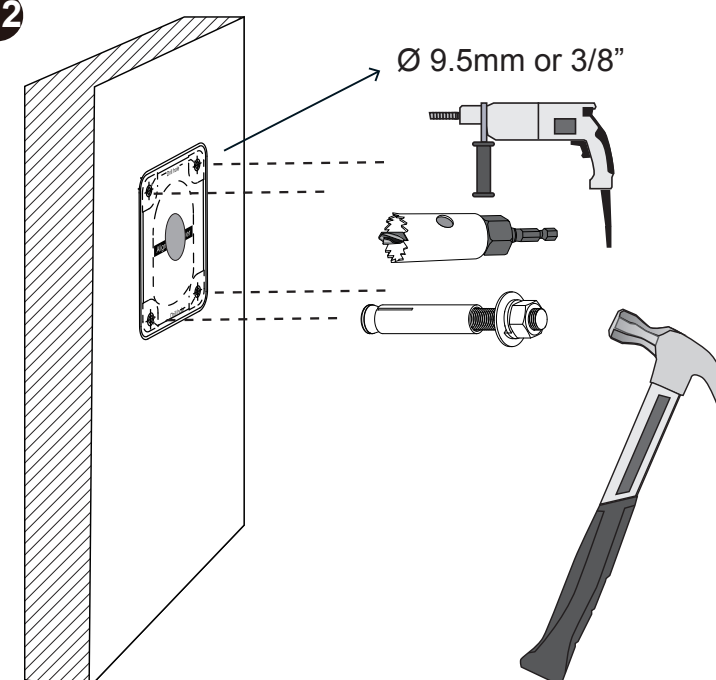


B

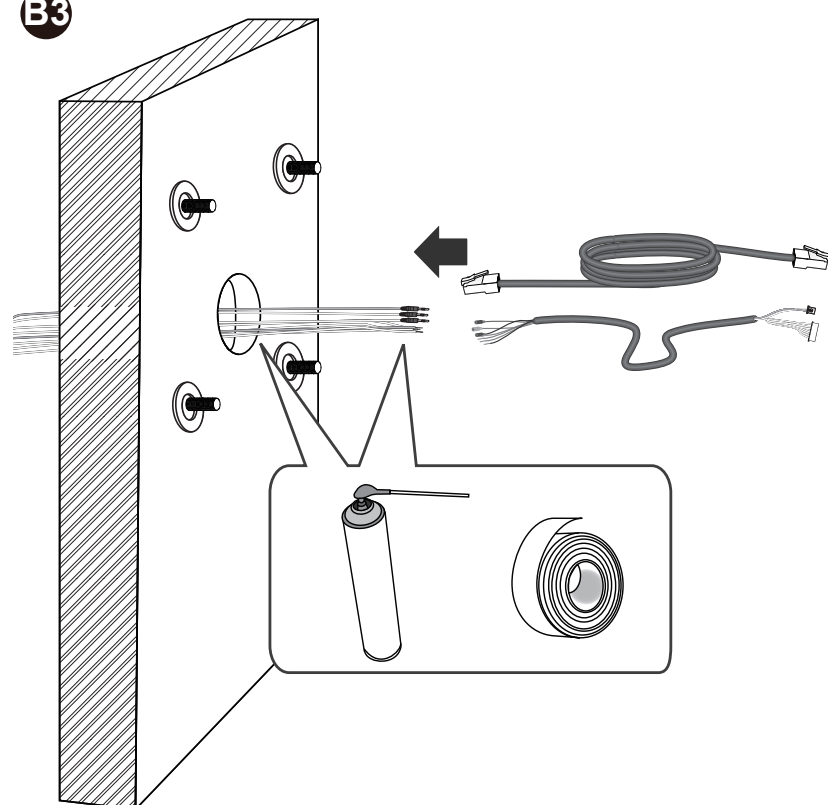
B1



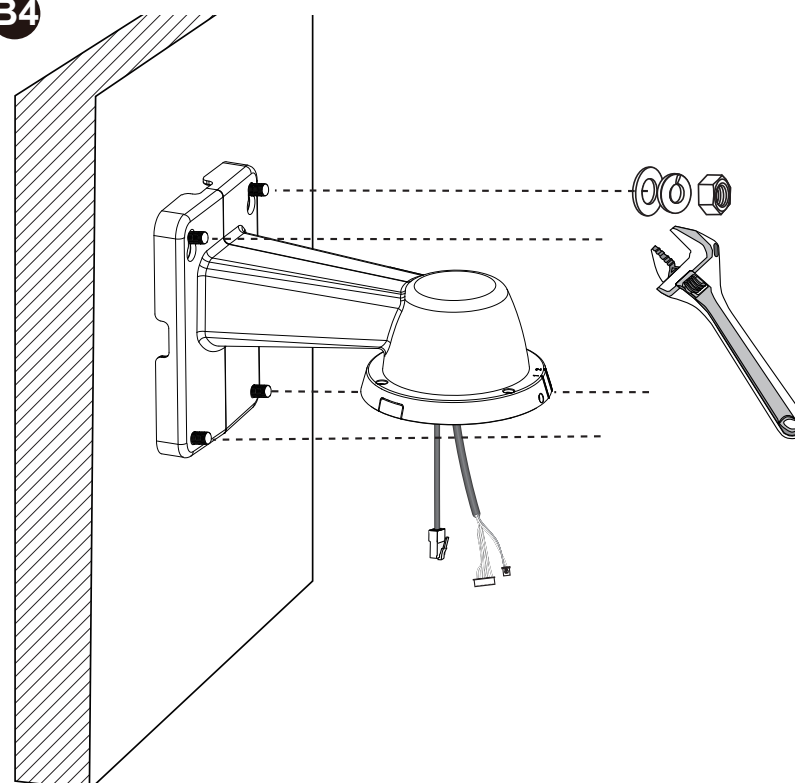
B2



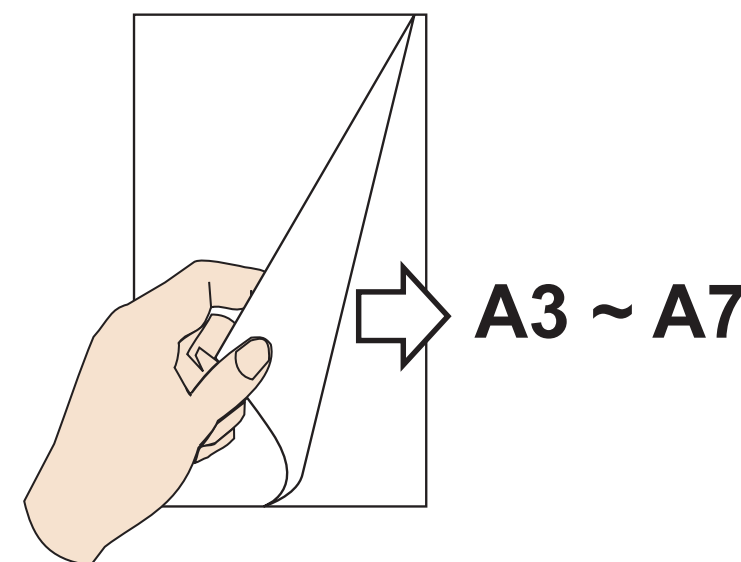
B3



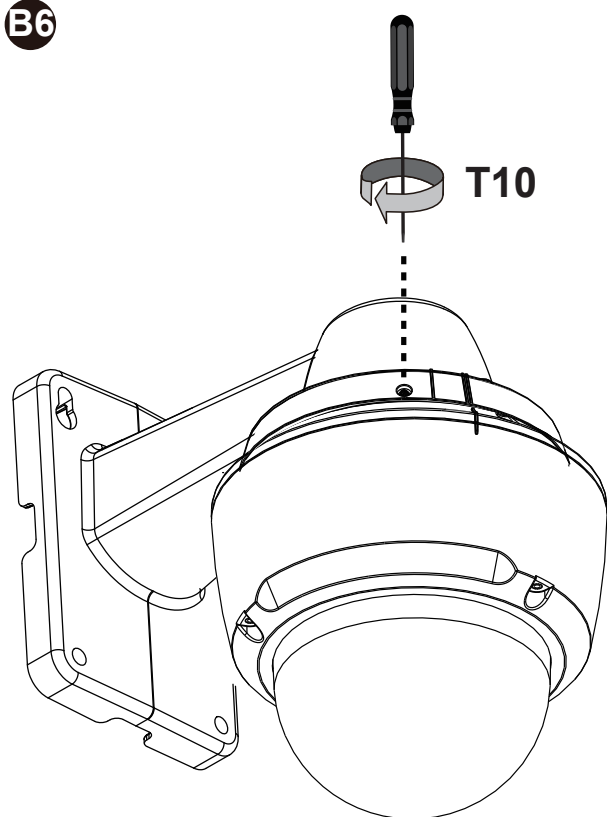
B4



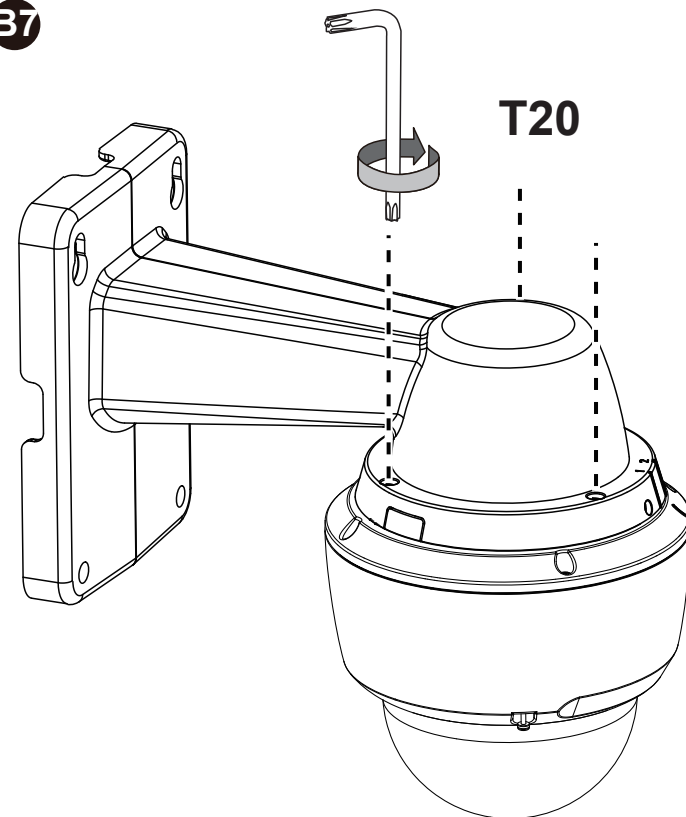
B5

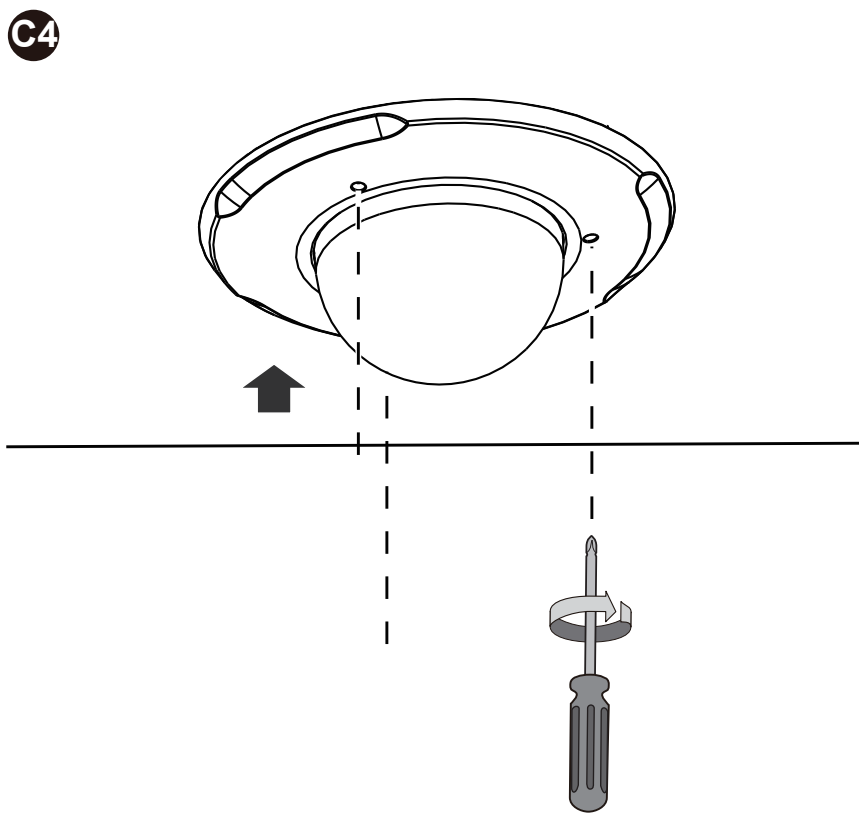
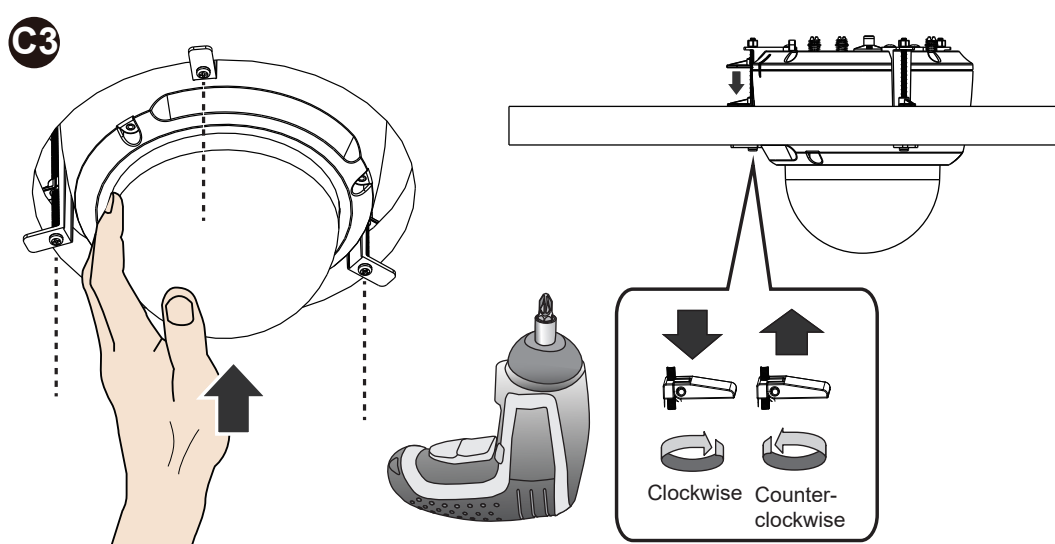
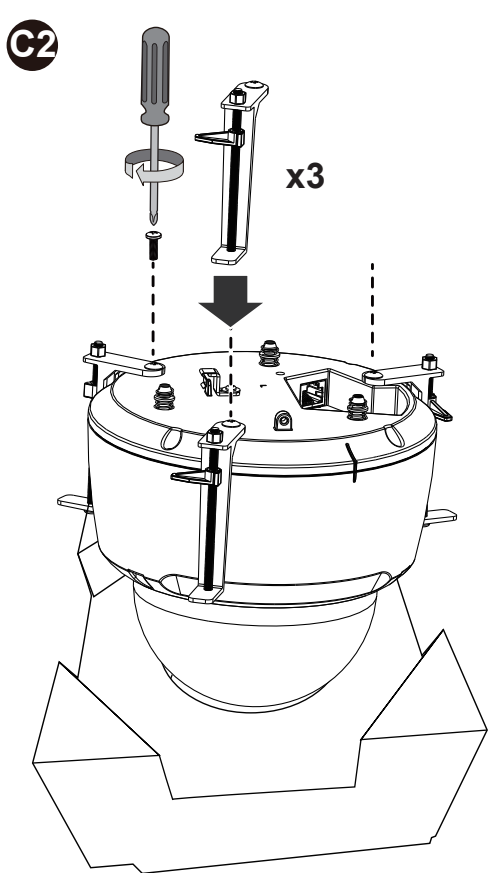
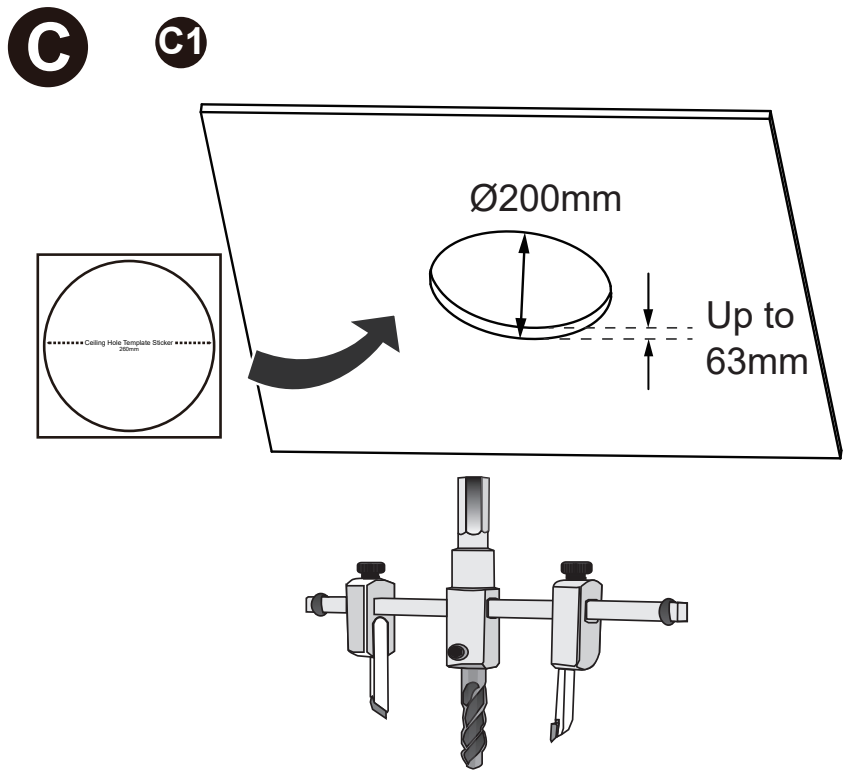
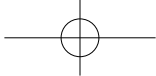


B6



B7





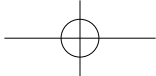
Please contact authorized distributors for warranty and RMA service.
Visit <https://www.vivotek.com/support/warranty-rma>

All specifications are subject to change without notice.
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IMPORTANT:

1. The product must be installed and protected in a location that is not easily accessible, and is away from impacts or heavy vibration. For example, at the location where the surveillance cameras are looking down or installed at high positions such as on a wall, or at least 3 meters above the ground.
2. The camera should be installed at least 10 centimeters away from the eave of a building.
3. If powered by a power adapter, the adapter should be properly grounded.
4. Maintenance and repair work must always be carried out by qualified technical personnel.
5. Disconnect power from the unit when performing a maintenance task.
6. Please contact VIVOTEK's certified dealers for power adapters.



IMPORTANT:

1. The camera is only to be connected to PoE networks without routing to outside plants.
 2. For PoE connection, use only UL listed I.T.E. with PoE output.
-
1. La caméra ne doit être raccordée qu'à des réseaux PoE, sans routage vers des installations extérieures.
 2. Pour les raccordements PoE, utilisez uniquement un équipement de TI homologué UL, avec une sortie PoE.

Use the camera only with a DC power supply that is UL listed, and limited power source (LPS) certified. The power supply should bear the UL listed and LPS marks. The power supply should also meet any safety and compliance requirements for the country of use.

n'utilisez la caméra qu'avec un bloc d'alimentation CC homologué UL, ainsi qu'avec une alimentation limitée (LPS) certifiée. Le bloc d'alimentation doit porter les indications d'homologation UL et LPS. Il doit également répondre aux exigences en matière de sécurité et de conformité relatives au pays d'utilisation.

Note that following with the use of batteries:

- Replacement of a battery with an incorrect type that can defeat a safeguard (for example, in the case of some lithium battery types)
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;
- Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas;
- A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.