

SPECIFICATION

Spec. No. _____
 Issue Date 2021.03.10

Attn:

Product name

Auto Focus Voice Coil Motor

TDK Model No.

TVF-8101KD

Notes:



台灣東電化股份有限公司
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Sales department

| App. | PIC |
|------|-----|
| | |

Design department

| App. | Con. | PIC |
|------|------|-----|
| | | |

1.Application Range

These specifications specify general specifications and performance of Actuator of Mobile Camera Module °

2.Description

Our part No. in this specifications

T D K No. TVF-8101KD

3.Related Specifications

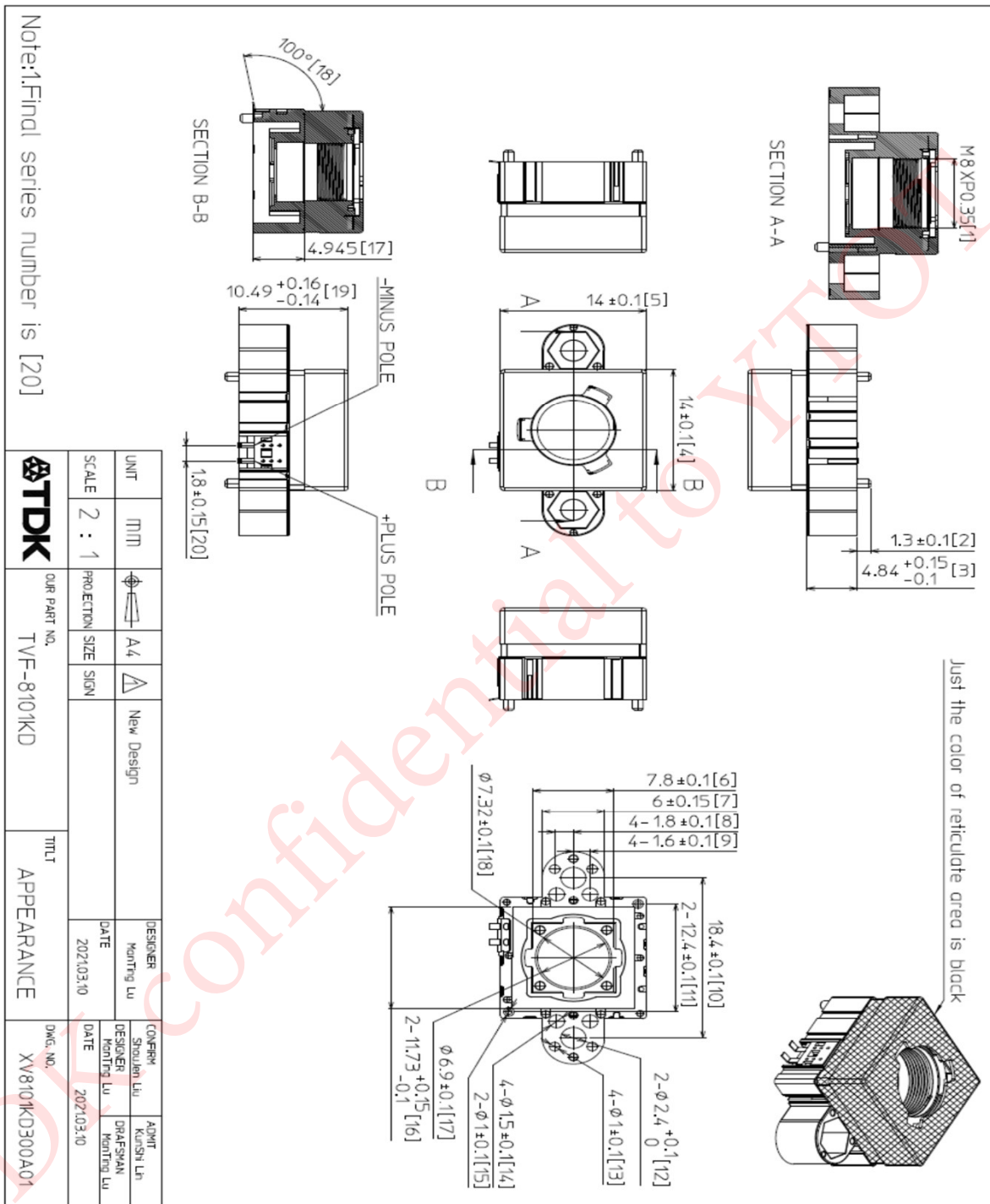
All parts including glue and solder of TDK VCM-TVF-8101KD fit into RoHS .

4.Contents

| Items | Attached Information | Page |
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| 1.Appearance and Dimensions | Appearance Drawing XV8101KD300A01 | 4 |
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|------------------------|-------------|--------------------|
| Department in Charge | Record Date | Specifications No. |
| Sensor Actuator (B538) | 2021.03.10 | 0 |

1 · Appearance and Dimensions



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1. Applications

1-1. Application Range

- (1) These specifications specify general specifications and performance of Auto-focus VCM.
- (2) These specifications may be changed for improvement after agreement between both parties .
- (3) If any suspicion or inconvenience occurs in the contents of this specifications, it shall be resolved by the two parties.
- (4) If there are no comments about Auto-Focus VCM,these specifications are applied for Auto-Focus camera module.
- (5) Standard of Sampling
 - (I) Appearance SPEC. follow Level II AQL 0.65% sampling

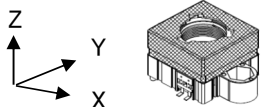
1-2. Evalu (II) Performance SPEC. follow n=5,C(0,1)

- (1) Optical Axis of Lens is the direction of gravity and Actuator should move Upward.
- (2) Standard evaluation environment

If no errors occur in evaluation , the following range of conditions is acceptable .

Temperature 15 ~ 35 °C ; Humidity 30 ~ 80 % R.H.

1-3 Product Information

| No. | Items | Specifications |
|-----|-------------------------|--|
| 1 | Lens Module Diameter | M8.0XP0.35 (Diameter) |
| 2 | Working Direction | Along the Optical Axis |
| 3 | Operation Environ. | -30~70°C 10~90%RH |
| 4 | Storage Environ. | At ambient temperature and humidity.(Within six months after product delivery) |
| 5 | Particle | ≤ 50 um |
| 6 | Torque (Thread gauge) | 10 ~ 150 gf-cm |
| 7 | Definition of Direction |  |

2. General Specifications

| No. | Items | Specifications |
|-----|---|---|
| 1 | Rated Load Current Stroke>0.305mm (Horizontal) | 80mA Max. (Including 1 g _(Max) lens) |
| 2 | Total Stroke (Vertical) | ≥ 0.305mm |
| 3 | DC Resistance of Coil | 28±3 Ω |
| 4 | Dimensions | 14mm*14mm*10.5mm (refer to Figure Diagram) |

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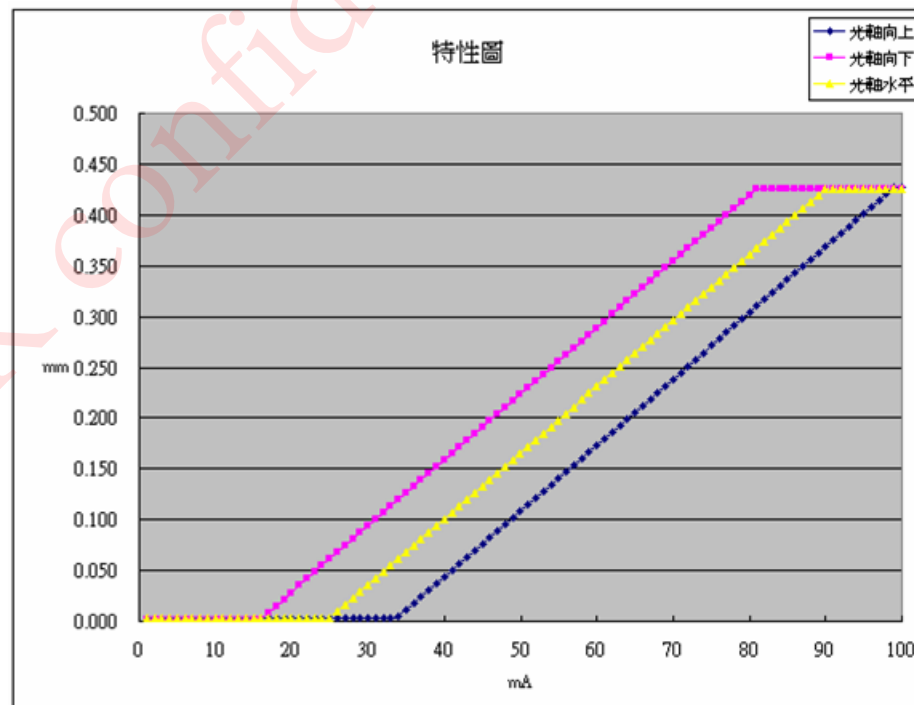
3. Performance Specifications (With 1 g_(Max) lens)

| No. | Items | Specifications | Condition |
|-----|--------------------------|----------------|---|
| 1 | Absolute Maximum Current | 150mA Max. | Reference |
| 2 | Sensitivity | 4.15~10 um/mA | 40 mA ~80 mA Optical Axis: +Z direction |
| 3 | Rated Stroke | ≥ 0.305mm | Optical Axis: +Z direction |
| 4 | Starting Current | 15~40 mA | Optical Axis: +Y direction |
| 5 | Moving Tilt | ≤ 10' | 0.05~0.305mm Optical Axis : +Z direction |
| 6 | Linearity | ≤ 10 | Maximum difference value of stroke between standard line and actual stroke plot |
| 7 | Posture Difference | ≤ 150 | maximum difference value of the value of stroke between +Z direction- +Y direction |
| 8 | Hysteresis | ≤10um | 0.05 ~ 0.305 mm Optical Axis: +Z direction |

Actuator Polarity

Lens shift upward (+Z direction) with supply. positive(+) voltage to focus+ terminal.

4. Performance Diagram



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5 · Reliability Specifications

To judge the result of reliability by checking the samples fit into <General Specifications : 2-3 > and <Performance Specifications : 3-1~3-8> or not . The quantity of sampling is 3 pcs per each items :

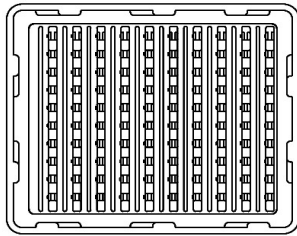
| Items | Conditions | Remarks |
|----------------------------------|---|--|
| Storage Test At High Temperature | (1)Temperature : $+80\pm 2^{\circ}\text{C}$ (2)Time : 48H | After storing in the each environment without operation ,then keep it in normal temperature and humidity for 6 hours. The actuator should still meet the related specification shown in general spec. and performance spec.<General Specification 2-3 , Performance Specifications : 3-1~3-8 > |
| Storage Test At Low Temperature | (1)Temperature : $-30\pm 3^{\circ}\text{C}$ (2)Time : 48H | <p>Figure 2: Temperature-Time Graph for VCM Thermal Shock Test</p> |
| Temperature Cycle Test | (1)Temperature : $+80\pm 2^{\circ}\text{C}/30\text{min} - 30\pm 3^{\circ}\text{C}/30\text{min}$ (2)Ambient Time : 5min (3)Times: 10 cycles | |
| Vibration Test | (1)Frequency : 10~55Hz sweep sine wave (2)Amplitude:1.5mm(P-P) (3)Time: 25 min/X,Y,Z direction | After the test, the motor should still meet the related specification shown in general spec. and performance spec. <General Specification 2-3 , Performance Specifications : 3-1~3-8 > |
| Bulk Package Test | (1)Height: 100 cm (2)Floor : Wood (3)direction : 6 face | |
| Durability | (1)Current : 0~90~0 mA (2)Optical Axis : +Z direction (3)Cycle : 1cycle=0.5s ON \rightarrow 0.5s OFF (4)Temperature : $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (5)Times : 3,000,000cycles (TBD) | <p>After the test, the motor should still meet the related specification shown in general spec. and performance spec. <General Specification 2-3 , Performance Specifications : 3-1~3-8 ></p> <p>Figure 3: Current-Time Graph for VCM at 23°C</p> |

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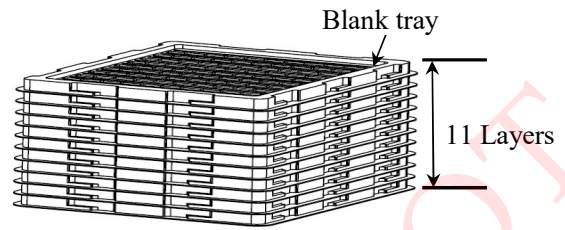
| | | | |
|--------|--|-----|------------|
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6. Packing Specification

(1).To stack the trays onto 11 layers(The top layer is empty.).

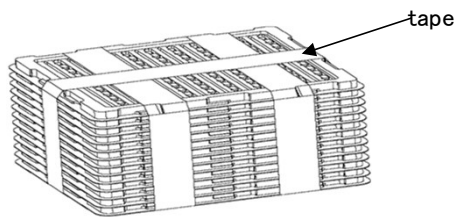


100 pieces per tray

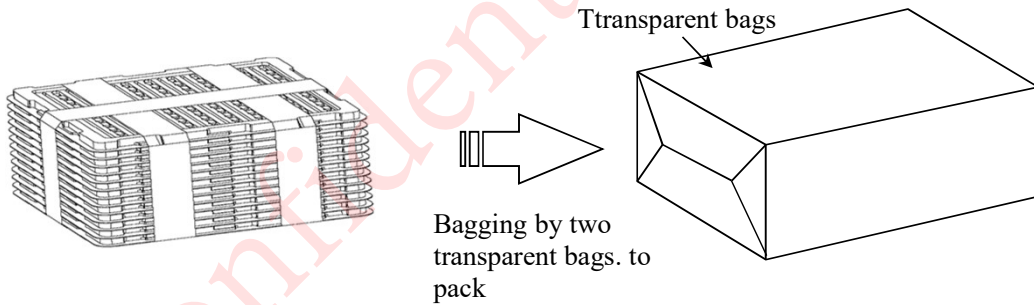


Total:100*10=1000pcs

(2).Using tape to fix the trays as picture show.

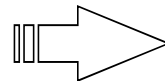
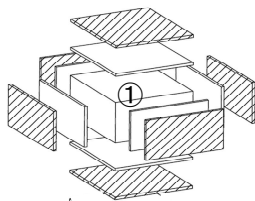


(3) Bag then vacuum trays twice times after taping. Paste out-going label on external packing bag.



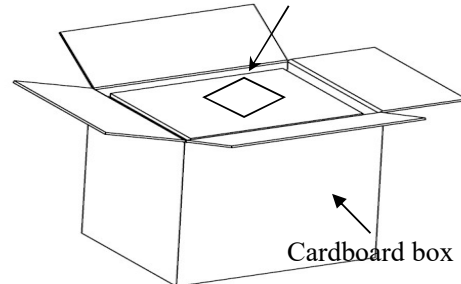
(4).Using strofoam and sponge to protect products as picture show.

- ① Products
- ▨ Styrofoam
- Sponges



Using cardboard box to pack.

The OQC report would be attached to products.



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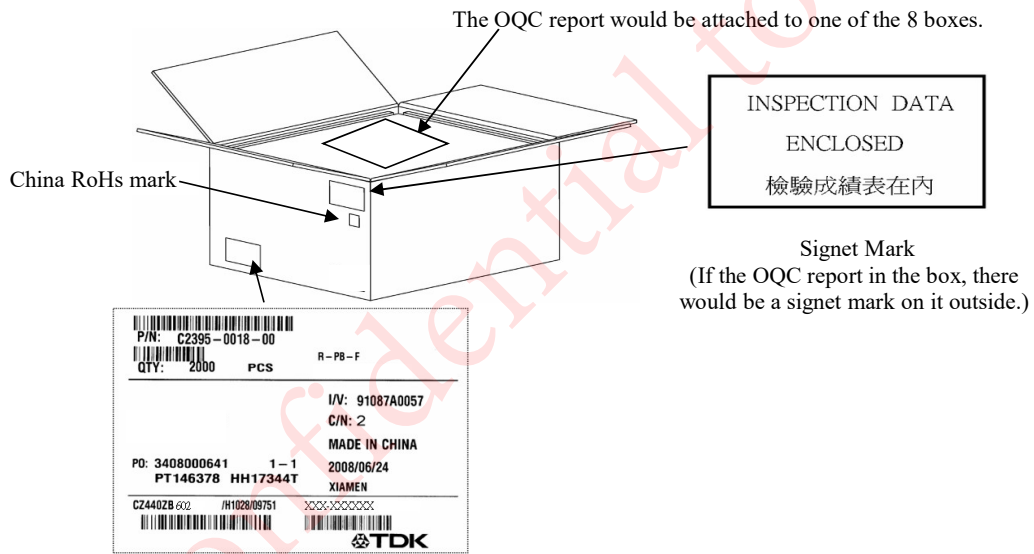
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Out-going label

(5).Packing with cardboard pallet

To put 8 package of products on the pallet and affix a invoice label on the first package.
 Fixing them by vinyl tape and sticking the invoice label as picture show.



Out-going label (Outside)

