

*MESSRS.*SPECIFICATION FOR APPROVAL
承 認 书

Product	DYNAMIC SPEAKER
Part No.	HDK-201408ZA-4-FPC (RoHS)
Customer	
Customer Part No.	50177750-001 (EDA5S)

Approved By	Checked By	Made By
王台平 APR-26-2021	曹丽萍 APR-26-2021	LILY APR-26-2021

常州华龙电子有限公司

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EDITION:1.1

1. Specification

HDK-201408ZA-4-FPC (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 20×14 mm	
03	Rated Input Power	1.0W	
04	Max. Input Power	1.2W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 2000Hz 1.0V	
06	Resonance Frequency (Fo)	1200Hz $\pm$ 20% at Fo 1V	
07	Sensitivity (S.P.L.)	100dB (1.0W / 0.1m) $\pm$ 3 dB	at AVE 0.8K, 1.0K, 1.2K, 1.5KHz.
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max 10% at 1 KHz, 1.0W.	
10	Dustproof and waterproof	IP67	
11	Weight	1.5g $\pm$ 0.2g	
12	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.	
13	Operation Test	Must be normal at program source - 1.0W	
14	Buzz, Rattle, etc.	Should not be audible at 2.83V sine Wave between 300 to 3.4KHz	
15	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.	
16	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.	
17	Temperature	Operating temperature: -20℃ to +70℃ Storage temperature: -30℃ to +80℃	

2-1. Test Condition

Standard

Temperature : 15 ~ 35℃

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

Basic

Temperature : $20 \pm 3^{\circ}\text{C}$

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

2-2. Standard Test Fixture

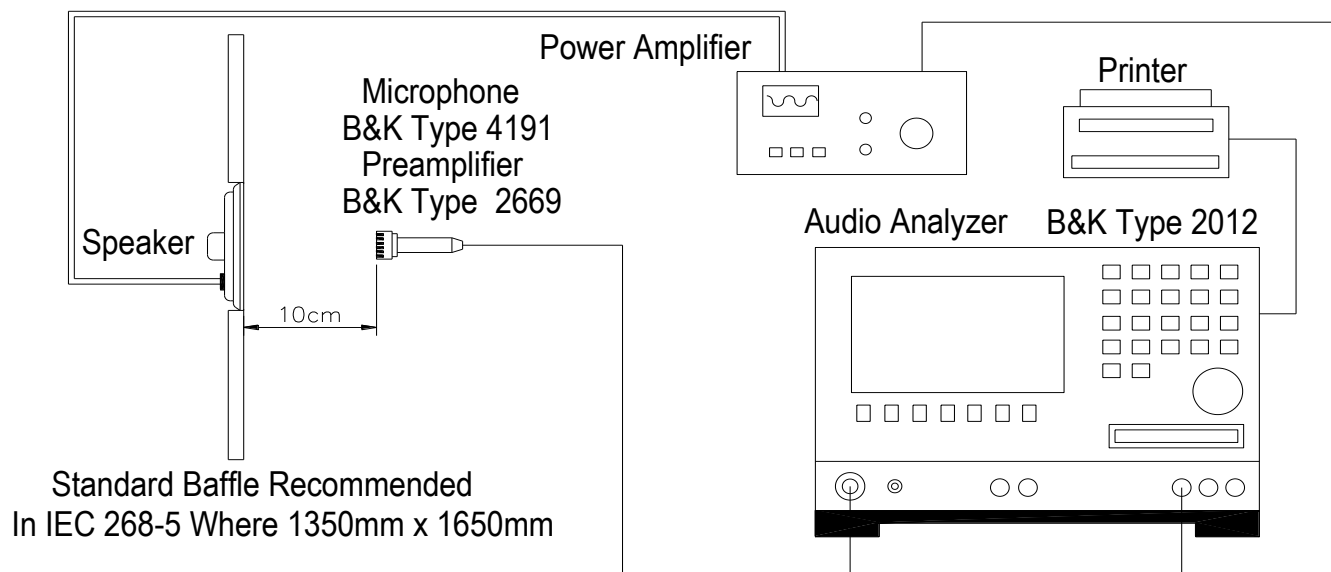
1. Input Power : 1.0W (2.83V)

2. Zero Level : -dB

3. Mode : SPEAKER

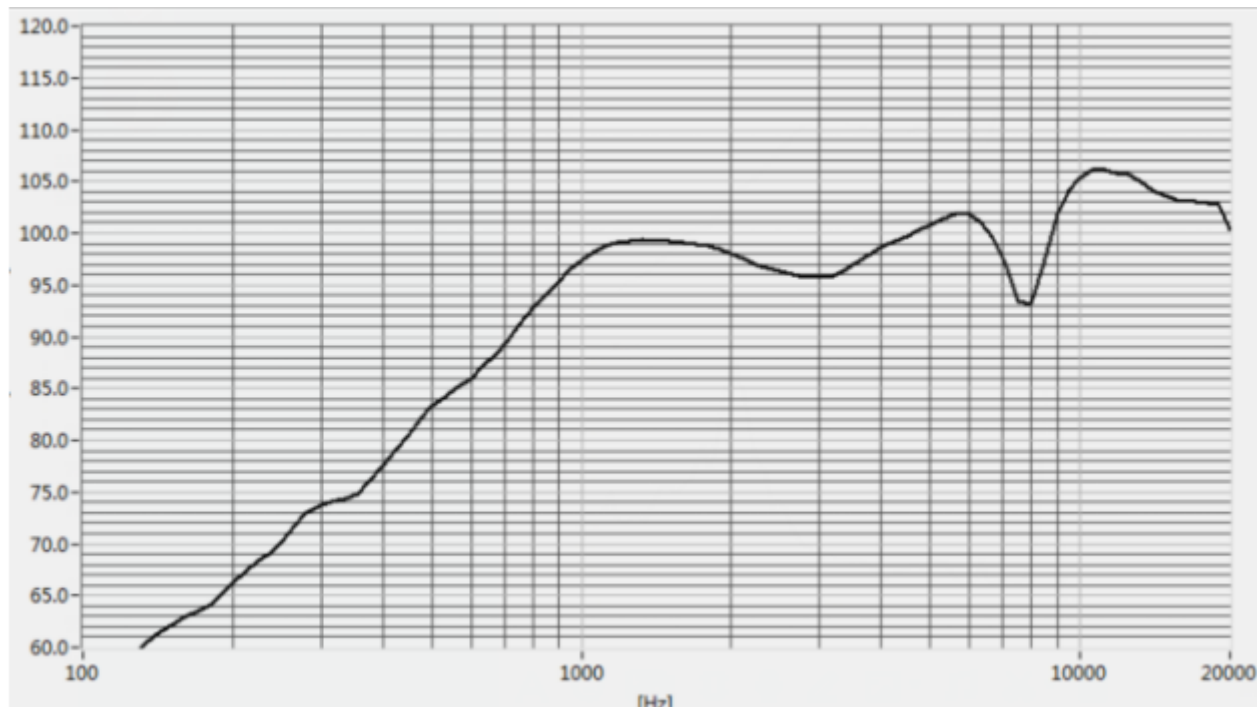
4. potentiometer Range : 50dB

5. Sweep Time : 0.5sec

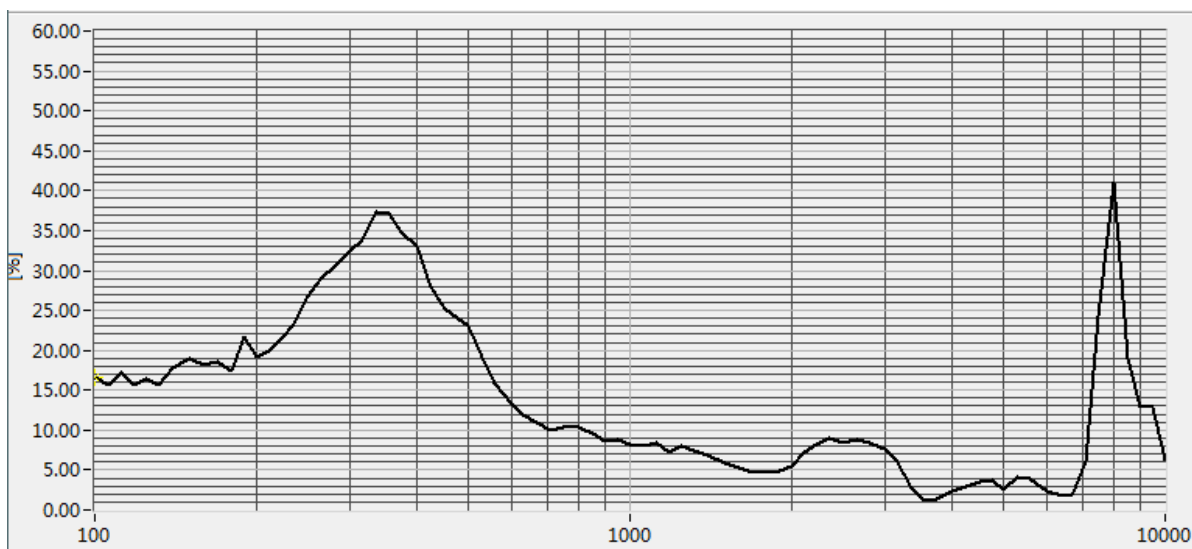


2-3. Frequency Response Curve

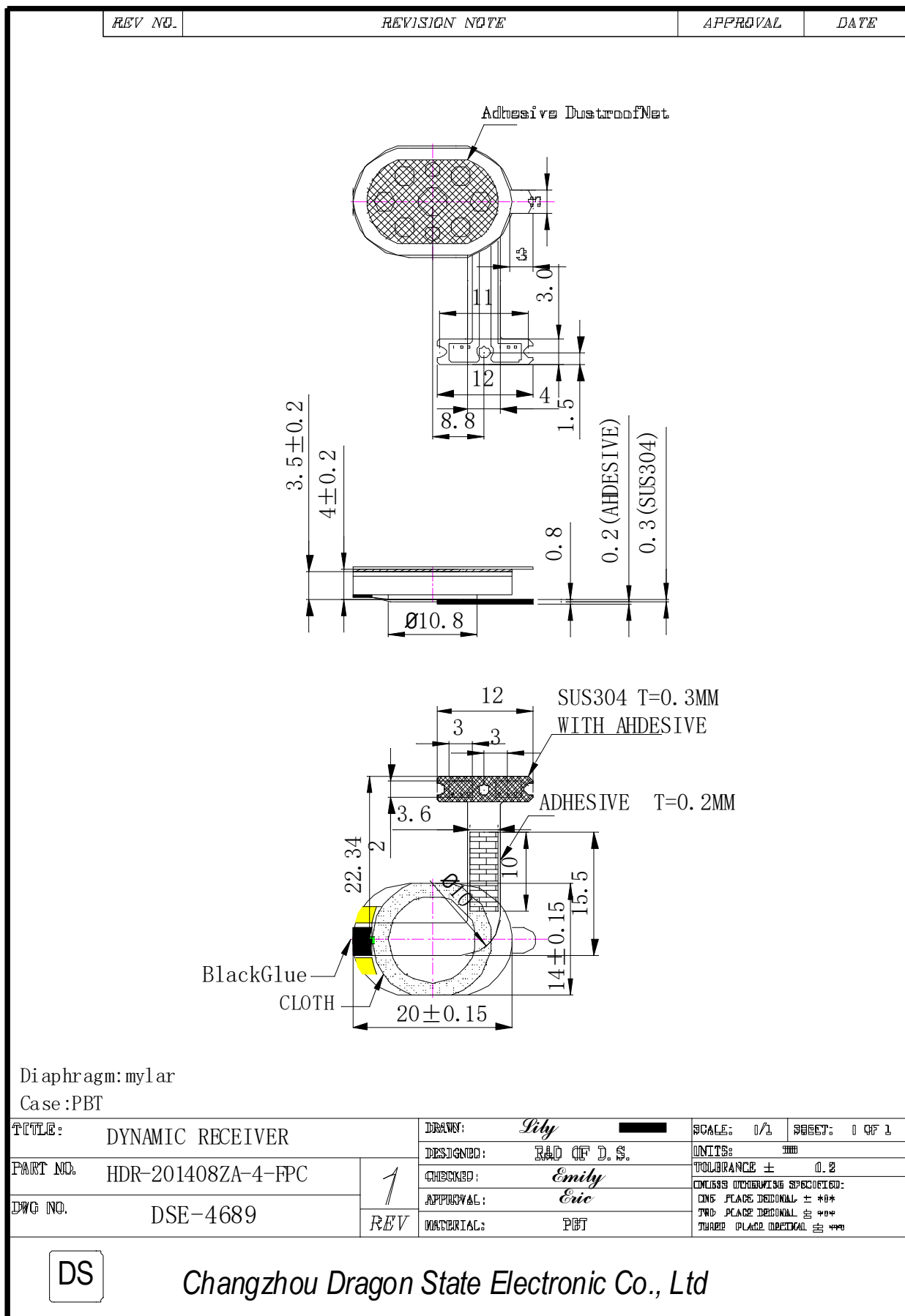
FR 1.0W (2.83V) 10 cm



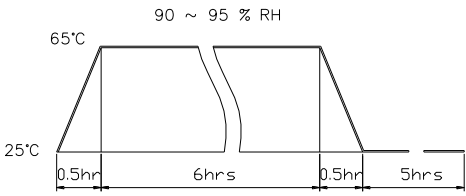
THD 1.0W (2.83V) 10 cm



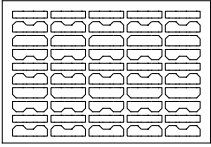
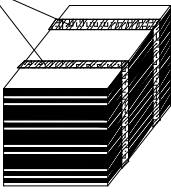
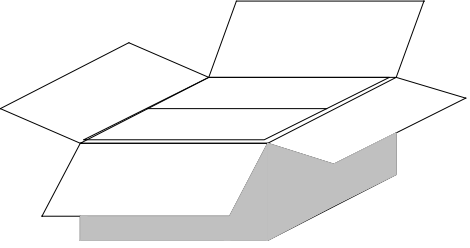
3. Dimension



4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity test	Keep 96 hours at $+40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ relative humidity 95% and leave 3 hours in normal temperature and then checked.
04	Temp./Humidity cycle	The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of; 
05	Thermal cycle test.	Low temperature: $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$, temperature: $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$, cycle: 1 hour/cycle each, and then keep 5 cycles in a room.
06	Vibration	10~200~10Hz sin-wave sweep 15min. 5G(constant) X,Y, Z 3 direction. 2 hours each, total 6 hours.
07	Fix drop test	Fix on jig. Load 260g, Then drop from 150cm height to the concrete floor X, y, z 6 direction. 5 times each, total 30 times.
08	Free drop test	Free drop from 100cm height to the concrete floor X, y, z 6 direction. 1 times each, total 6 times.
09	Rated Power test	Rated Power Pink noise is applied for 100 hours
10	Max Power test	Max power 1 min on - 2 min off 10 cycles.
11	Terminal strength test	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
12	Protection against liquids	Protected against 30 mins of immersion under 1M pressure product without leakage
Criterion: After these test , the change of S.P.L shall be within ± 3 dB .		

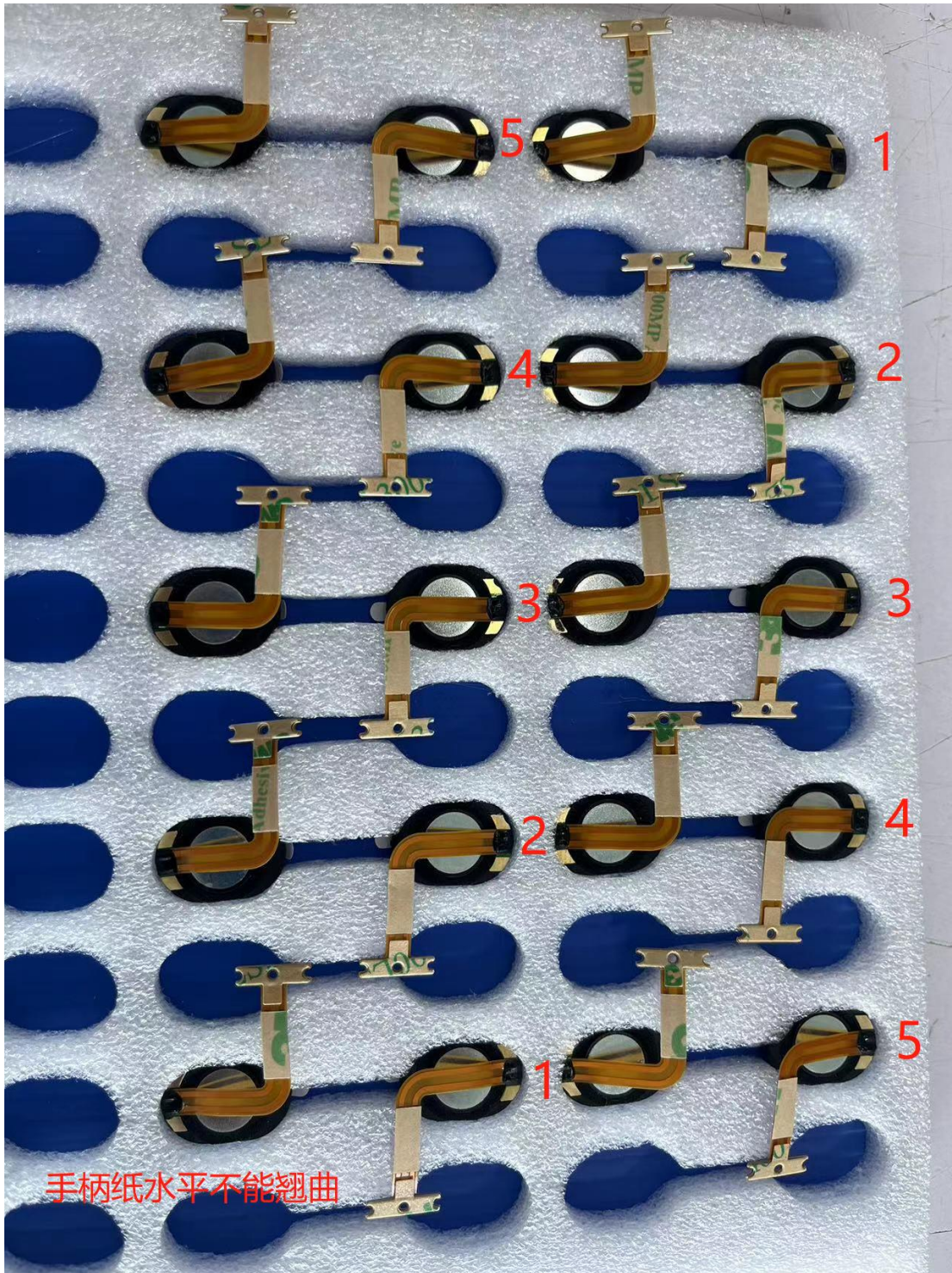
5. Packing

REV NO.	REVISION NOTE	APPROVAL	DATE
 ↓  ↓  ↓  Cover{320*215*5mm} Material: Eps Box{320*215*13mm} 50pcs Material: Eps Middle{ 320*215*130mm} 500pcs Material: Eps Outer Box{360*270*280mm} 1000pcs Material: Paper			
单位: mm			
TITLE: packing		DRAWN: Lily 2024/4/16	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
REV 1		APPROVAL: Eric	
MATERIAL: ***		SCALE: 2:1	
SHEET: 1 of 1		UNITS: mm	
TOLERANCE		± 0.3	
± 0.2		± 0.1	
<4		± 0.1	

DS

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6. Packaging diagram



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