

**MESSRS.****SPECIFICATION FOR APPROVAL****承 认 书**

Product	DYNAMIC SPEAKER
Part No.	HDK-360848-003 (RoHS)
Customer No.	03020900000061

Approved By	Checked By	Made By
王台平 MAR-07-2024	曹丽萍 MAR-07-2024	LILY MAR-07-2024

**常 州 华 龙 电 子 有 限 公 司****DRAGONSTATE ELECTRONIC CORPORATION**

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EDITION:1.1



## 1.Specification

HDK-360848-003 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 36 mm	
03	Rated Input Power	1.0W	
04	Max. Input Power	1.5W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 1500Hz.	
06	Resonance Frequency (Fo)	570Hz $\pm$ 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	101dB (1.0W / 0.1m) $\pm$ 3 dB	at AVE0.8K,1.0K,1.2K,1.5KHz.
08	Frequency Range	Fo – 5KHz	
09	Total Harmonics Distortion	Max 10 % at 1 KHz,1.0W.	
10	Weight	8.5g $\pm$ 0.2g	
11	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.	
12	Operation Test	Must be normal at program source – 1.0W	
13	Buzz, Rattle, etc.	Should not be audible at 2.83V sine Wave between 300 to 5KHz	
14	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.	
15	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.	
16	Temperature	Operating temperature: -20℃ to +60℃ Storage temperature: -40℃ to +65℃	

## 2-1. Test Condition

### Standard

Temperature : 15 ~ 35℃

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

### Basic

Temperature : 20±3℃

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

## 2-2. Standard Test Fixture

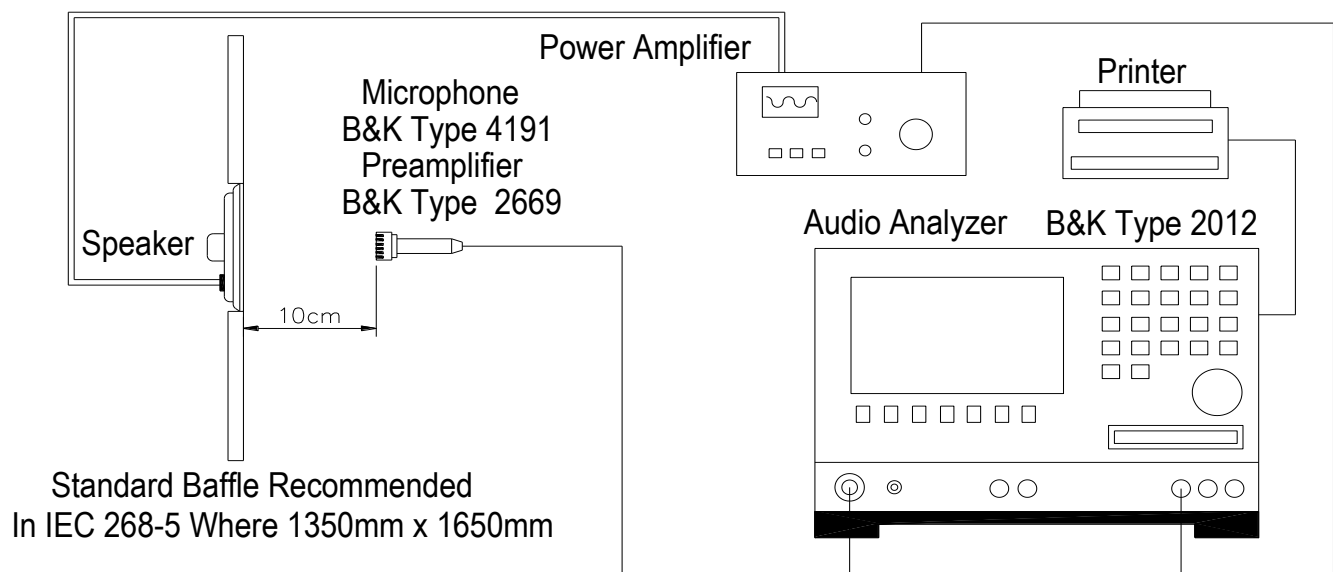
1. Input Power : 1.0W ( 2.83V )

2. Zero Level : -dB

3. Mode : SPEAKER

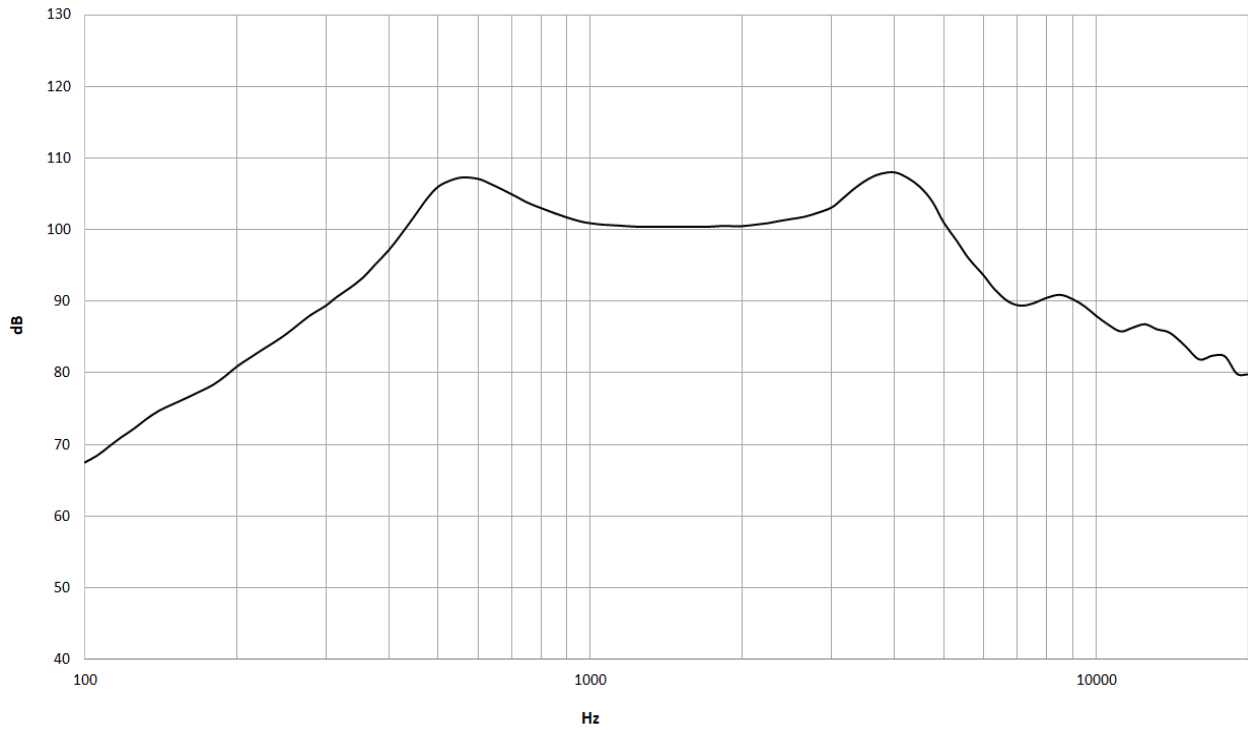
4. potentiometer Range : 50dB

5. Sweep Time : 0.5sec

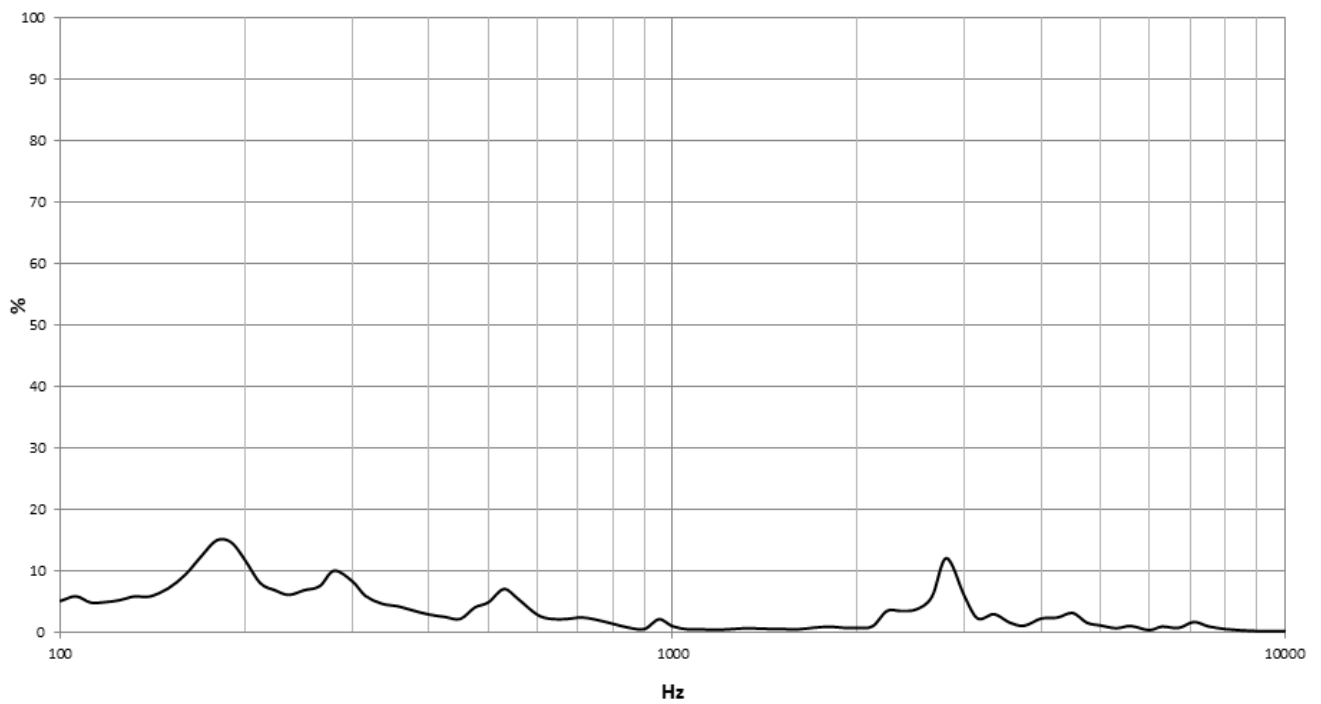


## 2-3.Frequency Response Curve

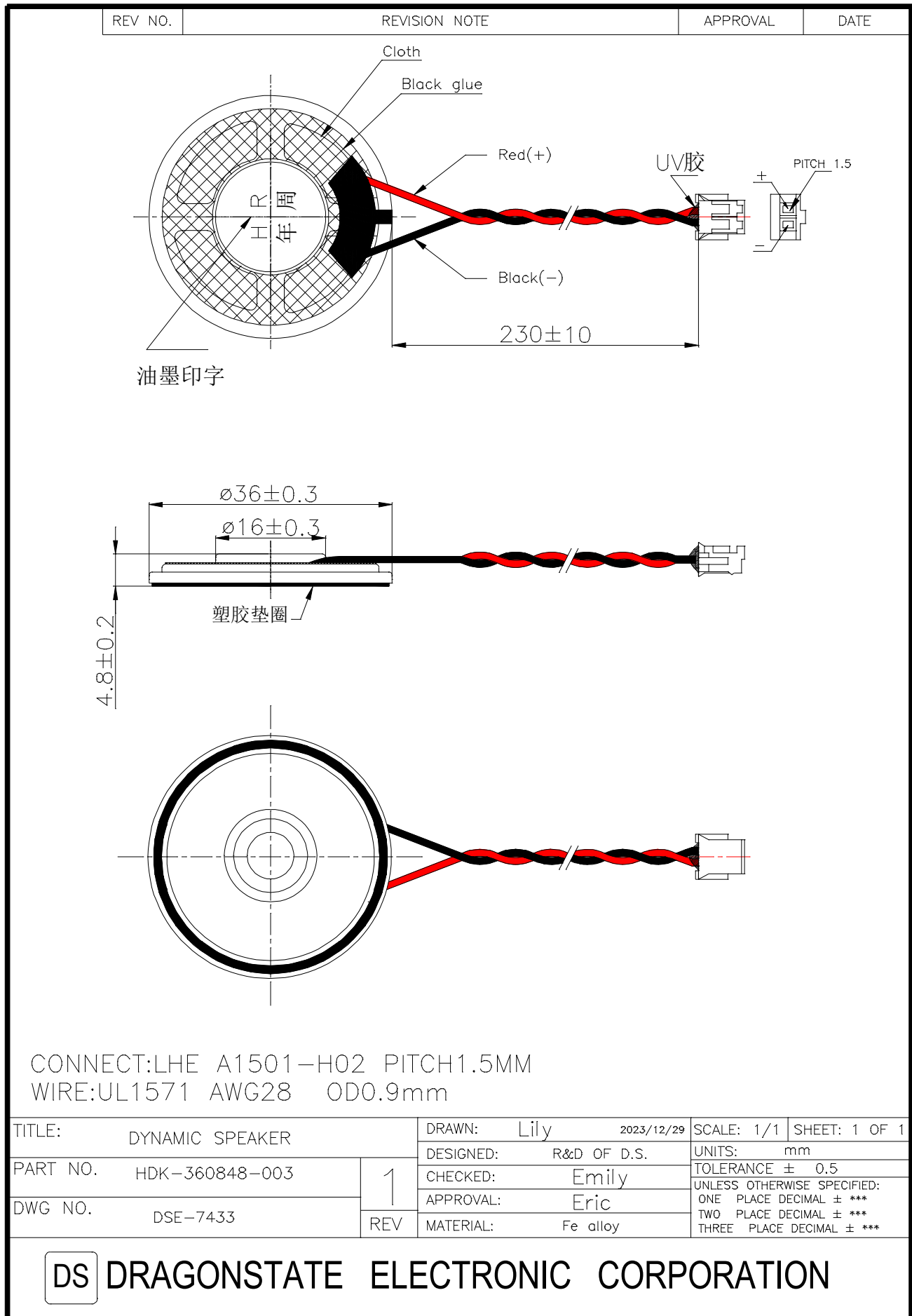
FR



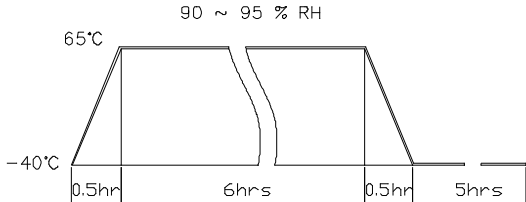
THD



### 3.Dimension



#### 4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+65^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 $93 \pm 5\%$ and leave 3 hours in normal temperature and then checked.
04	Temp./Humidity cycle	<p>The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of;</p> 
05	Thermal cycle test.	Low temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , temperature: $+65^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , cycle: 1 hour/cycle each, and then keep 5 cycles in a room.
06	Vibration	10~55~10Hz sin-wave sweep 15min. 5G(constant) X,Y, Z 3 direction. 2 hours each, total 6 hours.
07	drop test	Free drop from 91cm height to the concrete floor X,y, z 6 direction. 1 times each, total 6 times.
08	Rated Power test	Rated Power Pink noise is applied for 96 hours
09	Max Power test	Max power 1 min on – 2 min off 10 cycles.
10	Terminal strength test	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
11	Salt spray test	<p>Adjust the test room temperature to <math>35^{\circ}\text{C}</math>, and then continuous spraying with Nacl 5% for 24H, take out the samples 0.5H in room temperature, and the wiped surface salt particles</p> <p>Appearance of metal parts have no obvious corrosion , it should not appear functional failure</p>

**Criterion: After these test , the change of S.P.L shall be within  $\pm 3$  dB .**


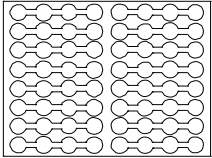
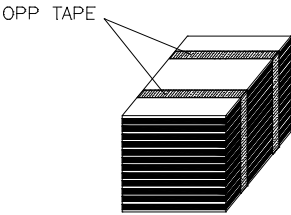
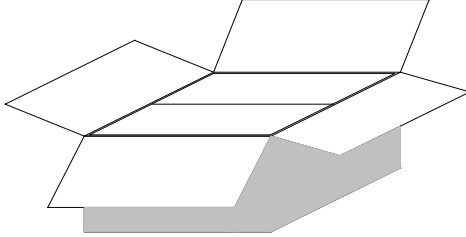
**For trail products and samples, random 10pcs test. For MP products, test cycle is 6 month.**

#### SOLDERING CONDITION

Recommend using constant branding iron in **15 ~ 30W**, and in temperature range  **$350 \pm 10^{\circ}\text{C}$** .

Soldering time not over **3** seconds.

## 5.Packing

REV NO.	REVISION NOTE	APPROVAL	DATE
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>↓</p>  <p>↓</p>  <p>↓</p>  </div> <div style="margin-left: 20px;"> <p>Cover(435*335*5mm) Material:Eps</p> <p>Box(435*335*15mm) 64pcs Material:Eps</p> <p>Middle(435*335*400mm) 832pcs(13*64pcs) Material:Eps</p> <p>Outer Box(465*390*405mm) 1664pcs(2*832pcs) Material:Paper</p> </div> </div>			
单位: mm			
TITLE: packing		DRAWN: Lily 2025/07/07	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
		APPROVAL: Eric	
		MATERIAL: ***	
<div style="border: 1px solid black; padding: 5px; display: inline-block; font-weight: bold; font-size: 1.2em;">DS</div> <div style="margin-left: 10px; font-weight: bold; font-size: 1.1em;">Changzhou Dragon State Electronic Co., Ltd</div>		SCALE: 2:1	SHEET: 1 of 1
		UNITS: mm	
		TOLERANCE	
		20~11	± 0.3
10~5	± 0.2		
<4	± 0.1		