

*MESSRS.*SPECIFICATION FOR APPROVAL
承 認 书

Product	DYNAMIC SPEAKER
Part No.	HDK-280852-1C (RoHS)
Customer Approval	

Approved By	Checked By	Made By
王台平 NOV-18-2023	曹丽萍 NOV-18-2023	LILY NOV-18-2023

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EDITION: 1. 1

1. Specification

HDK-280852-1C (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 28 mm	
03	Rated Input Power	1.5W	
04	Max. Input Power	2.0W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 1000Hz.	
06	Resonance Frequency (Fo)	600Hz $\pm$ 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	86dB (0.1W / 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, 1.5W.	
10	Weight	10.8g $\pm$ 1.0g	
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 - 1.5W	
13	Buzz, Rattle, etc.	Should not be audible at 3.46V 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°C to +60°C Storage temperature: -30°C to +70°C	

2-1 Test Condition

Standard

Temperature : 15 ~ 35°C

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

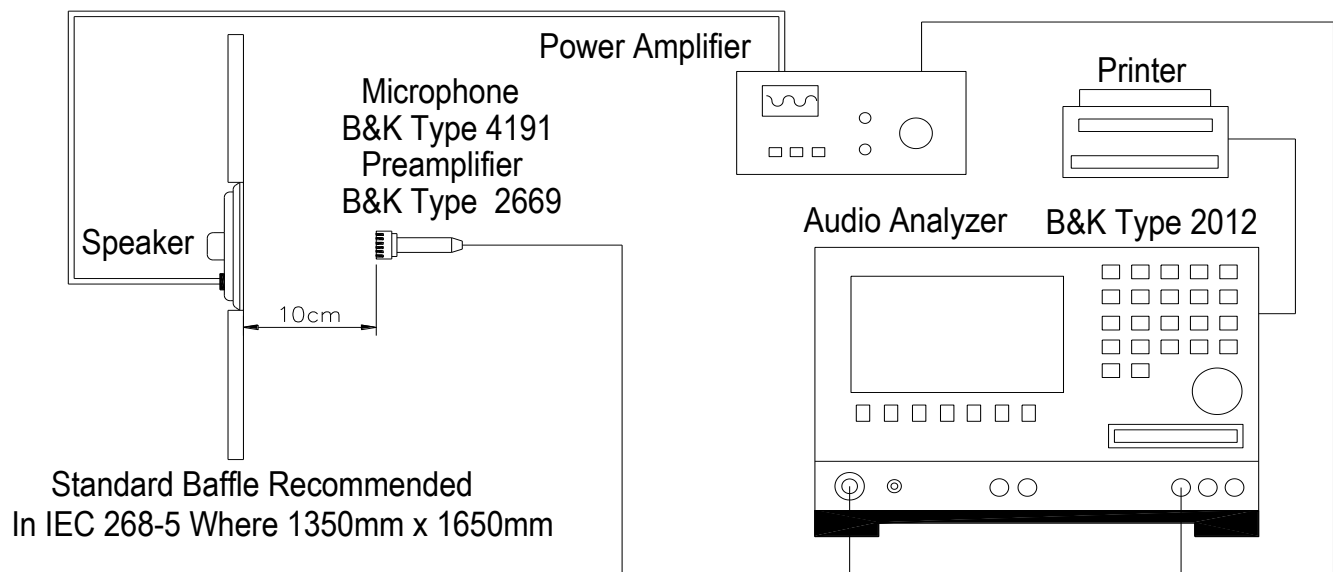
1. Input Power : 0.1W (0.89V)

2. Zero Level : -dB

3. Mode : SPEAKER

4. potentiometer Range : 50dB

5. Sweep Time : 0.5sec

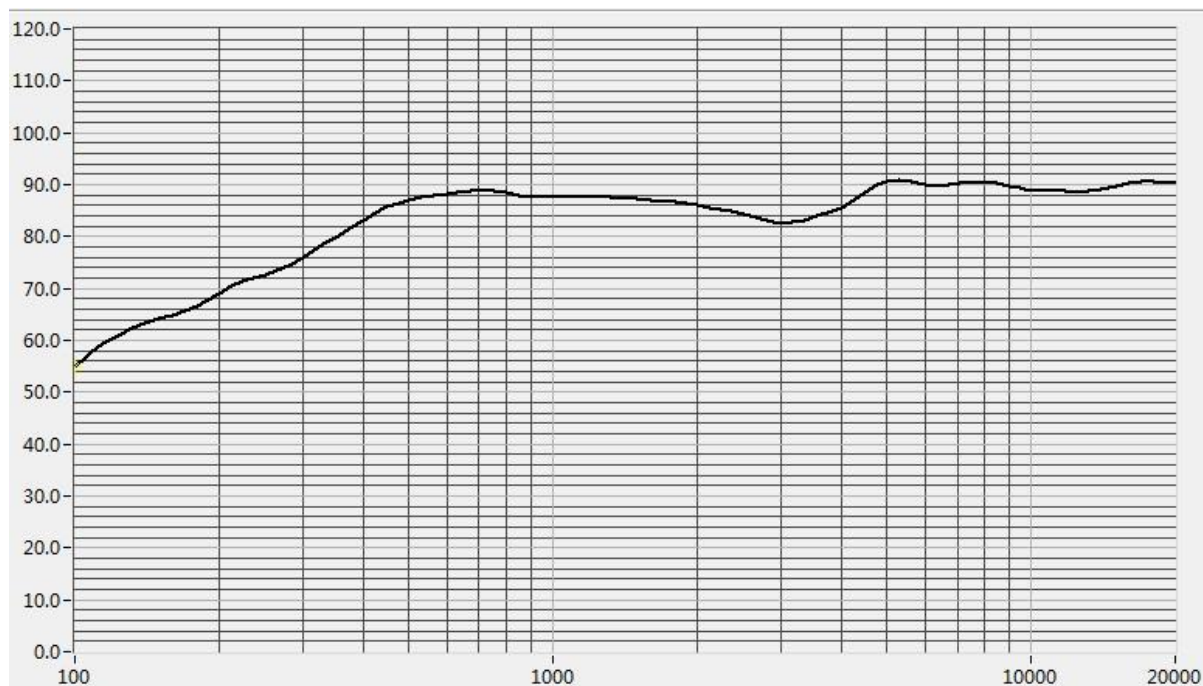


2-3. Frequency Response Curve

SPL Curve (0.1m/0.1W)

Figure 1: Typical Frequency Response Curve

Frequency Response

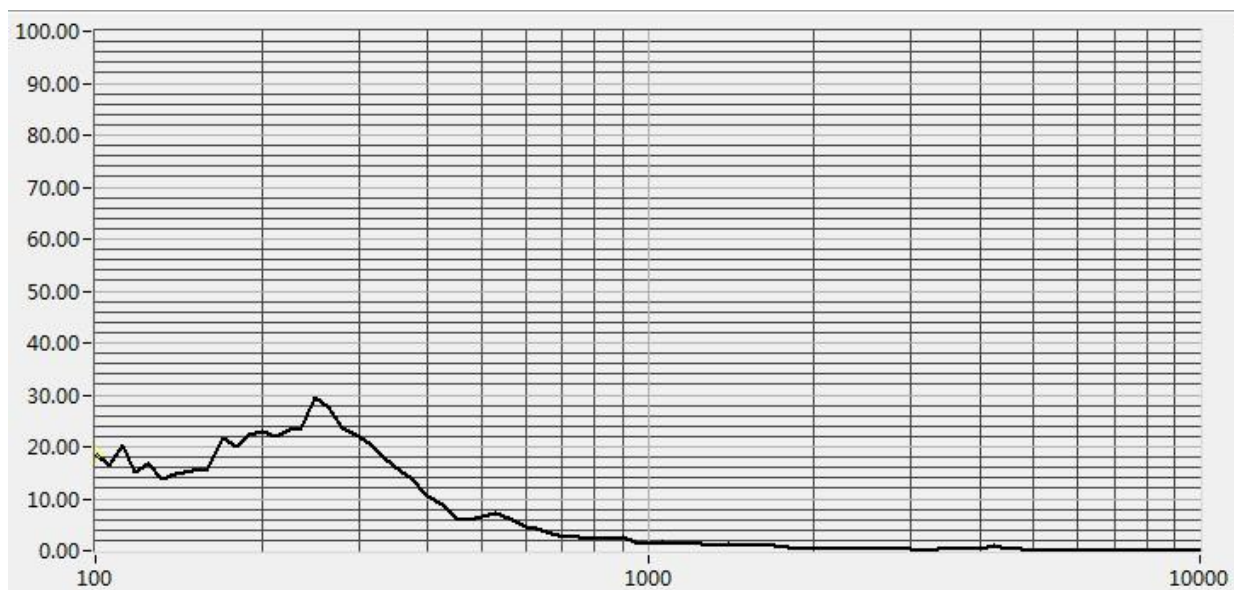


Frequency (Hz)

THD Curve (0.1m/0.1W)

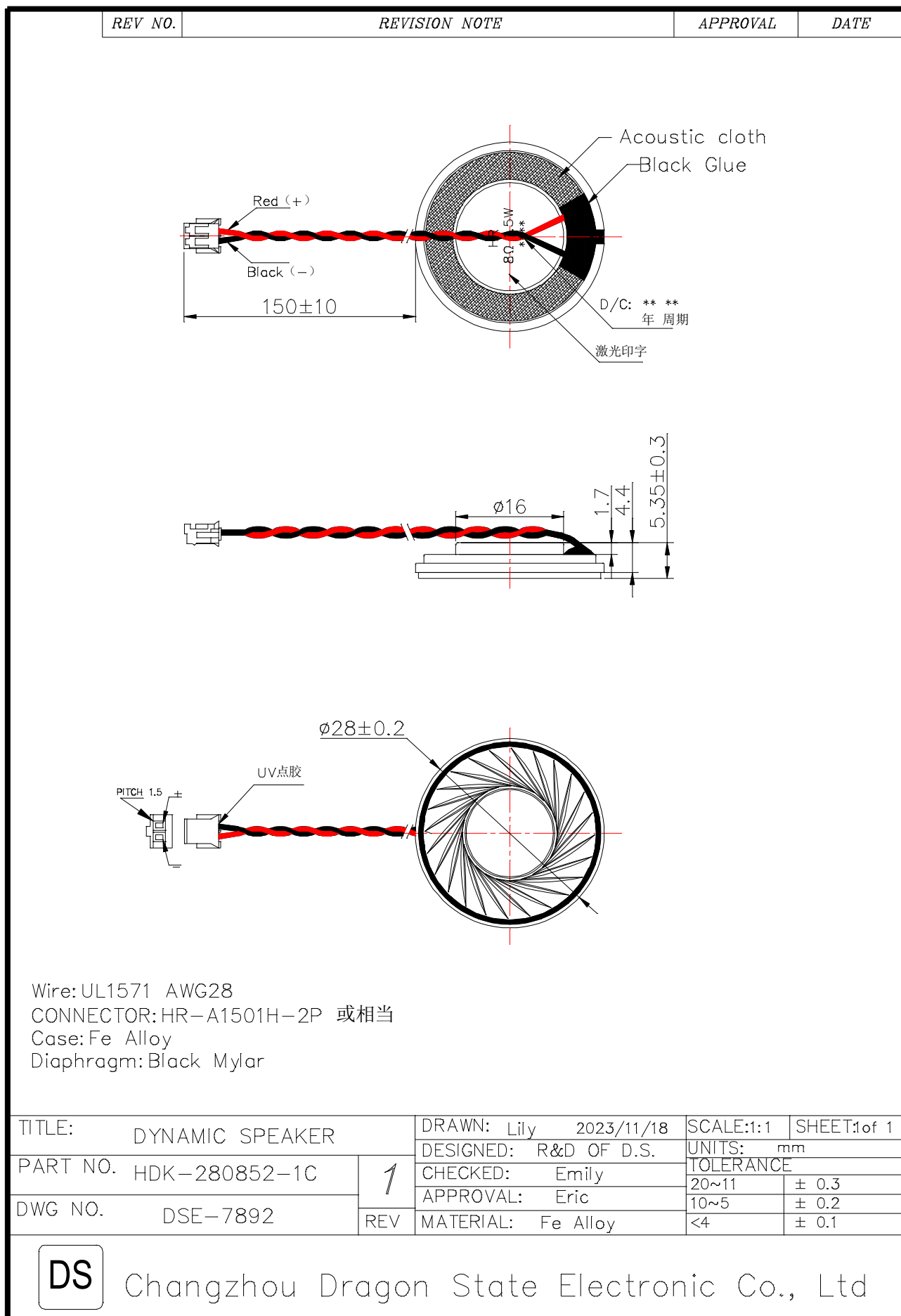
Figure 2: Typical THD Curve

Total Harmonic Distortion

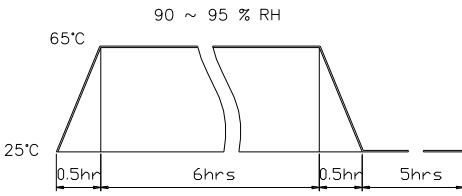


Frequency (Hz)

3. Dimension



4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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: $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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. Then drop from 152cm 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 96 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.

Criterion:

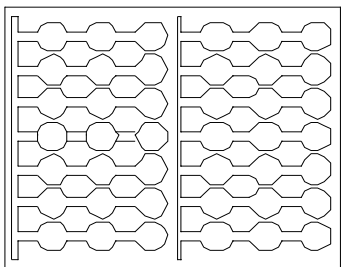
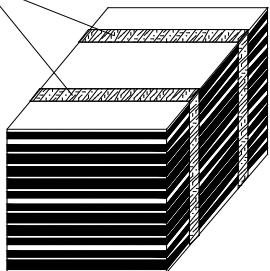
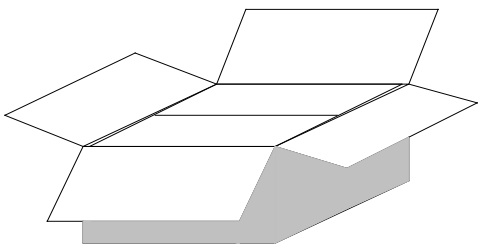
After these test , the change of S.P.L shall be within ± 3 dB .

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
 Box(350*285*18mm) 42pcs Material: Paper+Epe ↓  OPP TAPE Middle(290*225*135mm) 336pcs(8*42pcs) Material: Paper+Epe ↓  Outer Box(590*390*405mm) 1344pcs(4*336pcs) Material: Paper			
单位: mm			
TITLE: Packing		DRAWN: Lily 2022/11/12 SCALE: 2:1 SHEET: 1 of 1	
PART NO.	1	DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
		APPROVAL: Eric	
REV	MATERIAL:	UNITS: mm TOLERANCE: 20~11 ± 0.3 10~5 ± 0.2 <4 ± 0.1	
DS Changzhou Dragon State Electronic Co., Ltd			

