

MESSRS.

SPECIFICATION FOR APPROVAL

承 认 书

Product	DYNAMIC SPEAKER
Part No.	HDK-2032EB-2 (RoHS)
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 NOV-14-2017	曹丽萍 NOV-14-2017	LILY NOV-14-2017

常州华龙电子有限公司

DRAGONSTATE ELECTRONIC CORPORATION

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EDITION:1.1

1. Specification

HDK-2032EB-2 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 20 mm	
03	Rated Input Power	0.5W	
04	Max. Input Power	1.0W for 1 minute	
05	Impedance	32 ohm $\pm$ 15% at 1000Hz.	
06	Resonance Frequency (Fo)	900Hz $\pm$ 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	96dB (0.5W / 0.1m) $\pm$ 3 dB	at AVE 0.8, 1.0, 1.2, 1.5 KHz
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max % at 1 KHz, 1.0W.	
12	Weight	2.25g $\pm$ 0.2g	
13	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.	
14	Operation Test	Must be normal at program source - 0.5W	
15	Buzz, Rattle, etc.	Should not be audible at 4.0V sine Wave between Fo to 20KHz	
16	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.	
17	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.	
18	Temperature	Operating temperature: -20°C to +60°C Storage temperature: -20°C to +60°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

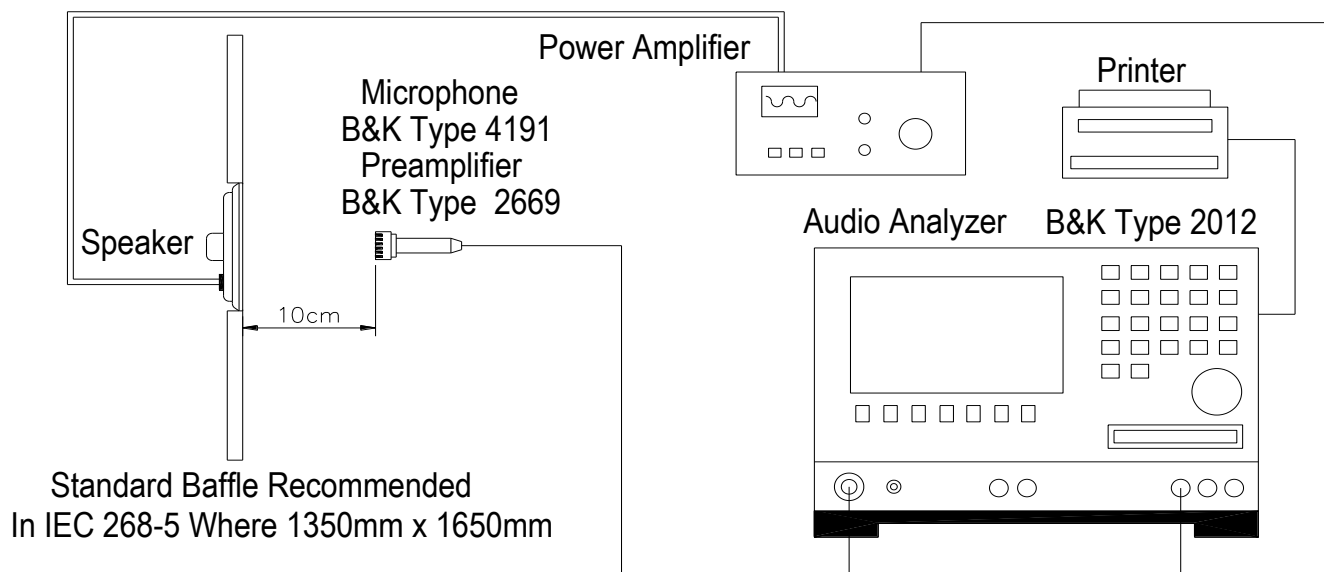
1. Input Power : 0.5W (4.0V)

2. Zero Level : -dB

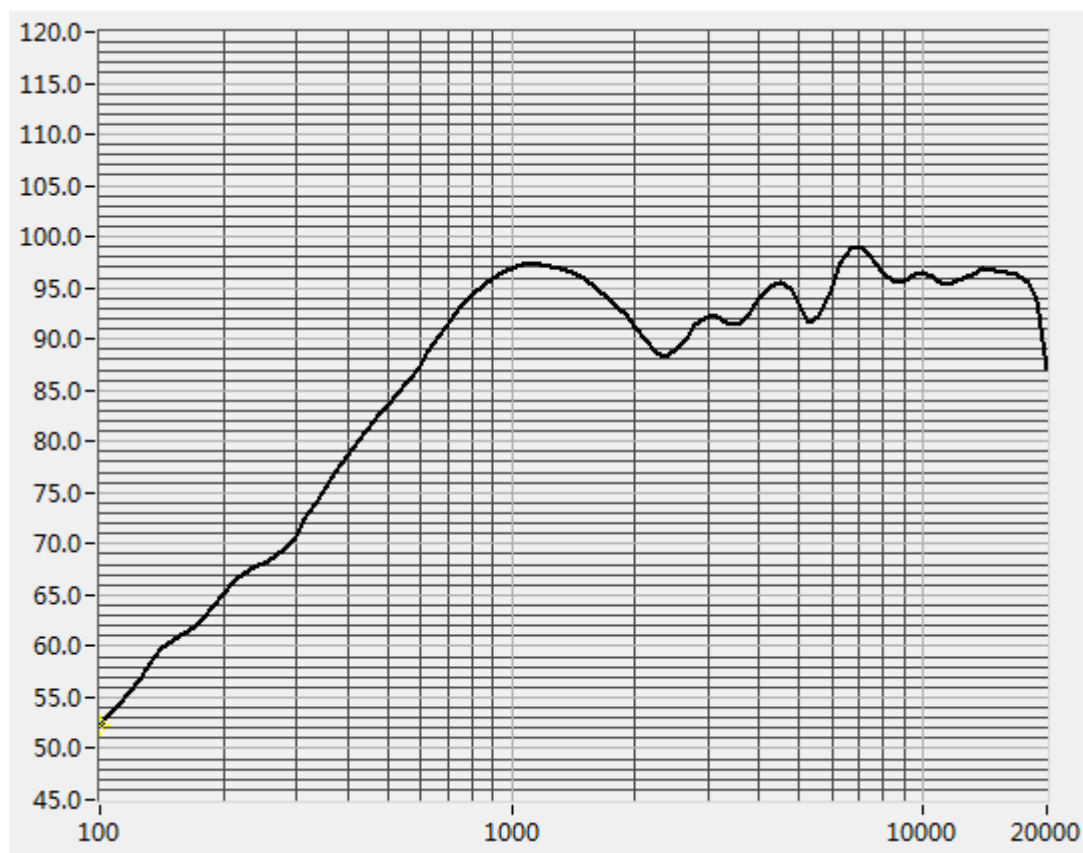
3. Mode : SPEAKER

4. potentiometer Range : 50dB

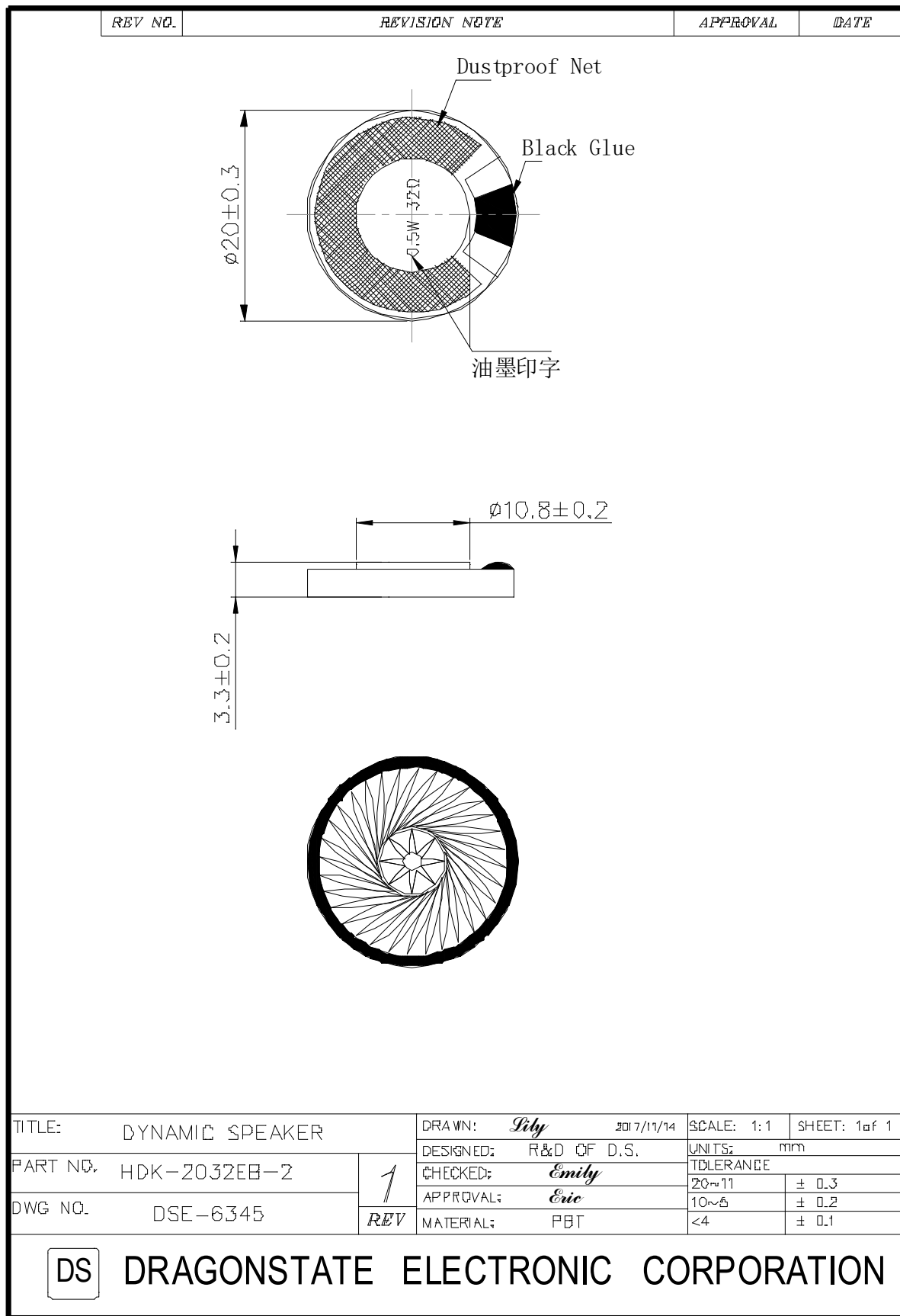
5. Sweep Time : 0.5sec



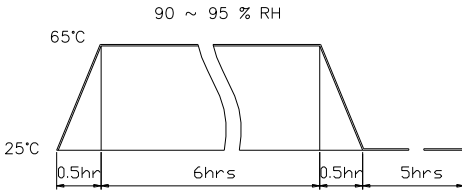
2-3. Frequency Response Curve



3. Dimension



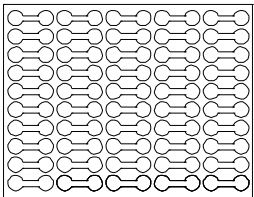
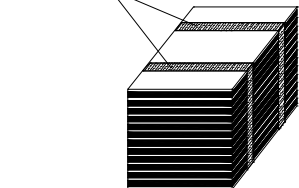
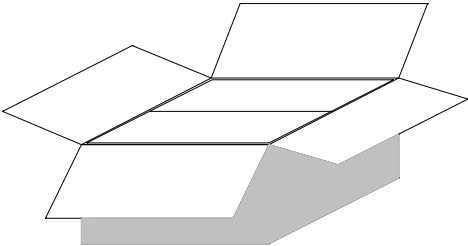
4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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: $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$, temperature: $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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 white 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
 ↓  ↓  ↓  Cover(350*290*5mm) Material: Paper Box(350*290*15mm) 100pcs Material: Paper+Epe Middle(350*290*180mm) 1000pcs(10*100pcs) Material: Paper+Epe Outer Box(490*360*350mm) 4000pcs(4*1000pcs) Material: Paper			
单位: mm			
TITLE: packing		DRAWN: Lily 2013/12/06	
PART NO.		DESIGNED: R&D OF D.S.	SCALE: 2:1
DWC NO.		CHECKED: Emily	SHEET: 1 of 1
1 REV		APPROVAL: Eric	UNITS: mm
		MATERIAL: ***	TOLERANCE
DS DRAGONSTATE ELECTRONIC CORPORATION			

6. History change record

Change Items	Date	Note	Drawn by	Checked by
	2017-11-14	First Issue	Lily	王台平 2017-11-14