

*MESSRS.*SPECIFICATION FOR APPROVAL
承 认 书

Product	DYNAMIC SPEAKER
Part No.	HDK-3608BB-23 (RoHS)
Customer Approval	

Approved By	Checked By	Made By
王台平 JAN-25-2019	曹丽萍 JAN-25-2019	LILY JAN-25-2019

常州华龙电子有限公司

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EDITION: 1. 1

1. Specification

HDK-3608BB-23 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 36 mm	
03	Rated Input Power	1.5W	
04	Max. Input Power	1.8W for 1 minute	
05	Impedance	8 ohm \pm 15% at 1500Hz.	
06	Resonance Frequency (Fo)	550Hz \pm 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	100dB (1.5W / 0.1m) \pm 3dB	at AVE 0.6K, 0.8K, 1.0K, 1.2KHz.
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max 10% at 1 KHz, 1.5W.	
10	Voice Coil	Diameter 13.3 mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ 12.5 x 1.5 mm	
12	Weight	10g \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 - 1.5W	
15	Buzz, Rattle, etc.	Should not be audible at 3.46V 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: -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

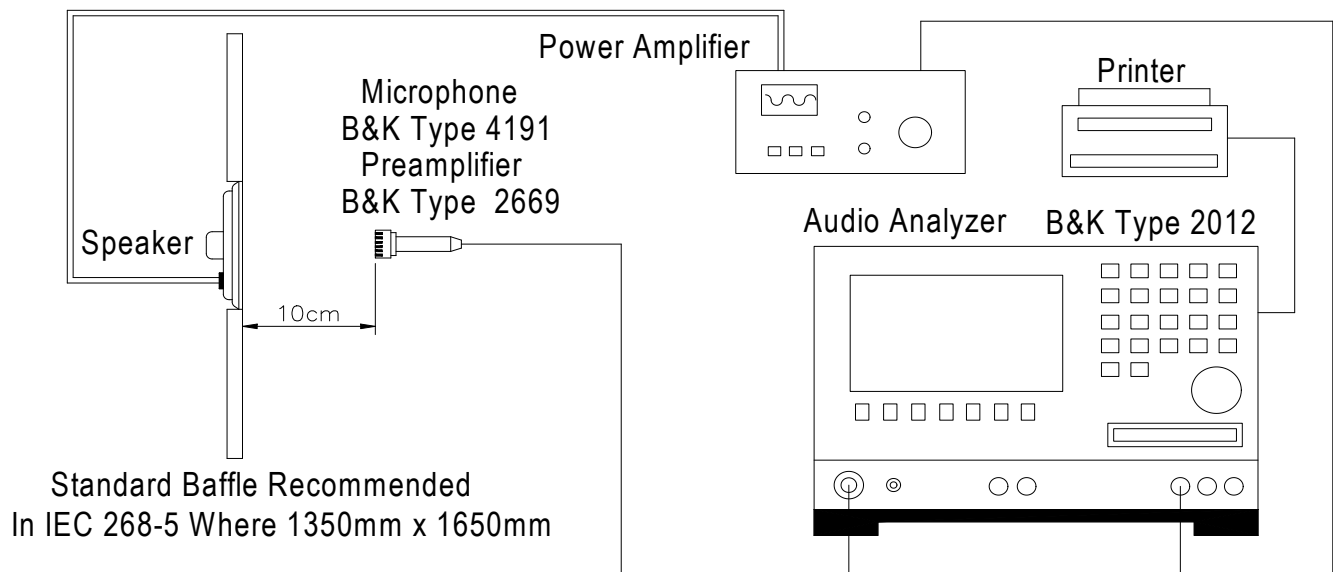
1. Input Power : 1.5W (3.46V)

2. Zero Level : -dB

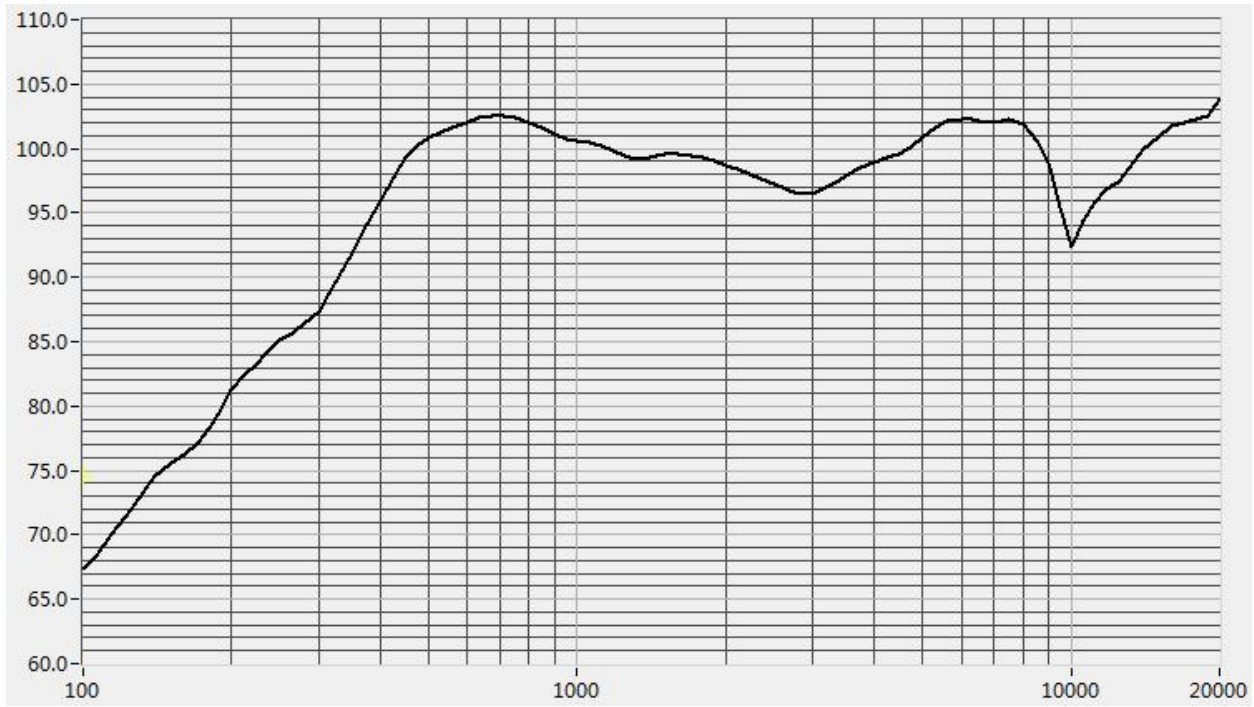
3. Mode : SPEAKER

4. potentiometer Range : 50dB

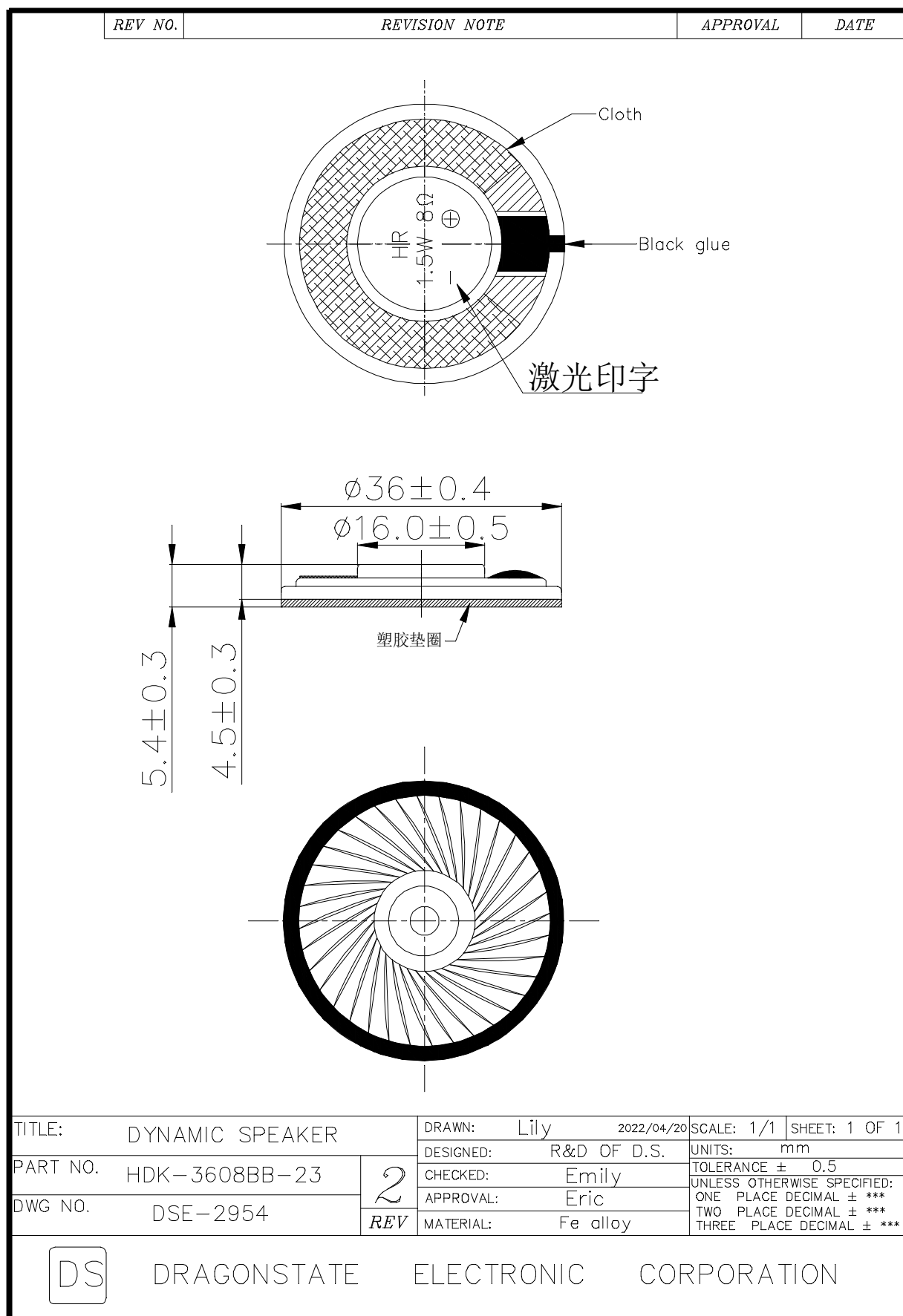
5. Sweep Time : 0.5sec



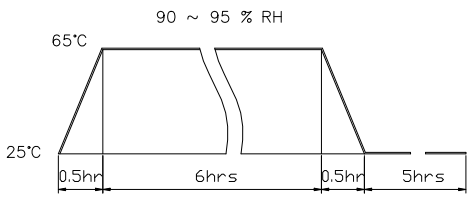
2-3. Frequency Response Curve



3. Dimension




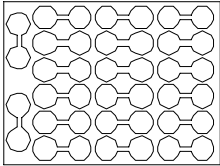
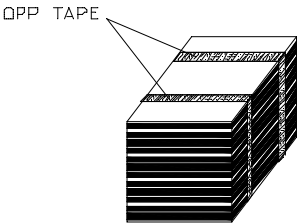
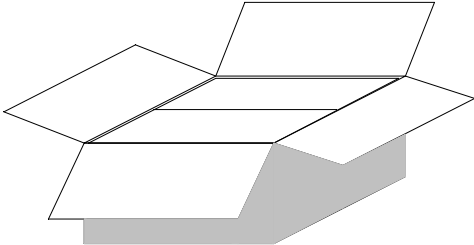
4. Reliability Test

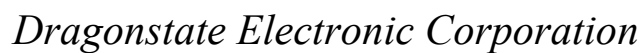
Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity 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	<p>The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of;</p> 
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
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> Cover(330*250*5mm) Material: Eps </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> Box(330*250*16mm) 40pcs Material: Eps </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> Middle(330*250*160mm) 440pcs Material: Eps </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> Outer Box(490*350*360mm) 1800pcs(3*440+480pcs) Material: Paper </div>		
单位: mm			
TITLE: packing		DRAWN: Lily	SCALE: 2:1
PART NO.		DESIGNED: R&D OF D.S.	SHEET: 1 of 1
<div style="font-size: 2em; border: 1px solid black; padding: 5px; display: inline-block;">1</div>		CHECKED: Emily	UNITS: mm
		APPROVAL: Eric	TOLERANCE
		MATERIAL: ***	20~11 ± 0.3 10~5 ± 0.2 <4 ± 0.1
REV			
<div style="border: 1px solid black; padding: 5px; display: inline-block; font-weight: bold; font-size: 1.2em;">DS</div> DRAGONSTATE ELECTRONIC CORPORATION			

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