

*MESSRS.*

## SPECIFICATION FOR APPROVAL

## 承 認 书

Product	DYNAMIC SPEAKER
Part No.	HDK-150834-002 (RoHS)
Customer Approval	

Approved By	Checked By	Made By
王台平 MAY-03-2017	曹丽萍 MAY-03-2017	LILY MAY-03-2017

常州华龙电子有限公司

DRAGONSTATE ELECTRONIC CORPORATION

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## 1. Specification

HDK-150834-002 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 15 mm	
03	Rated Input Power	0.5W	
04	Max. Input Power	0.7W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 2000Hz.	
06	Resonance Frequency (Fo)	950Hz $\pm$ 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	85dB (0.5W / 0.1m) $\pm$ 3 dB	at AVE 900~4000 Hz
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max 5 % at 1 KHz, 0.5W.	
10	Voice Coil	Diameter 8.5 mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet $\Phi$ 7.0x 1.0mm	
12	Weight	1.4 $\pm$ 0.3g	
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 2.0V 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: -40°C to +85°C Storage temperature: -40°C to +85°C	

## 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

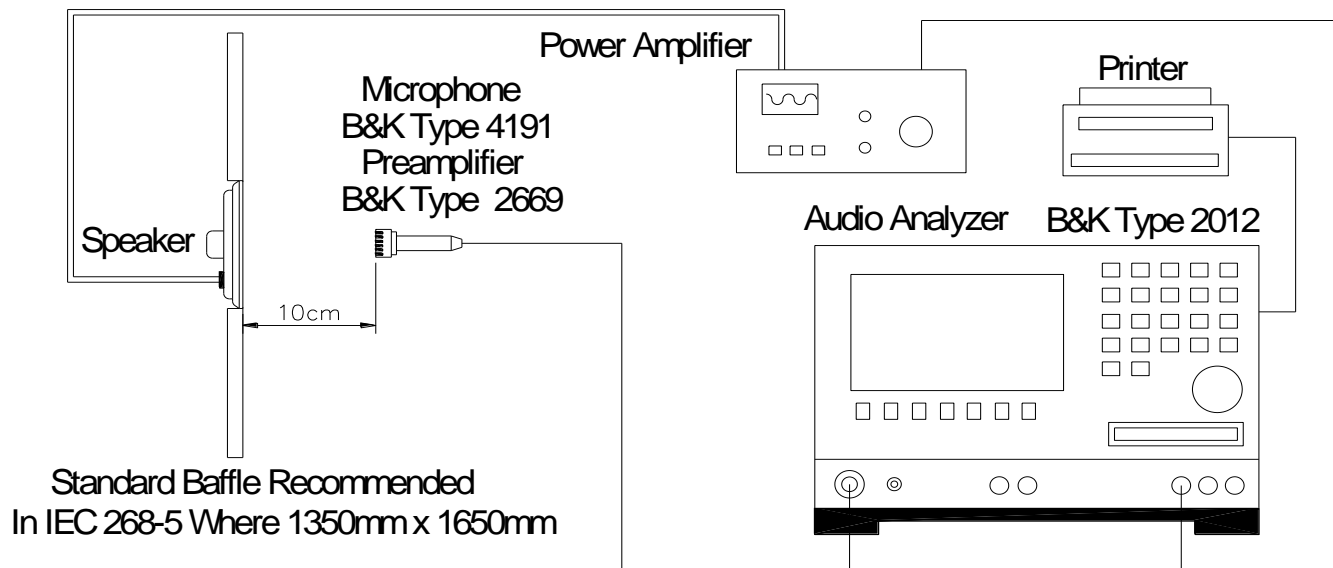
1. Input Power : 0.5W (2.0V )

2. Zero Level : -dB

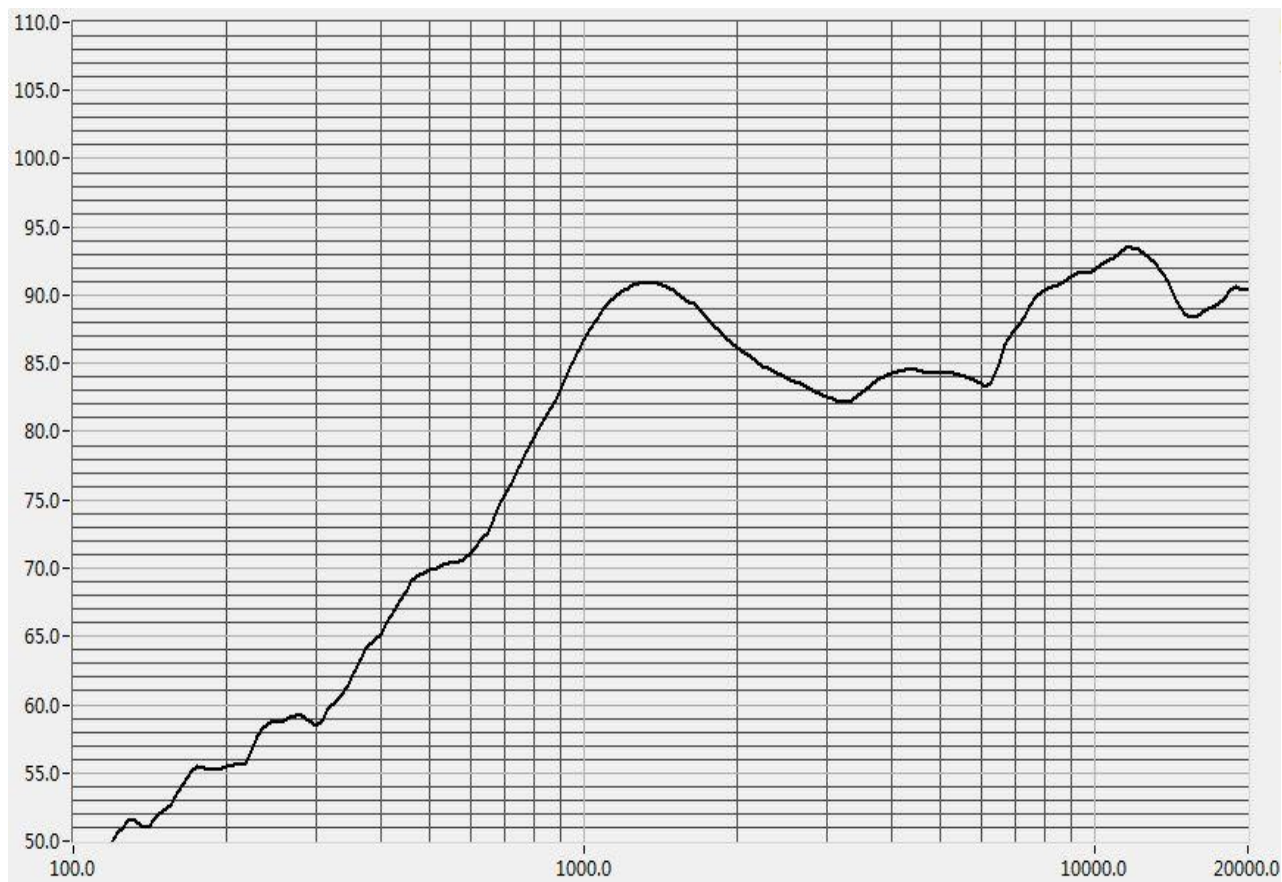
3. Mode : SPEAKER

4. potentiometer Range : 50dB

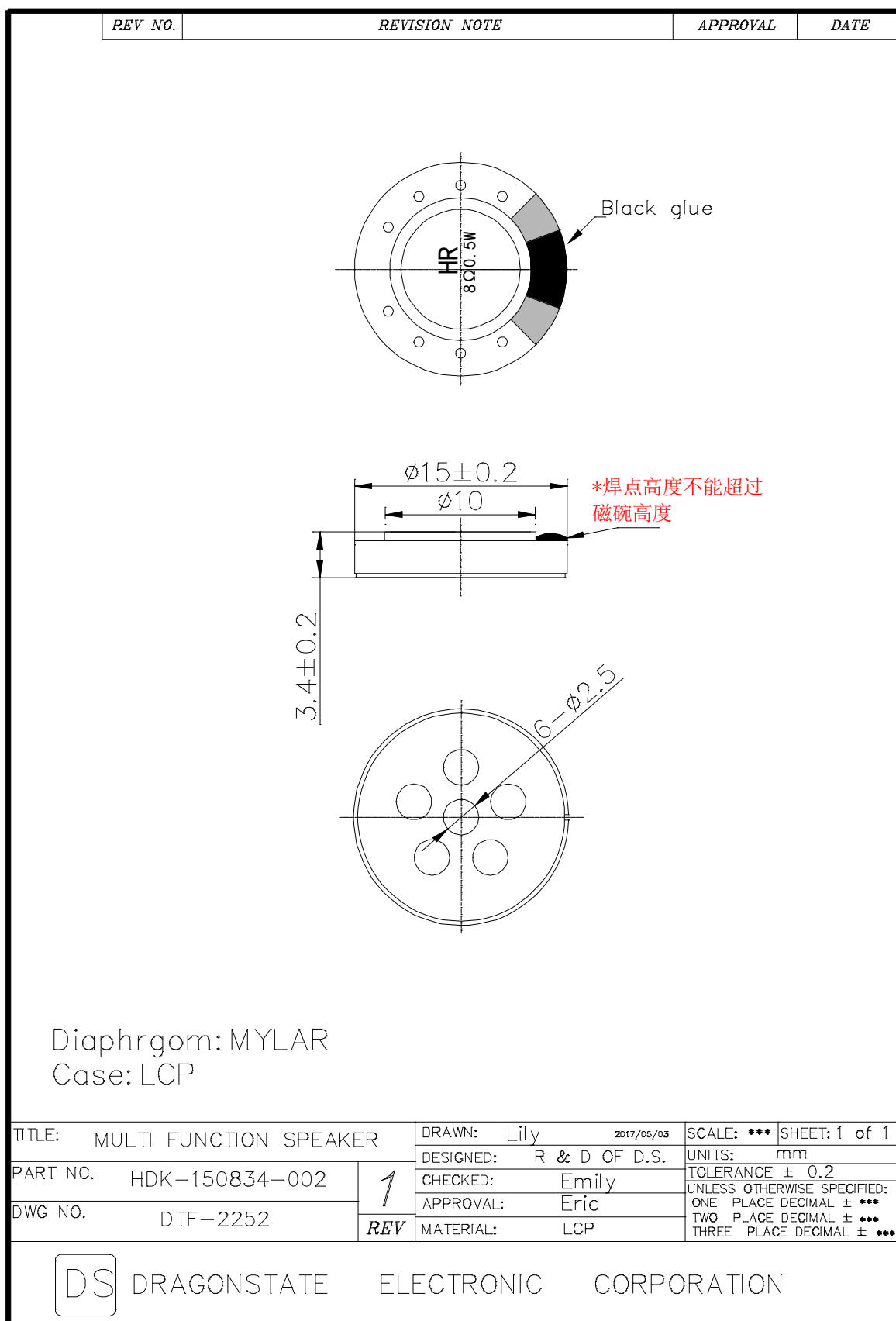
5. Sweep Time : 0.5sec



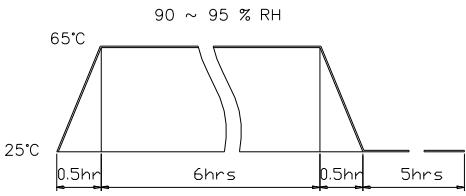
## 2-3. Frequency Response Curve



### 3. Dimension




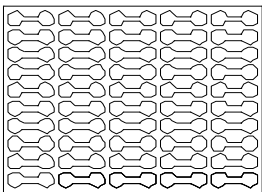
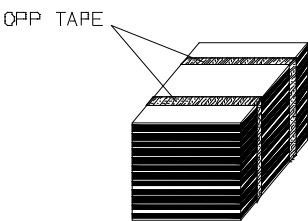
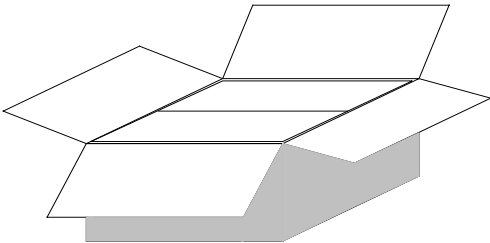
#### 4. Reliability Tests

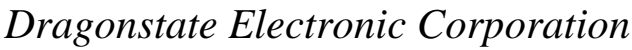
Items.		Specifications
01	High temp. Test	Keep 96 hours at $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity test	Keep 96 hours at $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , 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. 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 48 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 $\pm 3$ 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 2 seconds.

## 5. Packing

REV NO.	REVISION NOTE	APPROVAL	DATE
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;">           Cover(325*245*5mm) Material: Paper         </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;">           Box(325*245*13mm) 100pcs Material: Paper+Epe         </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;">           Middle(325*245*155mm) 1000pcs(10*100pcs) Material: Paper+Epe         </div>		
	<div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;">           Outer Box(490*360*350mm) 5000pcs(5*1000pcs) Material: Paper         </div>		
单位: mm			
TITLE: packing		DRAWN: Lily 2016/08/26	
PART NO.		DESIGNED: R&D OF D.S.	
<div style="text-align: center; font-size: 2em; font-weight: bold;">1</div>		CHECKED: Emily	
		APPROVAL: Eric	
		MATERIAL: ***	
DWG NO.		SCALE: 2:1	
		SHEET: 1 of 1	
		UNITS: mm	
		TOLERANCE	
		20~11 ± 0.3	
		10~5 ± 0.2	
		<4 ± 0.1	
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 10px;">DS</div> <b>DRAGONSTATE ELECTRONIC CORPORATION</b>			



## 6. History change record

[illegible]