

MESSRS.

SPECIFICATION FOR APPROVAL**承 认 书**

Product	DYNAMIC SPEAKER
Part No.	HDK-2008AA-1C13 (RoHS)
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 MAR-13-2018	曹丽萍 MAR-13-2018	LILY MAR-13-2018

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

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EDITION:1.1

1. Specification
HDK-2008AA-1C13 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 20 mm	
03	Rated Input Power	1.0W	
04	Max. Input Power	1.2W for 1 minute	
05	Impedance	8 ohm \pm 15% at 1000Hz.	
06	Resonance Frequency (Fo)	800Hz \pm 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	90 dB (0.1W / 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 8 % at 1 KHz,1.0W.	
10	Voice Coil	Diameter 10.25 mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ 9.7x1.3 mm	
12	Weight	2.6g \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 – 1.0W	
15	Buzz, Rattle, etc.	Should not be audible at 2.83V 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 +80°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

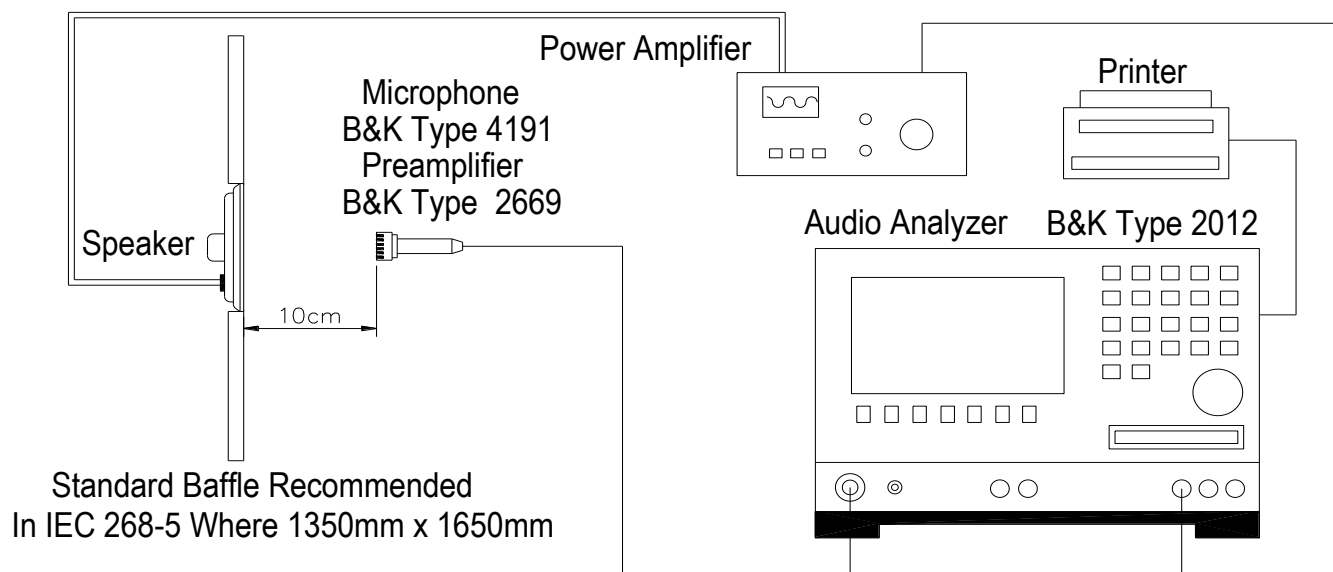
1. Input Power : 0.1W (0.89V)

2. Zero Level : -dB

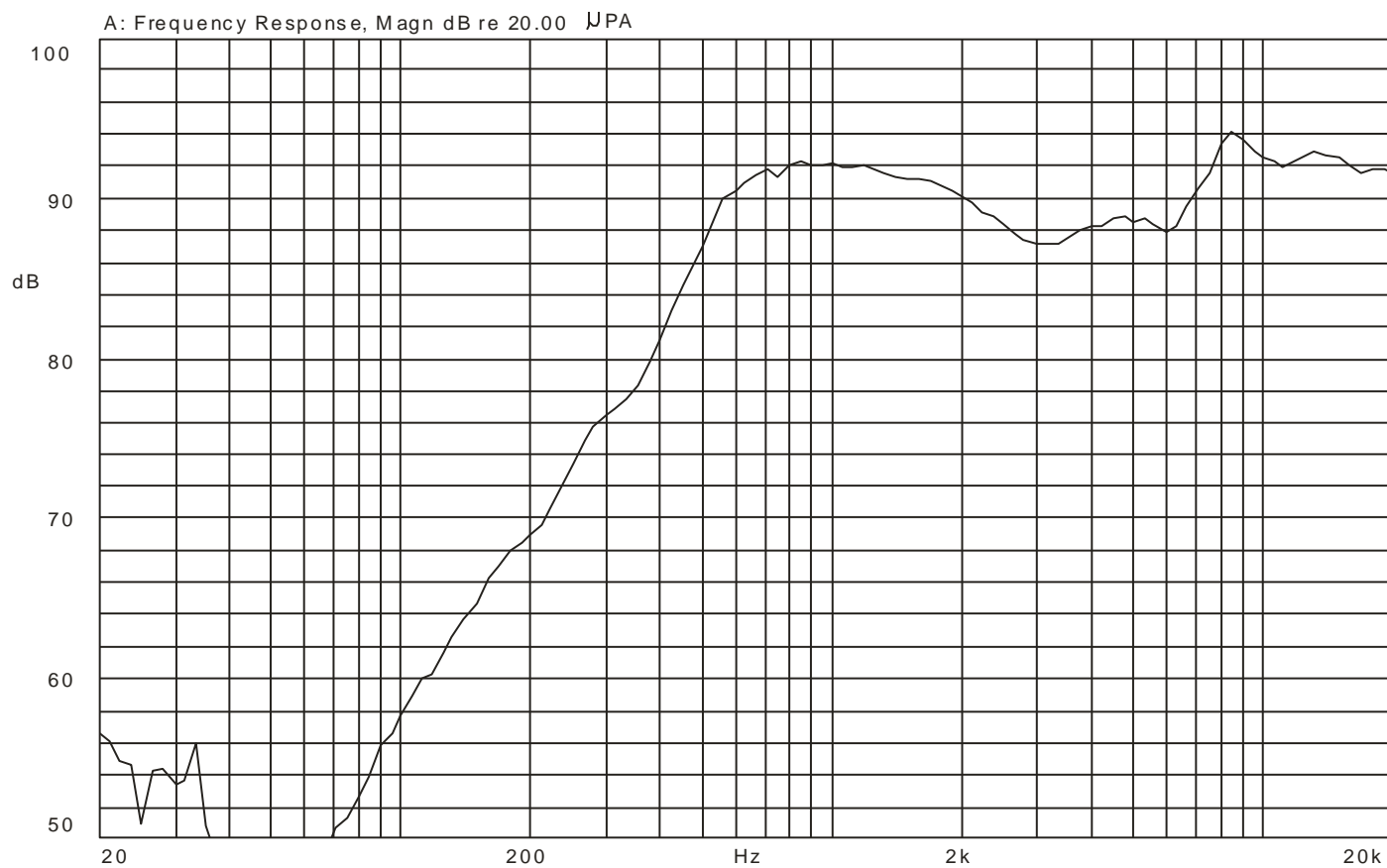
3. Mode : SPEAKER

4. potentiometer Range : 50dB

5. Sweep Time : 0.5sec



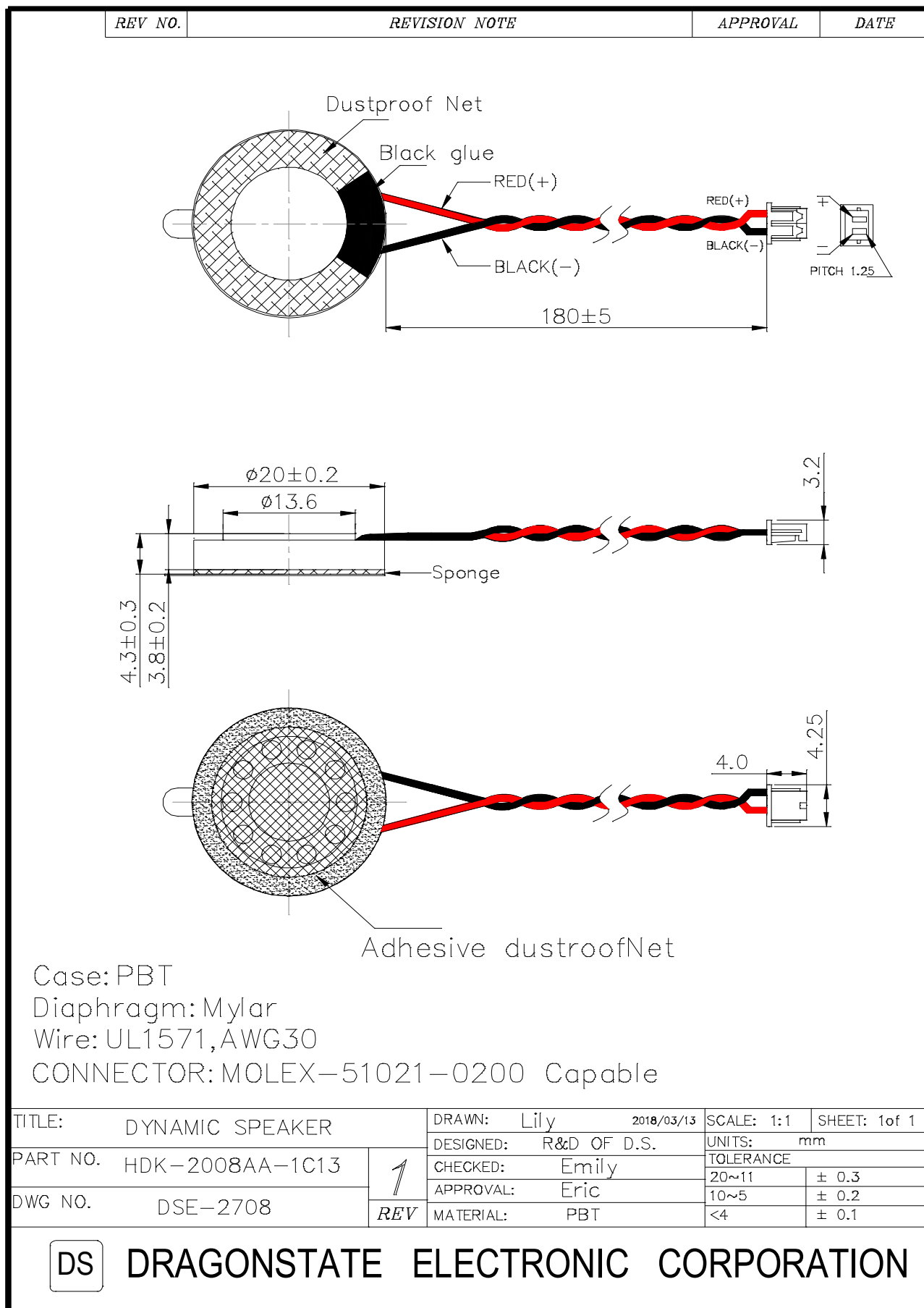
2-3.Frequency Response Curve



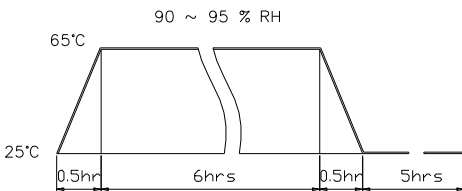
Mode: SSR



3.Dimension



4. Reliability Test


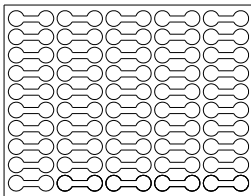
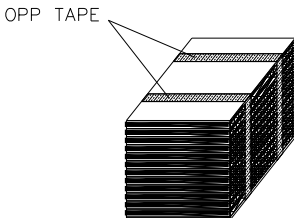
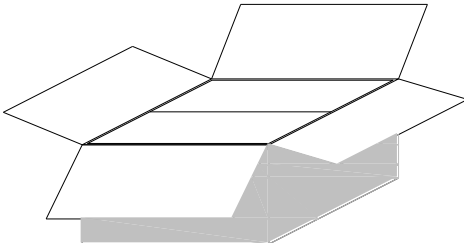
Items.		Specifications
01	High temp. Test	Keep 96 hours at $+80^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity 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: $+80^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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 $\pm 3 \text{ dB}$.		

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="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Cover(350*290*5mm) Material: Paper</p> </div> <div style="text-align: center;">↓</div> <div style="text-align: center;">  <p>Box(350*290*15mm) 100pcs Material: Paper+Epe</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <p>OPP TAPE</p> <p>Middle(350*290*180mm) 1000pcs(10*100pcs) Material: Paper+Epe</p> </div> <div style="text-align: center;">↓</div> <div style="text-align: center;">  <p>Outer Box(490*360*350mm) 5000pcs(5*1000pcs) Material: Paper</p> </div> </div> <div style="text-align: right; margin-top: 20px;"> <p>单位: mm</p> </div>			
TITLE: packing		DRAWN: Lily 2013/12/06	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
<div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> <p>REV</p>		APPROVAL: Eric	
		MATERIAL: ***	
		SCALE: 2:1	
		SHEET: 1 of 1	
		UNITS: mm	
		TOLERANCE	
		20~11 ± 0.3	
		10~5 ± 0.2	
		<4 ± 0.1	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">DS</div> <div>DRAGONSTATE ELECTRONIC CORPORATION</div> </div>			