

***MESSRS.*****SPECIFICATION FOR APPROVAL****承 认 书**

Product	DYNAMIC SPEAKER
Part No.	HDK-302008ZA-5C5 (RoHS)
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 DEC-25-2018	曹丽萍 DEC-25-2018	LILY DEC-25-2018

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**1. Specification**
**HDK-302008ZA-5C5 (RoHS)**

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 30×20 mm	
03	Rated Input Power	1.5W	
04	Max. Input Power	1.8W for 1 minute	
05	Impedance	8 ohm ± 15% at 2000Hz.	
06	Resonance Frequency (Fo)	1000Hz ± 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	98dB(0.5W/0.1m) ± 3 dB	at AVE 1.0 , 1.2 , 1.5, 2.0 KHz.
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max 8 % at 1 KHz, 1.5W.	
10	Voice Coil	Diameter 13.3mm	
11	Magnet	Rare earth permanent (Nd-Fe-B) magnet 12.5*2.2 mm	
12	Weight	8g ± 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 +70°C Storage temperature: -40°C to +80°C	

## 2-1. Test Condition

### STANDARD

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

### BASIC

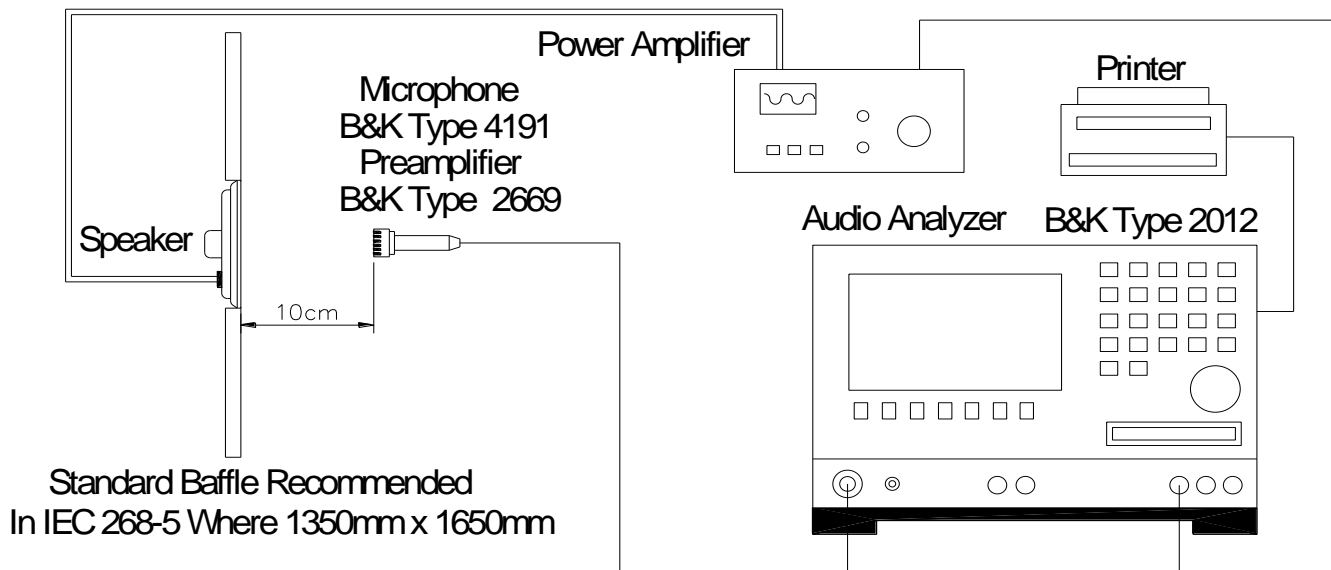
Temperature : 20±3°C

Relative humidity : 60% ~ 70%,

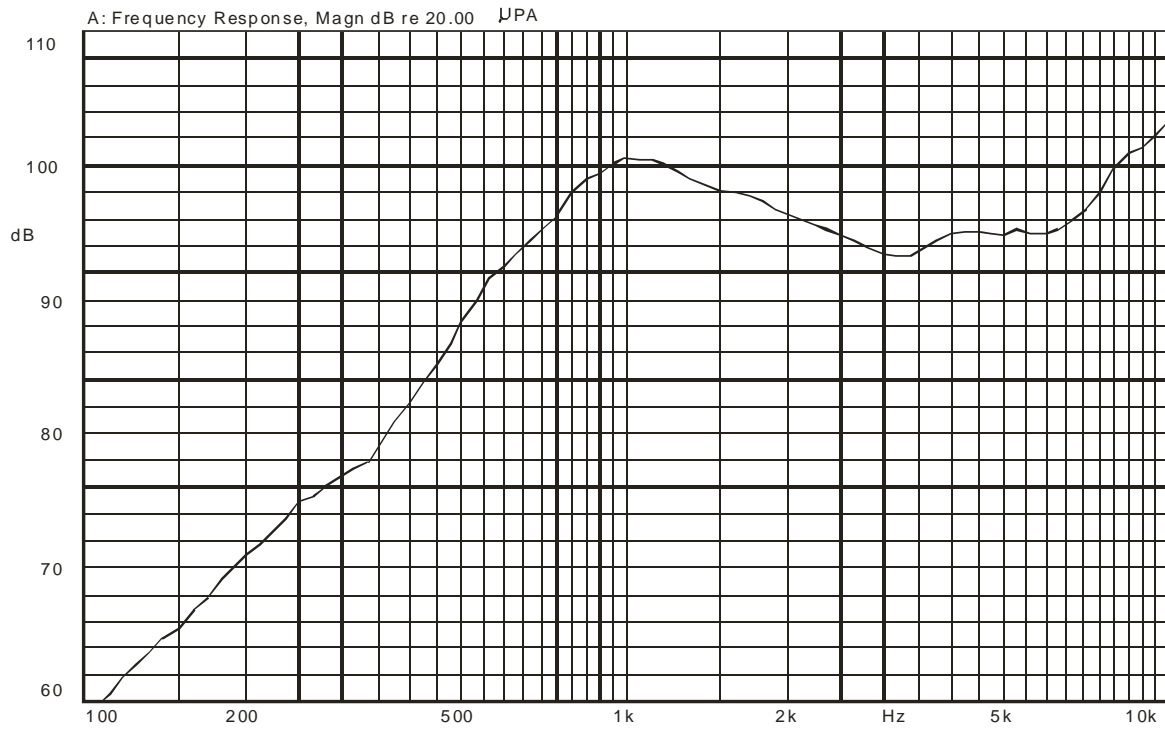
Atmospheric pressure : 860mbar to 1060mbar

## 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



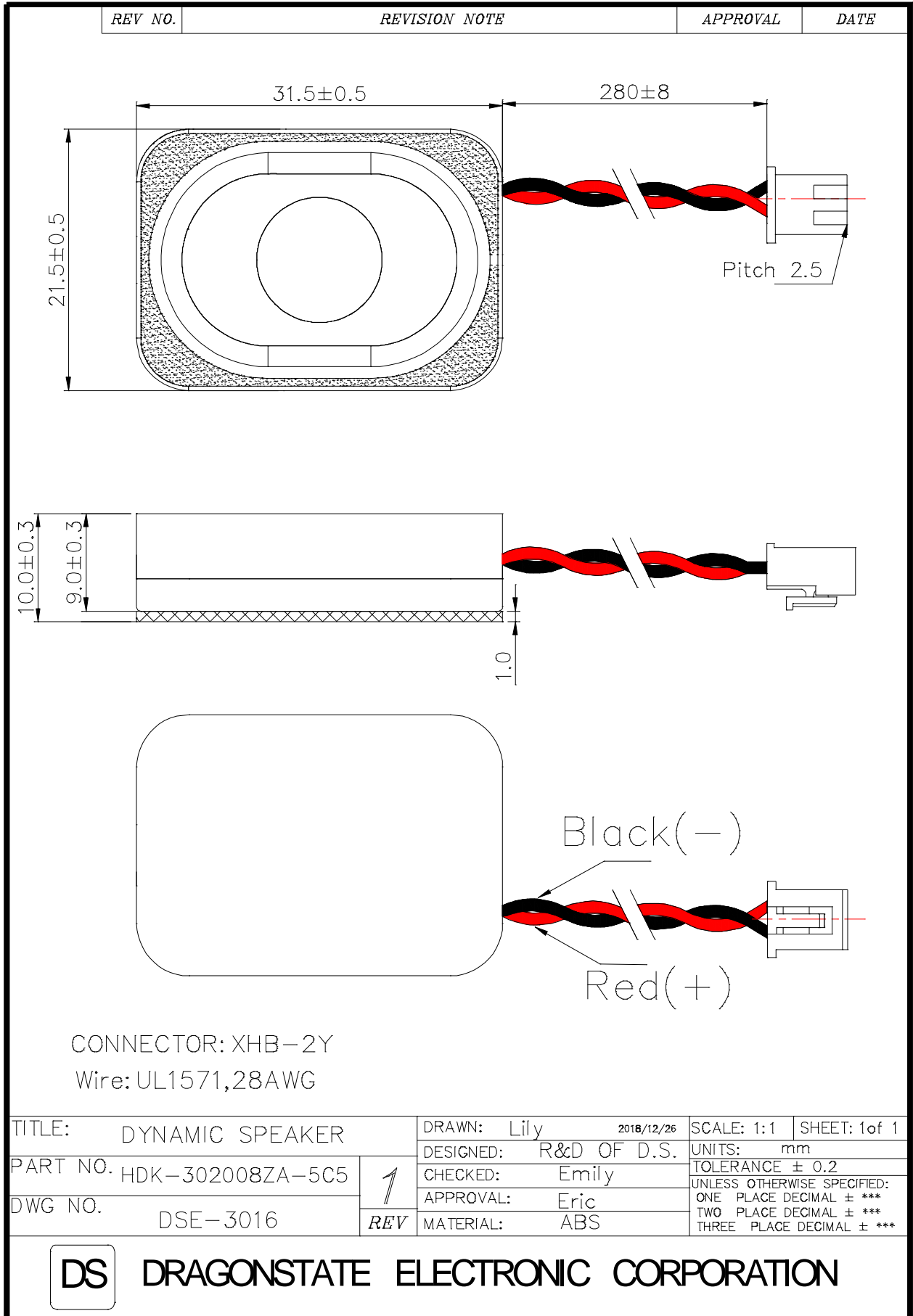
### 2-3. Frequency Response Curve



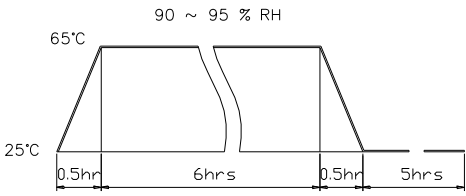
Mode: SPEAKER



### 3. Dimension



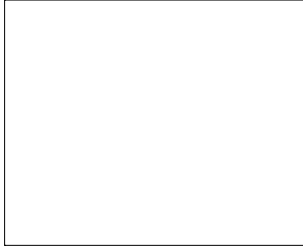
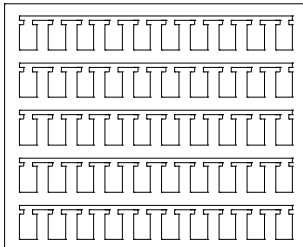
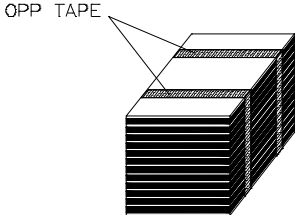
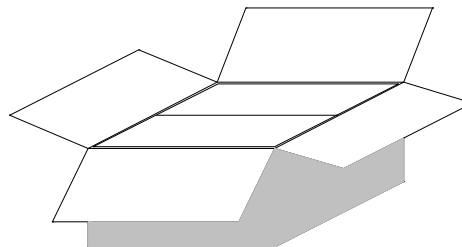

#### 4. Reliability Tests

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	$10 \sim 200 \sim 10\text{Hz}$ 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.
<p><b>Criterion: After these test , the change of S.P.L shall be within <math>\pm 3</math> dB .</b></p>		

#### Soldering Condition

Recommend using constant branding iron in  $15 \sim 30\text{W}$ , 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; align-items: center; margin-bottom: 20px;">  <div style="margin-left: 20px;"> <p>Cover(350*285*5mm) Material: Paper</p> </div> </div> <div style="display: flex; align-items: center; margin-bottom: 20px;"> <div style="text-align: center; margin-right: 10px;">↓</div>  <div style="margin-left: 20px;"> <p>Box(350*285*20mm) 50pcs Material: Paper+Epe</p> </div> </div> <div style="display: flex; align-items: center; margin-bottom: 20px;"> <div style="text-align: center; margin-right: 10px;">↓</div>  <div style="margin-left: 20px;"> <p>Middle(320*220*120mm) 450pcs(9*50pcs) Material: Paper+Epe</p> </div> </div> <div style="display: flex; align-items: center; margin-bottom: 20px;"> <div style="text-align: center; margin-right: 10px;">↓</div>  <div style="margin-left: 20px;"> <p>Outer Box(590*390*405mm) 1800pcs(4*450pcs) Material: Paper</p> </div> </div> <div style="text-align: right; margin-top: 20px;"> <p>单位: mm</p> </div>		
<p>TITLE: packing</p>		<p>DRAWN: Lily      2016/08/16</p>	<p>SCALE: 2:1      SHEET: 1 of 1</p>
<p>PART NO.</p>		<p>DESIGNED: R&amp;D OF D.S.</p>	<p>UNITS: mm</p>
<p>DWG NO.</p>		<p>CHECKED: Emily</p>	<p>TOLERANCE</p>
		<p>APPROVAL: Eric</p>	<p>20~11      ± 0.3</p>
<p>REV 1</p>		<p>MATERIAL: ***</p>	<p>10~5      ± 0.2</p>
			<p>&lt;4      ± 0.1</p>
 <p><b>DRAGONSTATE ELECTRONIC CORPORATION</b></p>			

