

**MESSRS.**  

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**SPECIFICATION FOR APPROVAL****承 認 書**

<b>Product</b>	<b>DYNAMIC SPEAKER</b>
<b>Part No.</b>	<b>HDK-150806ZA-1P (RoHS)</b>
<b>Customer</b>	
<b>Customer Part No.</b>	

<b>Approved By</b>	<b>Checked By</b>	<b>Made By</b>
王台平 AUG-18-2016	曹丽萍 AUG-18-2016	LILY AUG-18-2016

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**1. Specification**
**HDK-150806ZA-1P (RoHS)**

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 15*8 mm
03	Rated Input Power	0.7W In 1cc Box
04	Max. Input Power	1.0W In 1cc Box For 1 Minute
05	Impedance	6 ohm $\pm$ 15% at 2000Hz.
06	Resonance Frequency (Fo)	700Hz $\pm$ 20% at In 1Free Air
	Resonance Frequency (Fo)	950 Hz $\pm$ 20% at In 1cc Box
07	Sensitivity (S.P.L.)	82 $\pm$ 3 dB SPL /1.0V/10CM at 2000Hz in 1cc box
08	Frequency Range	Fo – 20KHz
09	Dustproof and waterproof	IP67 ( 1 Meters 30 Minutes )
10	Total Harmonics Distortion	Max 10% at 1 KHz,0.7W.
11	Weight	1.0g $\pm$ 5%g
12	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.
13	Operation Test	Must be normal at program source – 0.7W
14	Buzz, Rattle, etc.	Must be normal at sine wave 0.89Vrms (in free air) /2.0Vrms(in 1.0cc box) from 300~10KHz
15	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.
16	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
17	Temperature	Operating temperature: -30 $^{\circ}$ C to +70 $^{\circ}$ C Storage temperature: -40 $^{\circ}$ C to +85 $^{\circ}$ 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

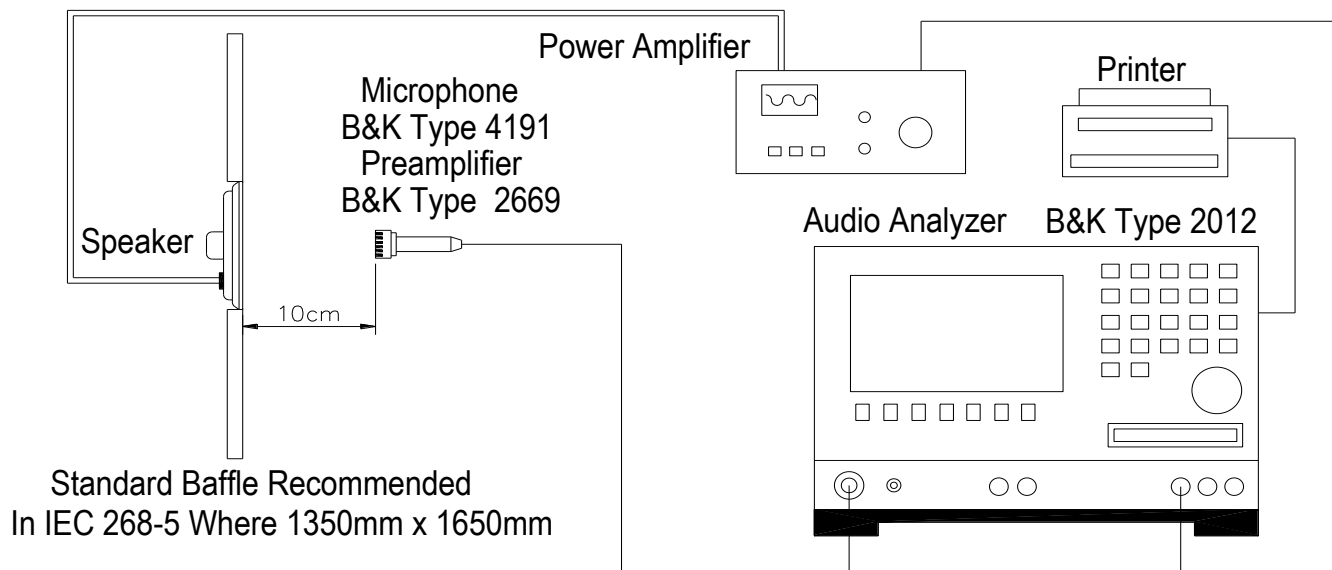
1.Input Power : 0.1W ( 0.89V )

2.Zero Level : -dB

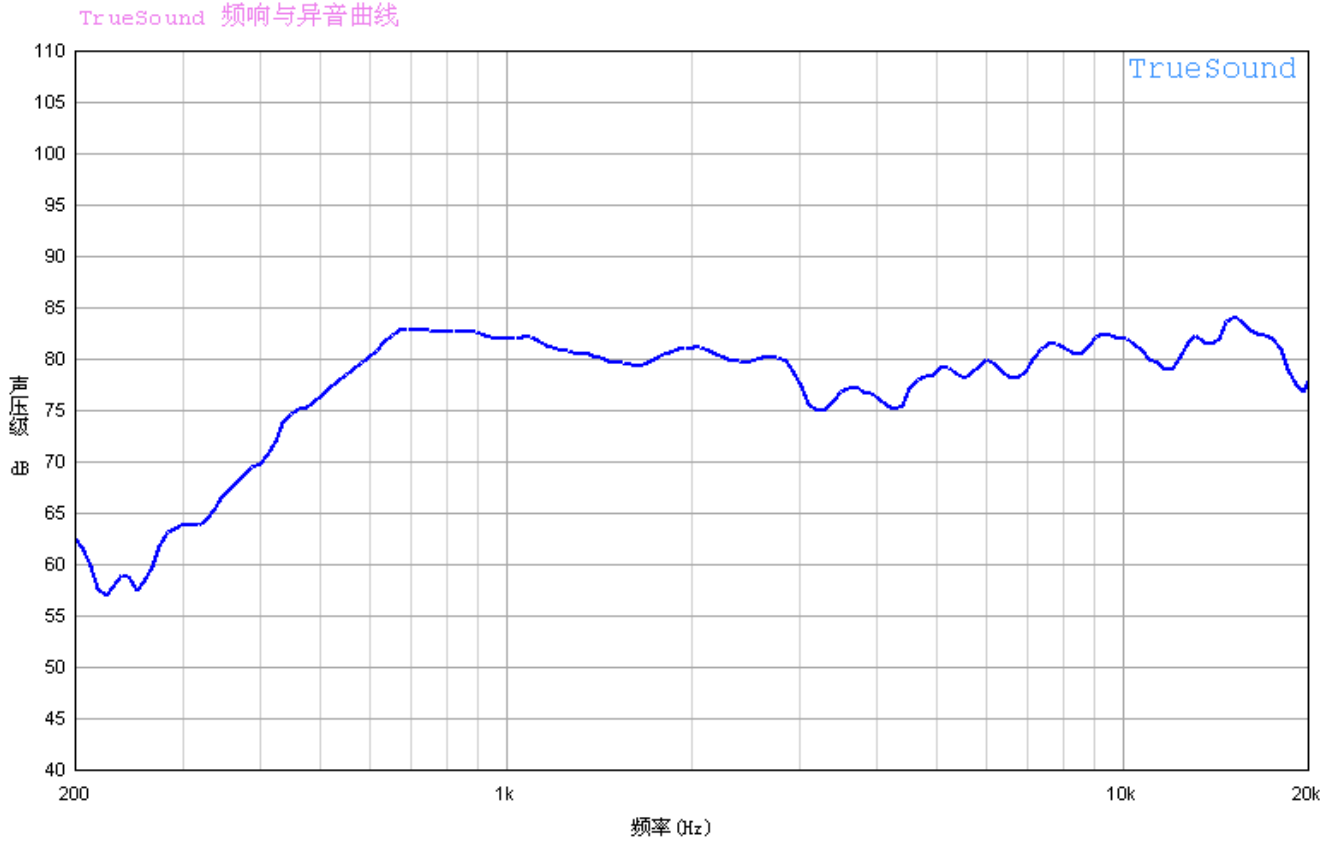
3.Mode : SPEAKER

4.potentiometer Range : 50dB

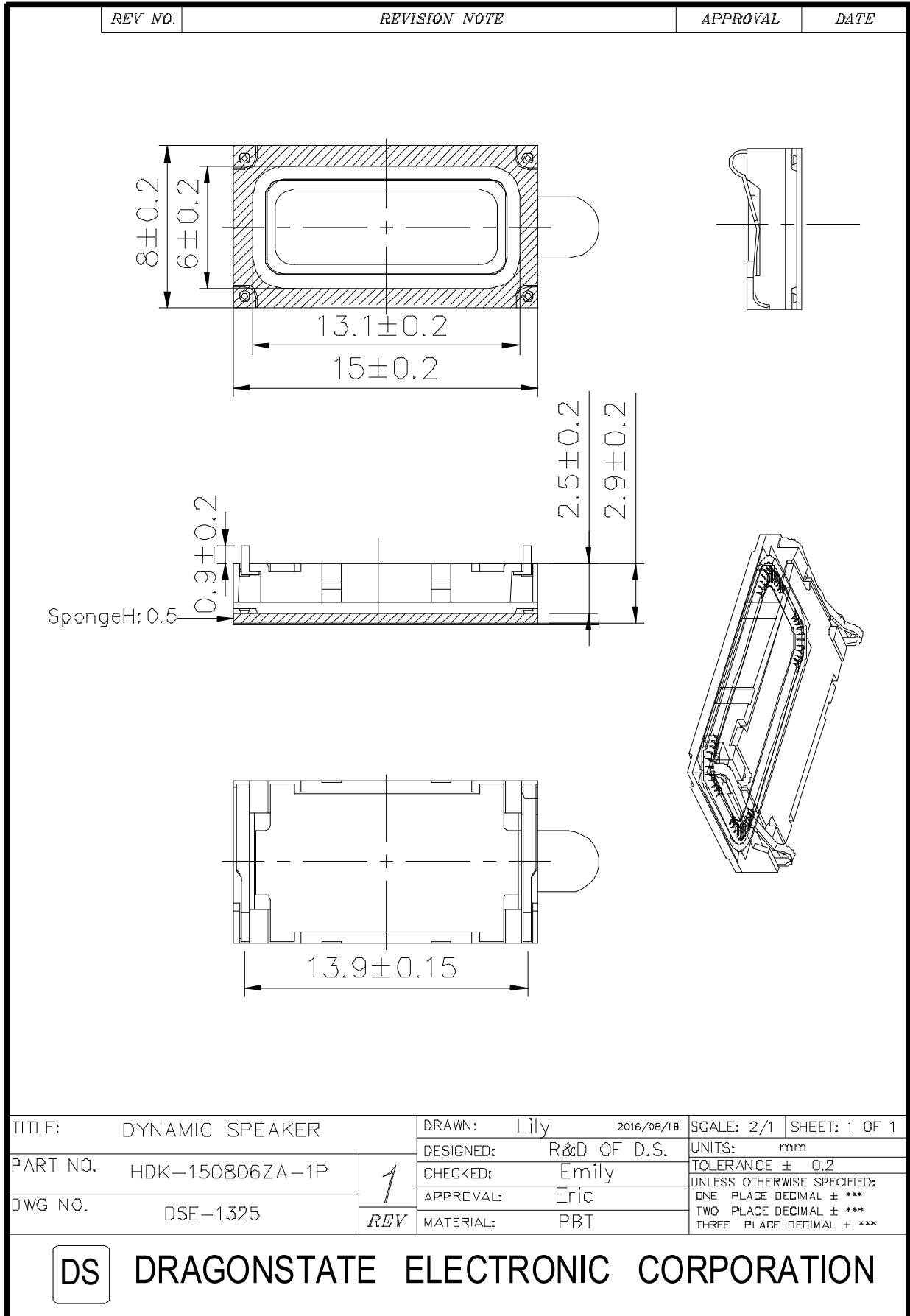
5.Sweep Time : 0.5sec



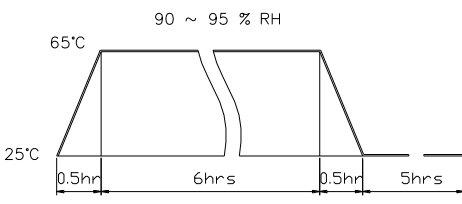
### 2-3. Frequency Response Curve



### 3. Dimension



## 4. Reliability Test

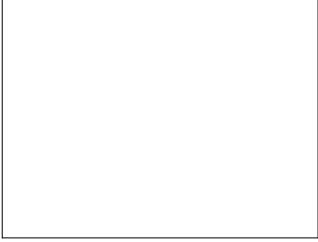
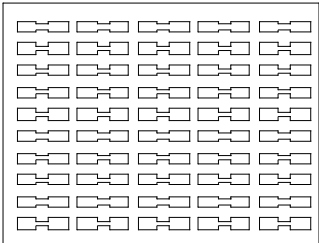
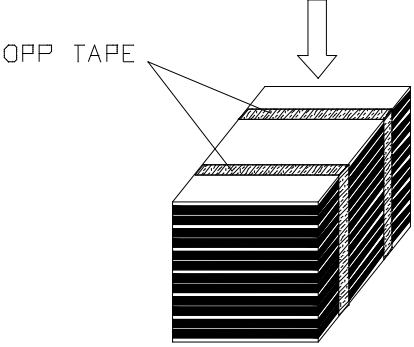
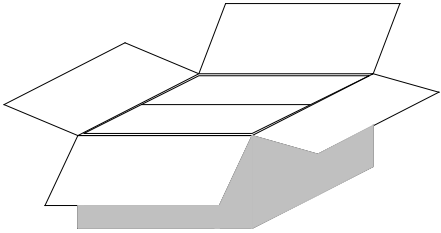
Items.		Specifications
01	<b>High temp. Test</b>	Keep 96 hours at $+85^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	<b>Low temp. Test</b>	Keep 96 hours at $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	<b>Humidity test</b>	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	<b>Temp./Humidity cycle</b>	<p>The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of;</p> 
05	<b>Thermal cycle test.</b>	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	<b>Vibration</b>	10~200~10Hz sin-wave sweep 15min. 5G(constant) X, Y, Z 3 direction. 2 hours each, total 6 hours.
07	<b>Fix drop test</b>	Fix on jig. Then drop from 152cm height to the concrete floor X, y, z 6 direction. 5 times each, total 30 times.
08	<b>Free drop test</b>	Free drop from 100cm height to the concrete floor X, y, z 6 direction. 1 times each, total 6 times.
09	<b>Rated Power test</b>	Rated Power white noise is applied for 96 hours In 1cc Box
10	<b>Max Power test</b>	Max power 1 min on – 2 min off 10 cycles.
11	<b>Terminal strength test</b>	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
12	<b>Protection against liquids</b>	Protected against 30 Minutes of immersion under 1M pressure
<p><b>Criterion:</b></p> <p>After these test , the change of S.P.L shall be within <math>\pm 3</math> dB .</p>		

### 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(290*225*3mm) Material: Paper	
	↓		
			
		Box(290*225*10mm) 100pcs Material: Paper+Epe	
	↓		
			
		Middle(290*225*135mm) 1000pcs(10*100pcs) Material: Paper+Epe	
	↓		
			
		Outer Box(515*320*280mm) 4000pcs(4*1000pcs) Material: Paper	
單位：mm			
TITLE: Packing		DRAWN: Lily	2016/08/18
PART NO.		DESIGNED: R&D OF D.S.	SCALE: 2:1
DWC NO.		CHECKED: Emily	SHEET: 1 of 1
<div style="border: 1px solid black; padding: 5px; display: inline-block;">1</div> REV		APPROVAL: Eric	UNITS: mm
		MATERIAL:	TOLERANCE
		<4	20~11 ± 0.3
			10~5 ± 0.2
			<4 ± 0.1
<div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 10px;">DS</div> <b>DRAGONSTATE ELECTRONIC CORPORATION</b>			