

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

Product	WATERPROOF TYPE SPEAKER
Part No.	HDK-160906ZA-2P1 (RoHS)
Customer Approval	
Customer Part No.	DF34

Approved By	Checked By	Made By
王台平 APR-18-2017	曹丽萍 APR-18-2017	LILY APR-18-2017

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EDITION:1.1

1. Specification

HDK-160906ZA-2P1 (RoHS)

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 16*9 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% (in free air)
	Resonance Frequency (Fo)	950Hz \pm 20% (in 1cc box)
07	Sensitivity (S.P.L.)	90 \pm 3 dB /0.7W/0.1m at 1.0KHz in 1cc box
08	Frequency Range	Fo – 20KHz
09	Dustproof and waterproof	IP67
10	Total Harmonics Distortion	Max 5% at 1 KHz,0.7W.
11	Weight	1.4g \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 200~10KHz
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°C to +70°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

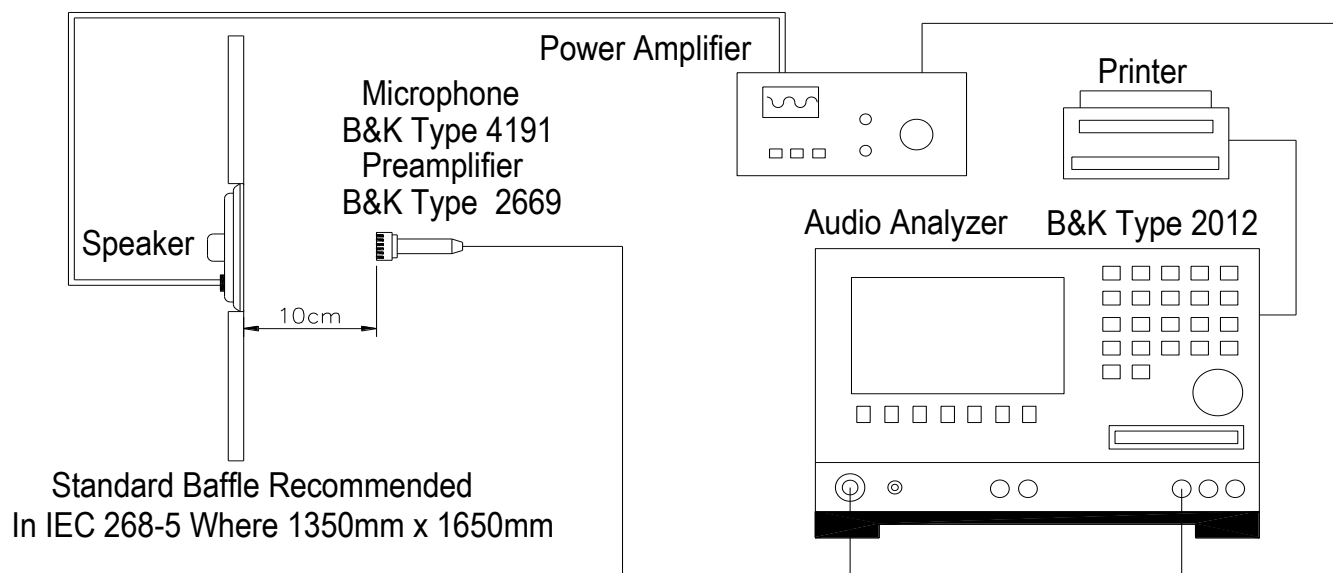
1. Input Power : 0.7W (2.0V)

2. Zero Level : -dB

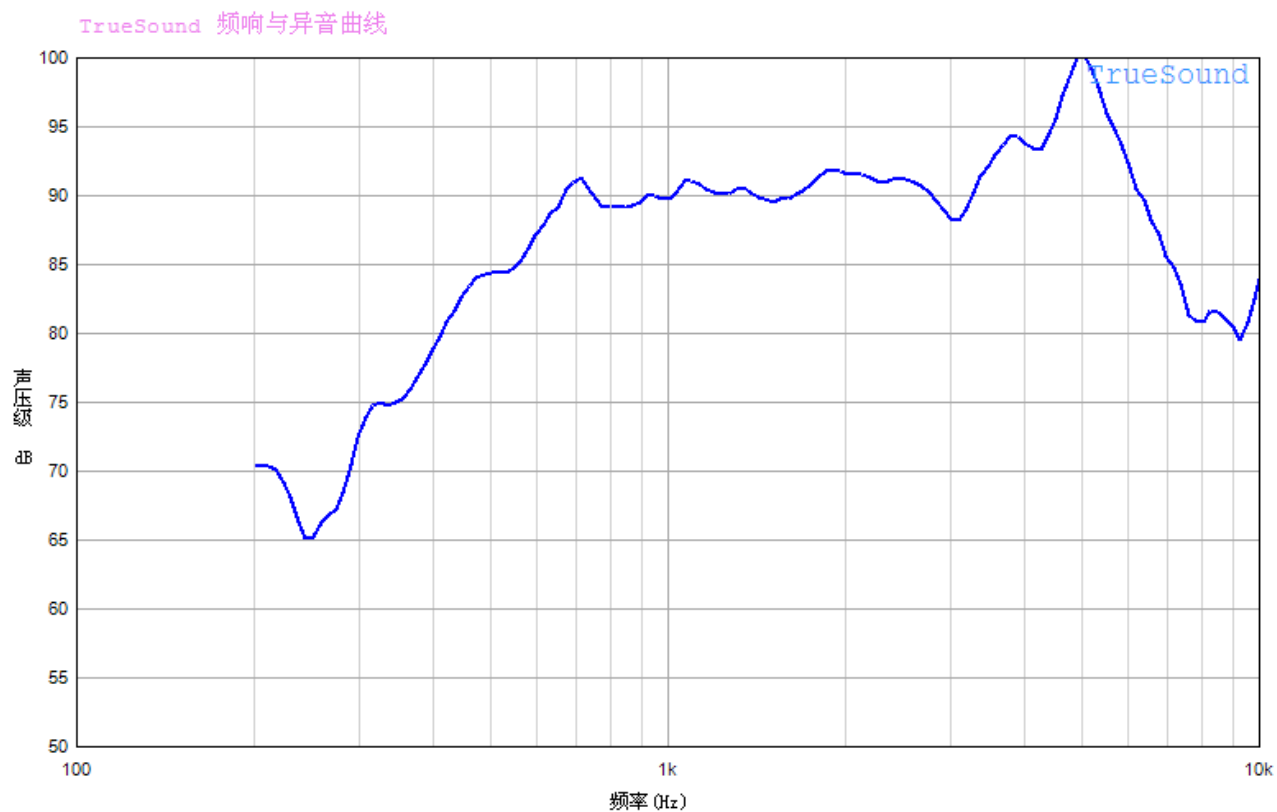
3. Mode : SPEAKER

4. potentiometer Range : 50dB

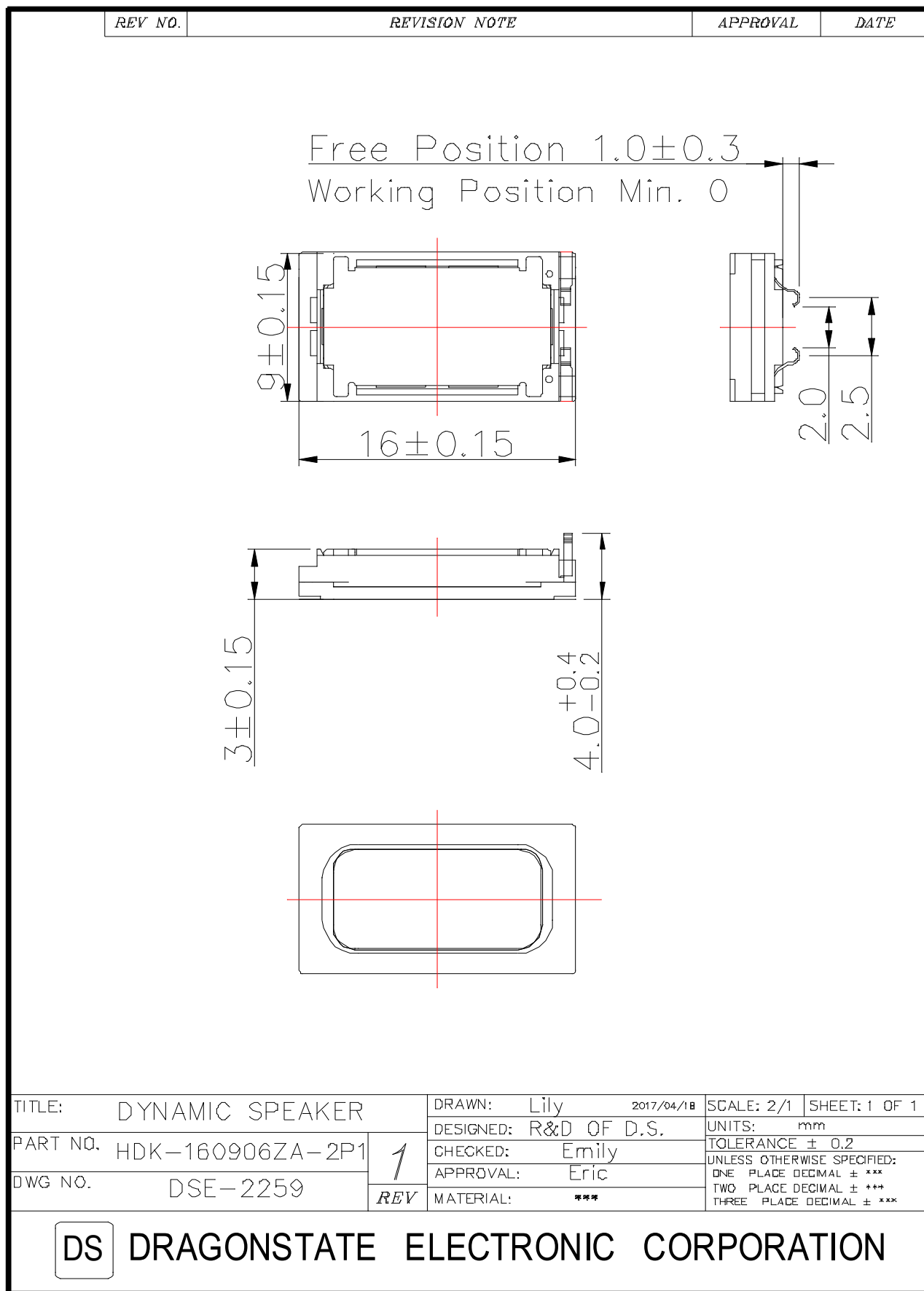
5. Sweep Time : 0.5sec



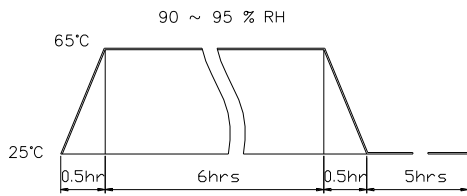
2-3.Frequency Response Curve



3.Dimension




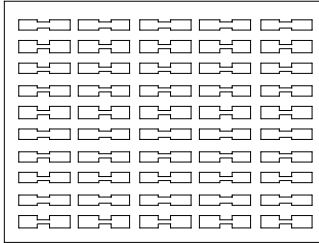
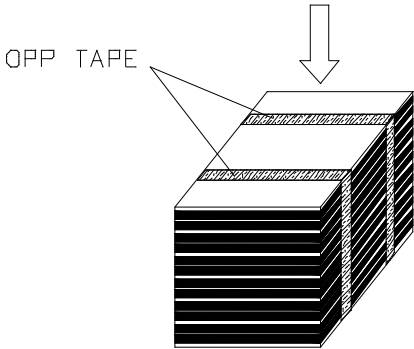
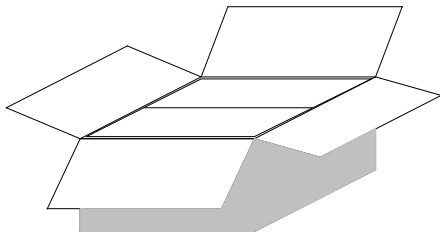
4. Reliability Test

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 In 1cc Box
10	Max Power test	Max power 1 min on – 2 min off 10 cycles.
11	Terminal strength test	Capable of withstand 1.0kg load for 15 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
	 <p>Cover(290*225*3mm) Material: Paper</p>		
	 <p>Box(290*225*10mm) 100pcs Material: Paper+Epe</p>		
	 <p>Middle(290*225*135mm) 1000pcs(10*100pcs) Material: Paper+Epe</p>		
	 <p>Outer Box(515*320*280mm) 4000pcs(4*1000pcs) Material: Paper</p>		
单位: mm			
TITLE: Packing		DRAWN: Lily 2012/10/17	
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		UNITS: mm	
		TOLERANCE	
		20~11	± 0.3
		10~5	± 0.2
		<4	± 0.1
<div style="border: 1px solid black; padding: 5px; display: inline-block;">DS</div> DRAGONSTATE ELECTRONIC CORPORATION			