

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

<b>Product</b>	<b>WATERPROOF TYPE SPEAKER</b>
<b>Part No.</b>	<b>HDK-302008CA-11C3(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-31-2021	曹丽萍 AUG-31-2021	LILY AUG-31-2021

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EDITION:1.1

## 1.Specification

HDK-302008CA-11C3 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 30×20 mm	
03	Rated Input Power	1.0W	
04	Max. Input Power	1.2W for 1 minute	
05	Impedance	8 ohm ± 15% at 1500Hz.	
06	Resonance Frequency (Fo)	750Hz ± 20% at Fo, 1V	
07	Sensitivity (S.P.L.)	95dB(1.0W/0.1m) ± 3 dB	at AVE 0.8 ,1.0 ,1.2,1.5KHz.
08	Frequency Range	Fo – 20KHz	
09	Dustproof and Waterproof	IP67	
10	Total Harmonics Distortion	Max 8 % at 1 KHz,1.0W.	
11	Voice Coil	Diameter 11.8 mm	
12	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ11.2 x1.7mm	
13	Weight	3.0g ± 0.2g	
14	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.	
15	Operation Test	Must be normal at program source – 1.0W	
16	Buzz, Rattle, etc.	Should not be audible at 2.83V sine Wave between Fo to 20KHz	
17	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.	
18	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.	
19	Temperature	Operating temperature: -20℃ to +60℃ Storage temperature: -30℃ to +70℃	

## 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

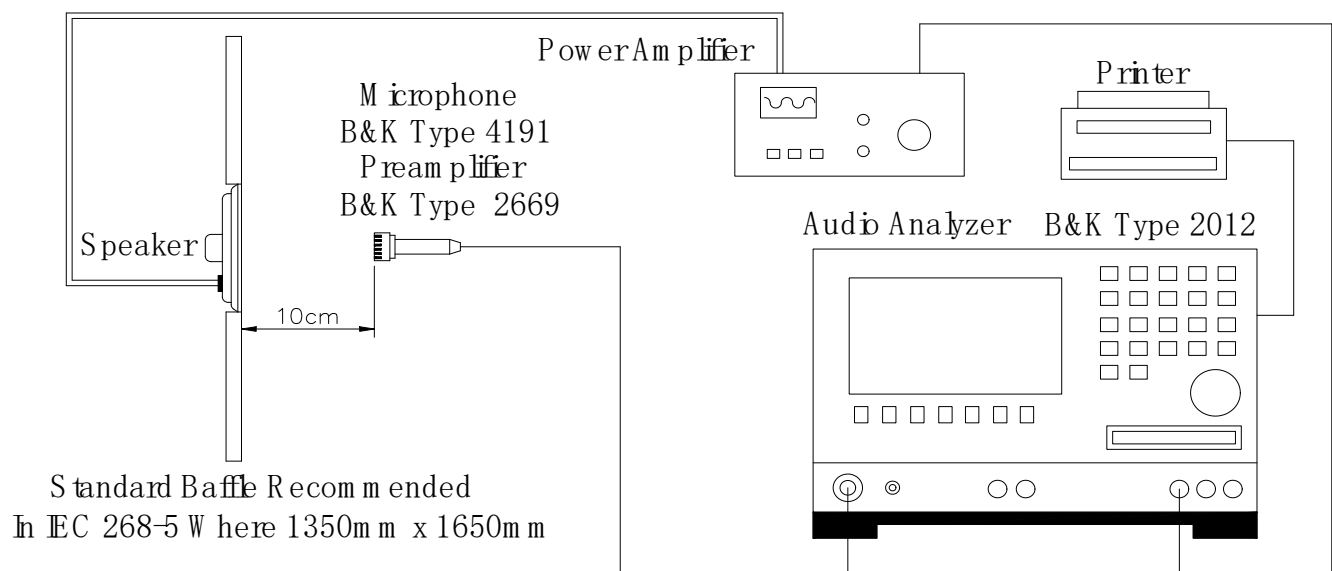
1. Input Power : 1.0W ( 2.83V )

2. Zero Level : -dB

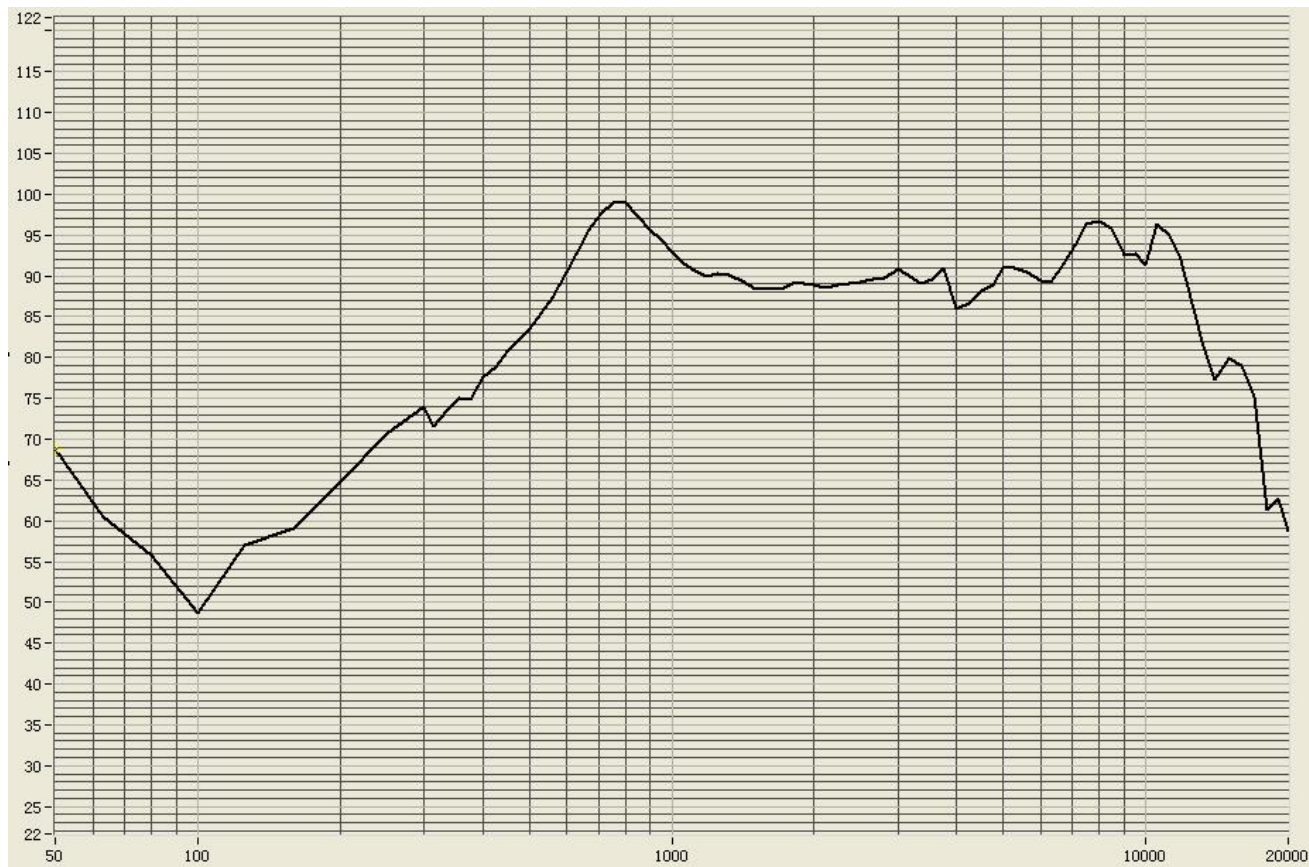
3. Mode : SPEAKER

4. potentiometer Range : 50dB

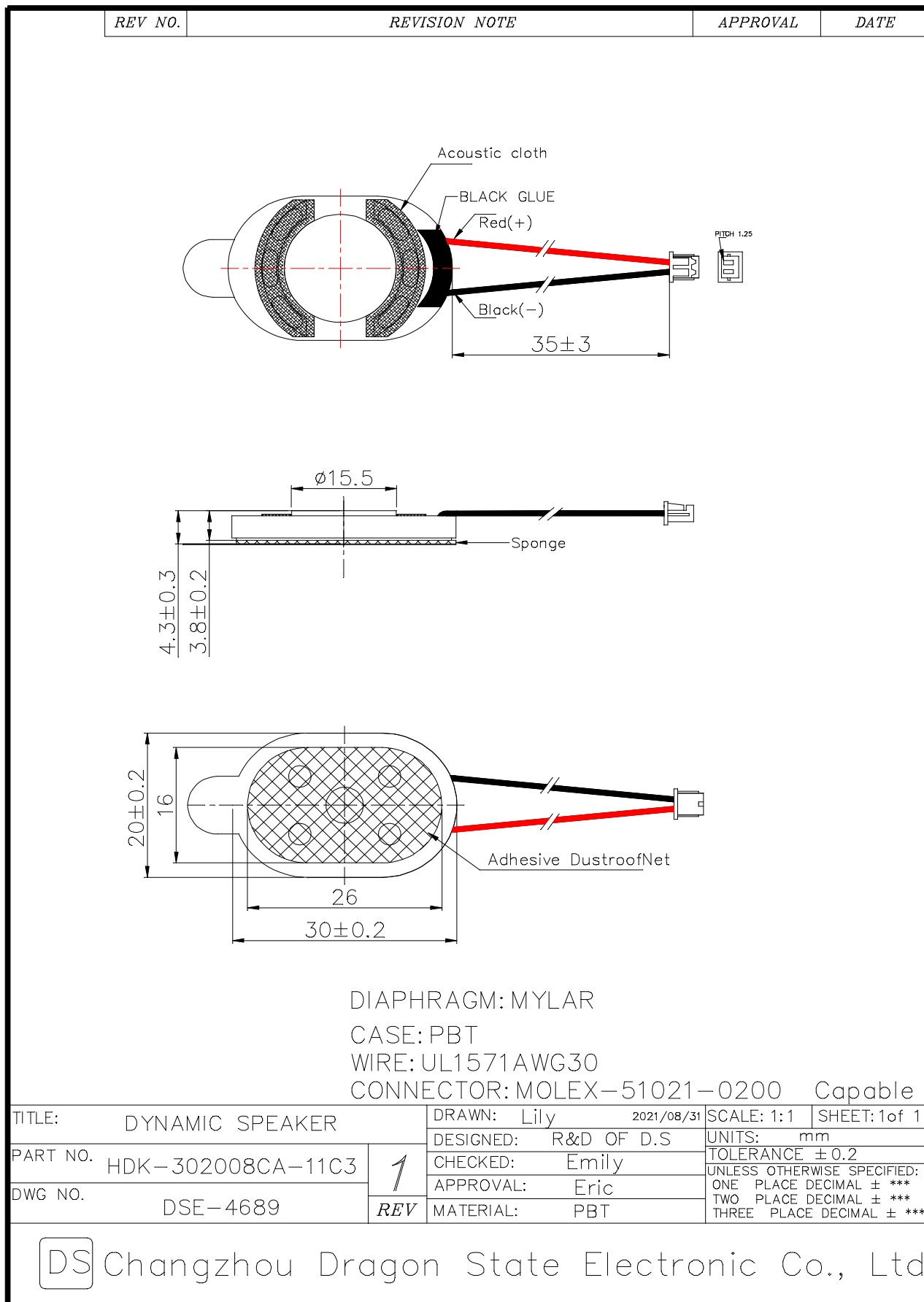
5. Sweep Time : 0.5sec



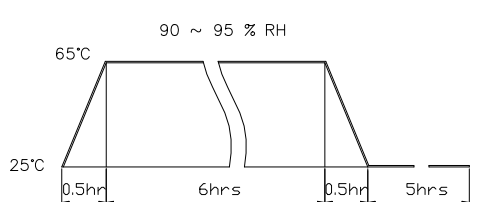
## 2-3. Frequency Response Curve



### 3.Dimension



## 4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C}\pm 3^{\circ}\text{C}$ 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	10~200~10Hz 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 Pink 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.
12	Protection against liquids	Protected against 30 mins of immersion under 1M pressure product without leakage
<b>Criterion: After these test , the change of S.P.L shall be within <math>\pm 3</math> dB .</b>		

## 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.