

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

Product	DYNAMIC SPEAKER
Part No.	HDK-4004BB-BOX5 (RoHS)
Customer	添可
Customer Part No.	Speaker

Approved By	Checked By	Made By
王台平 2022. 3. 10	曹丽萍 2022. 3. 10	LILY 2022. 3. 10

常州华龙电子有限公司

DRAGONSTATE ELECTRONIC CORPORATION

中国江苏省常州市新区电子园新四路 36 号

Tel: +86-519-85110078. 86-519-85106698, Fax: +86-519-85101081

1. SPECIFICATION
HDK-4004BB-BOX5 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 58.99*49.94(mm)	
03	Rated Input Power	2.0W	
04	Max. Input Power	3.0W for 1 minute	
05	Impedance	4 ohm \pm 20% at 1500Hz.	
06	Resonance Frequency (Fo)	450Hz \pm 20% at Fo, 2.83V	
07	Sensitivity (S.P.L.)	105dB(2.0W/0.1m) \pm 3 dB	at AVE0.6K, 0.8K, 1.0K, 1.5KHz.
08	Frequency Range	Fo - 20KHz	
09	Total Harmonics Distortion	Max 8 % at 1 KHz, 2.0W.	
10	Weight	25.5g \pm 0.2g	
11	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.	
12	Operation Test	Must be normal at program source - 2.0W	
13	Buzz, Rattle, etc.	Should not be audible at 2.83V sine Wave between Fo to 20KHz	
14	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.	
15	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.	
16	Temperature	Operating temperature: -20°C to +60°C Storage temperature: -30°C to +70°C	

Test Condition

STANDARD

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

BASIC

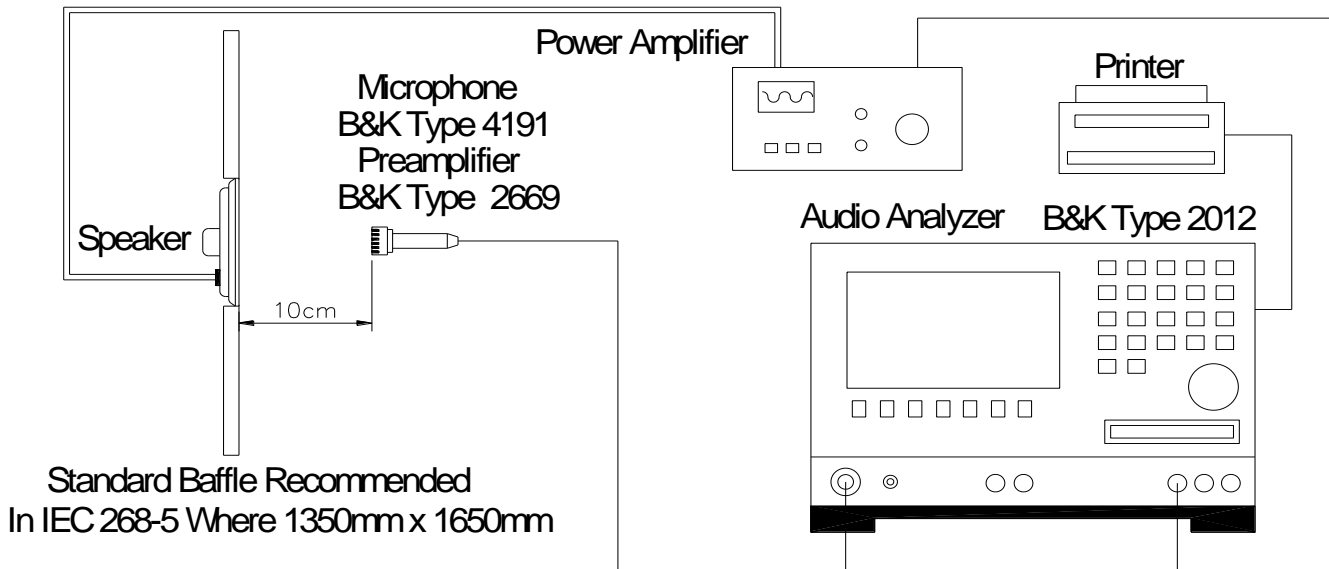
Temperature : 20±3°C

Relative humidity : 60% ~ 70%,

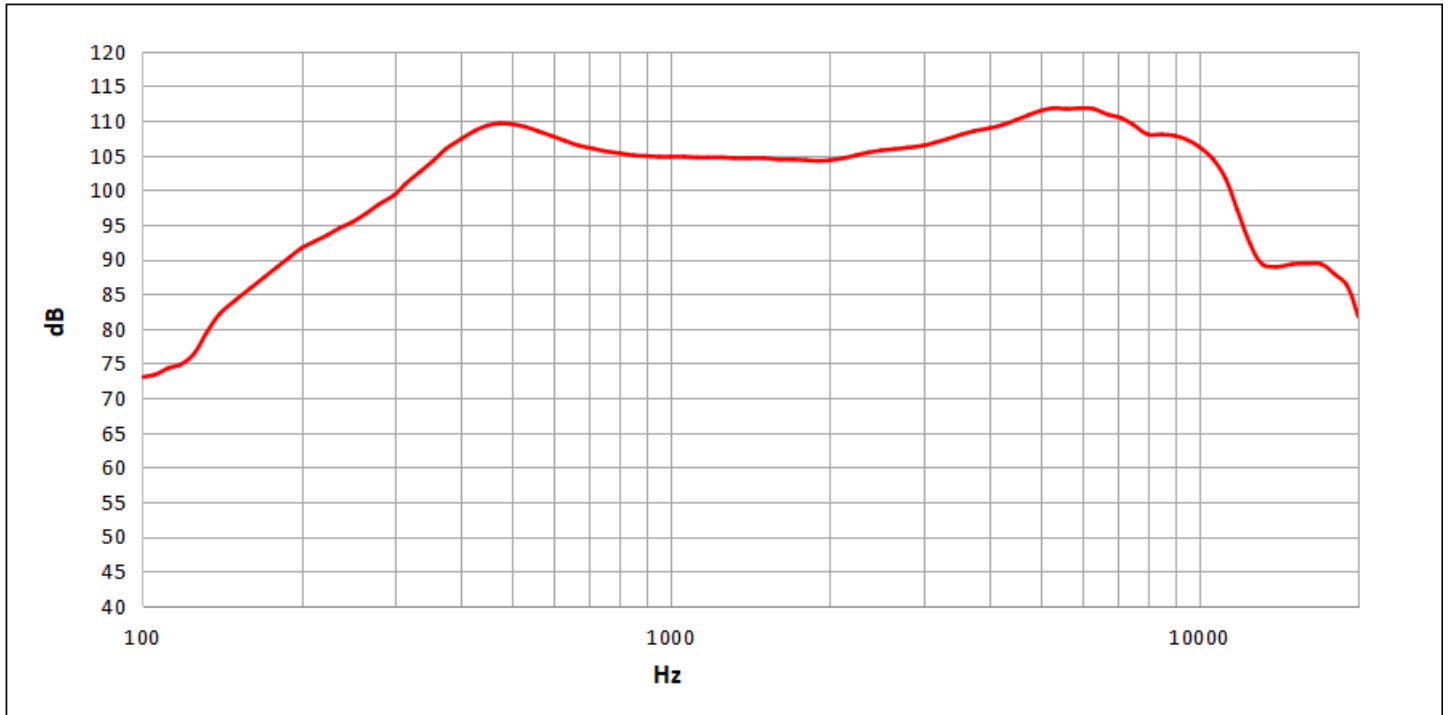
Atmospheric pressure : 860mbar to 1060mbar

Standard Test Fixture

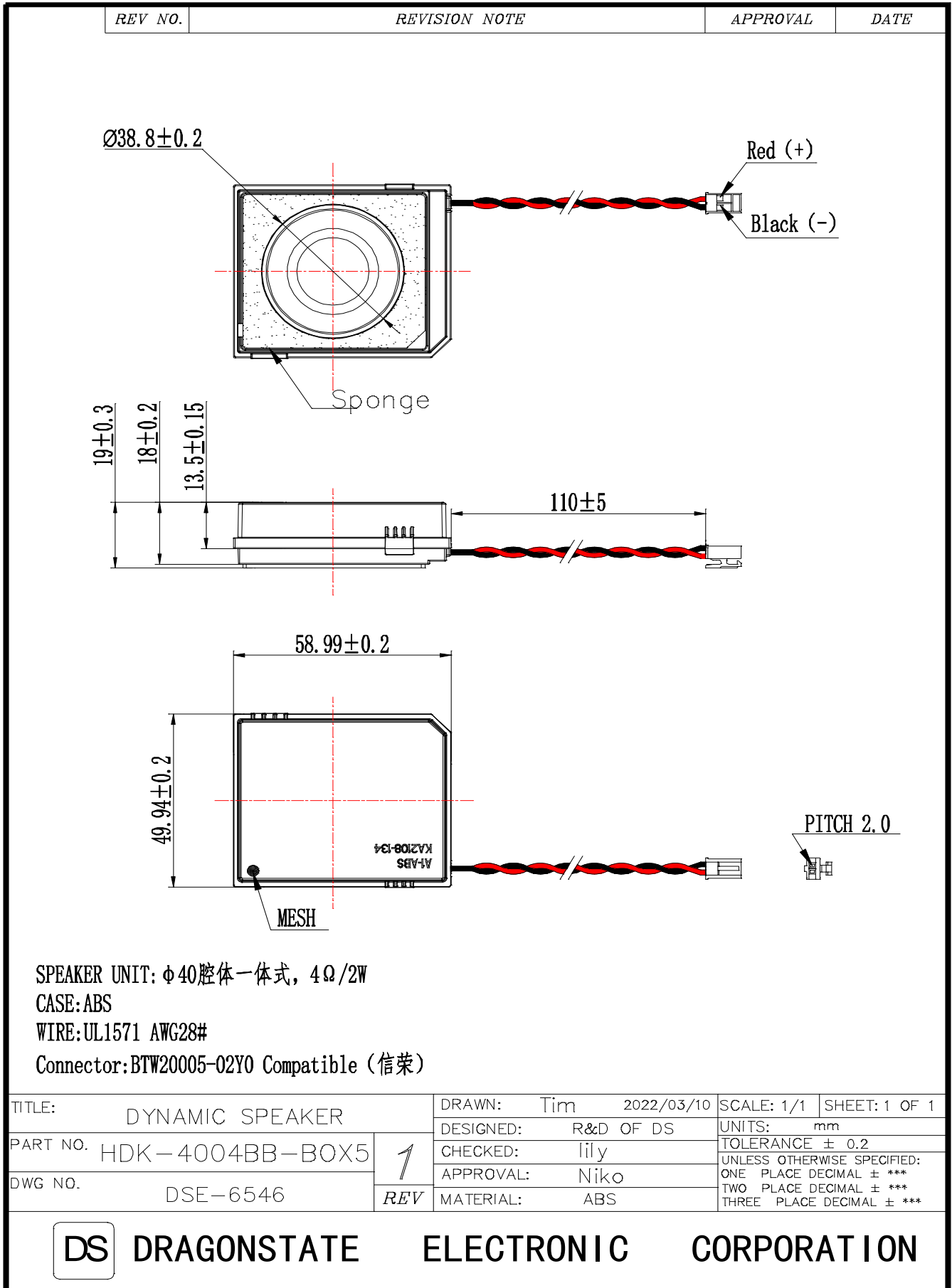
1. Input Power : 2.0W (2.83V)
2. Zero Level : -dB
3. Mode : SPEAKER
4. potentiometer Range : 50dB
5. Sweep Time : 0.5sec



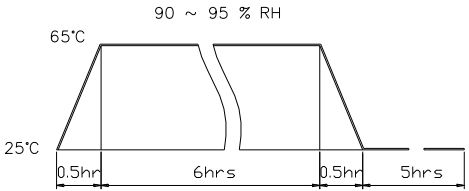
2. Frequency Response Curve



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 $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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: $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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.

Criterion: After these test , the change of S.P.L shall be within ± 3 dB .

SOLDERING CONDITION

Recommend using constant branding iron in $15 \sim 30\text{W}$, and in temperature range 350°C .
Soldering time not over 3 seconds.