

常州华龙电子有限公司

SPECIFICATION FOR APPROVAL

规格承认书

Customer 客户:	
Customer Part No. 客户型号:	
PART NO. 产品型号:	HDK-151008RA-4W1
FUNCTION. 产品功能	WATERPROOF TYPE SPEAKER
SPEC. NO. 规格书号:	DSS080-2019

Drawn by 制作	Checked by 审核	Approved by 批准	Customer approved 客户承认
Lily 2019-07-04	曹丽萍 2019-07-04	王台平 2019-07-04	

Our products meet the latest RoHS compliance

我司生产产品均符合欧盟 RoHS 最新要求



ISO 9001 Certified

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Approval 承認內容:

1. History change record 变更记录
2. Characteristics 技术参数
3. Typical Frequency Response Curve 频率曲线
4. Dimension 外观尺寸
5. Reliability Test 可靠性测试

1. History change record

Change Items	Date	Note	Drawn by	Checked by
	2019-07-04	First Issue	Lily	王台平 2019-07-04
支架更新有缺口	2019-12-30	Second Issue	Lily	王台平 2019-12-30

2. Characteristics

2.1 Electrical and Mechanical Characteristics

2.2. MEASURING METHOD

Test Condition

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 15*10 mm
03	Rated Input Power	0.3W (Long Time)
04	Max. Input Power	0.5W for 1 minute
05	Impedance	8 ohm $\pm$ 15% at 3500Hz.
06	Resonance Frequency (Fo)	Fo at 2300Hz $\pm$ 20% @ 1V
07	Sensitivity (S.P.L.)	90dB (0.3W / 0.1m) $\pm$ 3 dB at AVE, 2.5K, 3.0K, 4.0K, 5.0KHz.
08	Frequency Range	Fo - 20KHz
09	Total Harmonics Distortion	Max 8 % at 1 KHz, 0.3W.
10	Dustproof And Waterproof	IP68 (30 Minutes 8 Meters)
11	Voice Coil	Diameter 6.0mm
12	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ 5.5 x1.3mm
13	Weight	1.0g $\pm$ 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 - 0.3W
16	Buzz, Rattle, etc.	Should not be audible at 1.56V 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°C to +70°C Storage temperature: -30°C to +80°C

A. STANDARD

Temperature : 15 ~ 35°C

Relative humidity : 25% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

Atmospheric pressure : 860mbar to 1060mbar.

B. BASIC

Temperature : $20 \pm 3^{\circ}\text{C}$

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

C. Standard Test Fixture

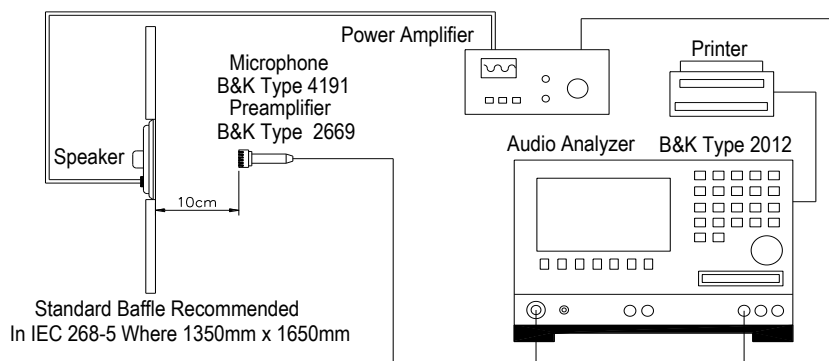
1. Input Power : 0.3W (1.56V)

2. Zero Level : -dB

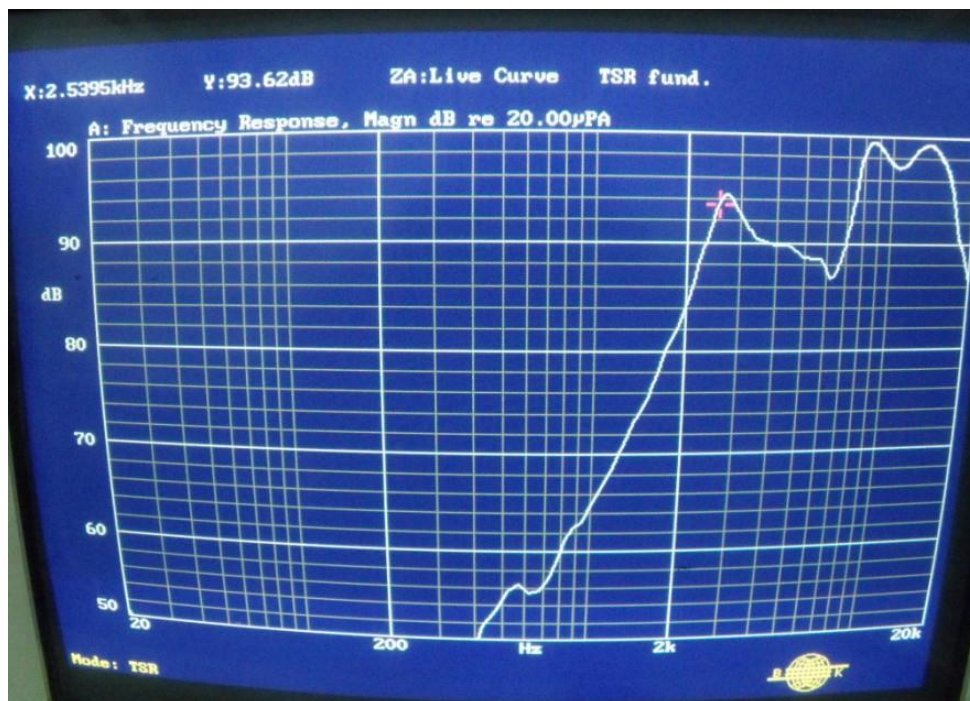
3. Mode : SPEAKER

4. potentiometer Range : 50dB

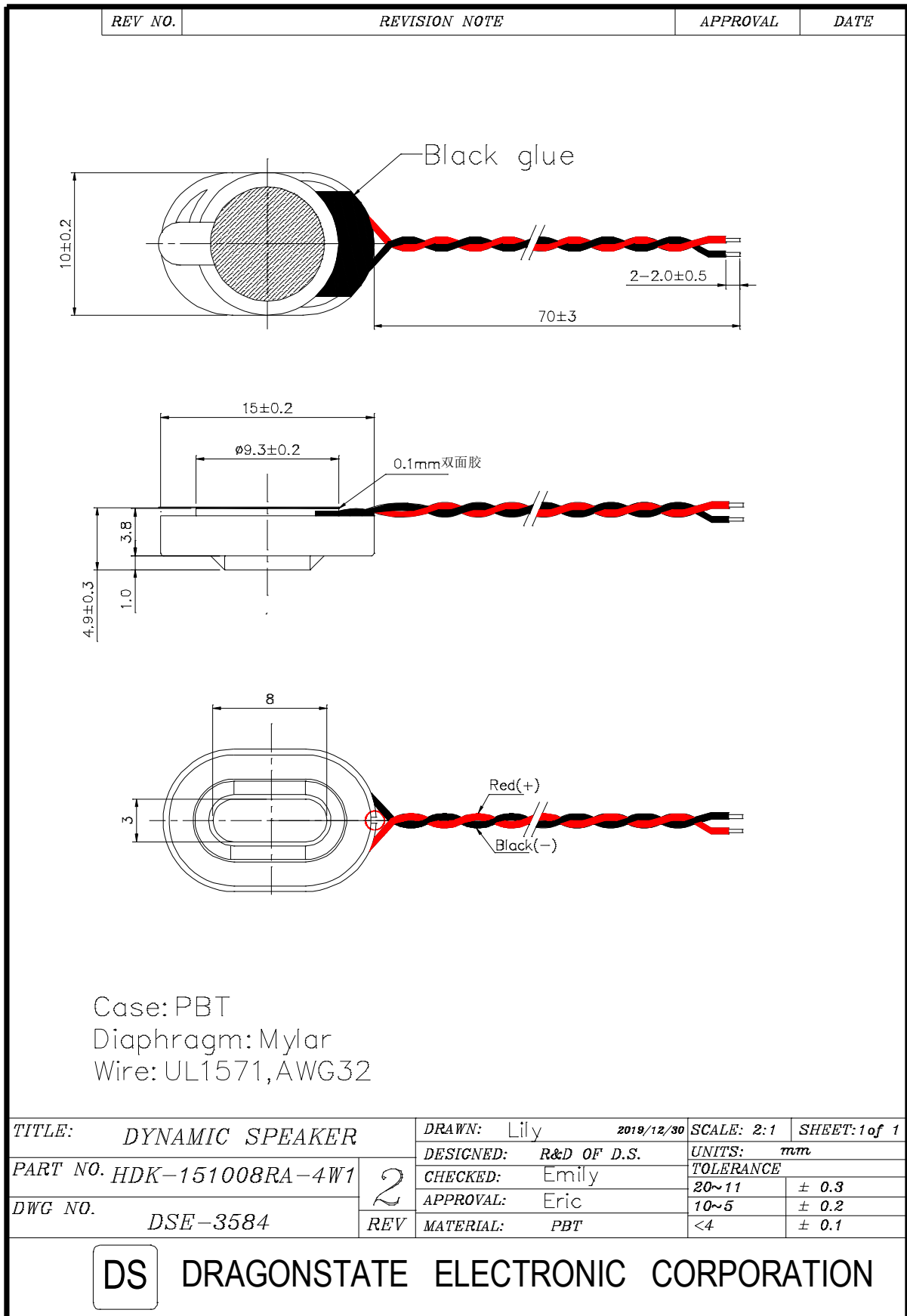
5. Sweep Time : 0.5sec



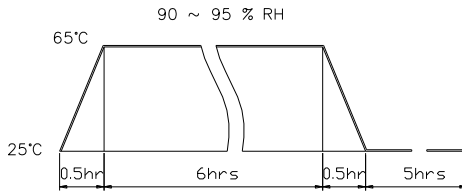
3. FrequencyResponse Curve



4. Dimension



5. Reliability test

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+80^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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	The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of; 
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 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.
12	Protection against liquids	Protected against 30 Minutes of immersion under 8M pressure Product without leakage
13	High impact test	Product loaded 165g, to be drop free into the water from the height of 3m.
Criterion: After these test , the change of S.P.L shall be within ± 3 dB .		

SOLDERING CONDITION

Recommend using branding iron at 30W, and at temperature range 350°C .

Soldering time not over 2 seconds.