

MESSRS.

SPECIFICATION FOR APPROVAL

承 認 书

Product	WATERPROOF TYPE SPEAKER
Part No.	HDK-241508EA-7C7 (RoHS)
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 FEB-24-2018	曹丽萍 FEB-24-2018	LILY FEB-24-2018

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EDITION:1.1

1. Specification

HDK-241508EA-7C7 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 24×15 mm	
03	Rated Input Power	1.2W	
04	Max. Input Power	1.5W for 1 minute	
05	Impedance	8 ohm $\pm$ 15% at 2000Hz 1.0V	
06	Resonance Frequency (Fo)	1050Hz $\pm$ 20% at Fo 1V	
07	Sensitivity (S.P.L.)	91dB (0.5W / 0.1m) $\pm$ 3 dB	at AVE 0.8K, 1.0K, 1.2K, 1.5KHz.
08	Frequency Range	Fo - 20KHz	
09	Dustproof and waterproof	IP67	
10	Total Harmonics Distortion	Max 8 % at 1 KHz, 1.2W.	
11	Voice Coil	Diameter 8.5 mm	
12	Magnet	Rare earth permanent (Nd-Fe-B) magnet Φ 8.0 x 1.0 mm	
13	Weight	2.3g $\pm$ 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 - 1.2W	
16	Buzz, Rattle, etc.	Should not be audible at 3.1V 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: -40°C to +70°C Storage temperature: -40°C to +70°C	

2. Measuring Method

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

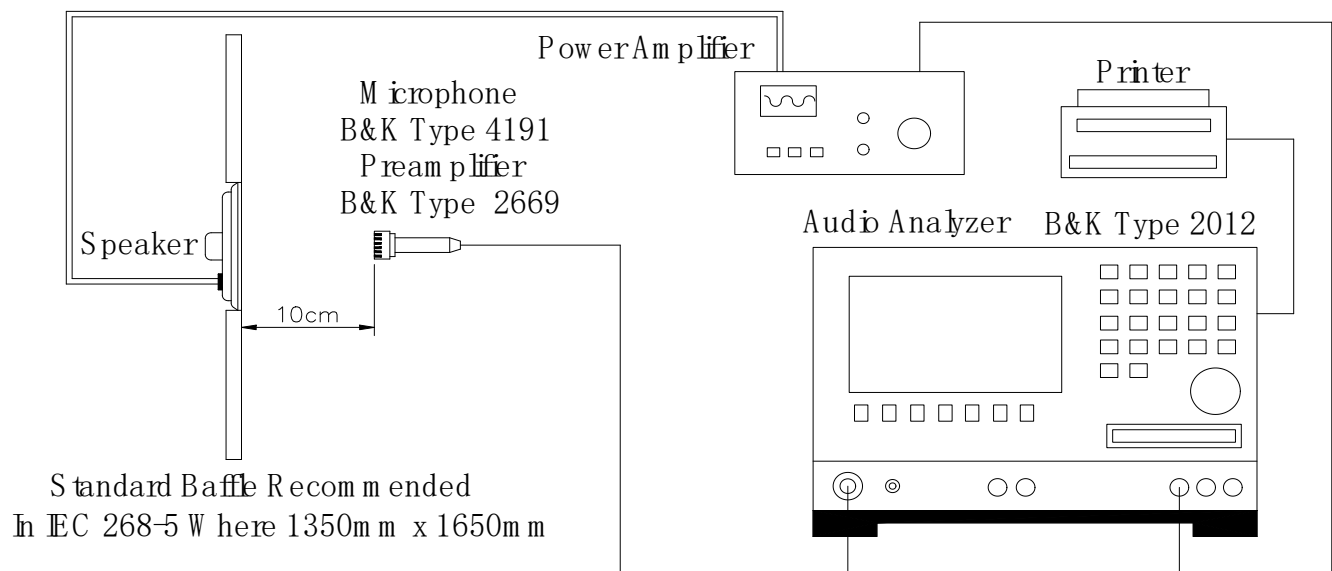
1. Input Power : 0.5W (2.0V)

2. Zero Level : -dB

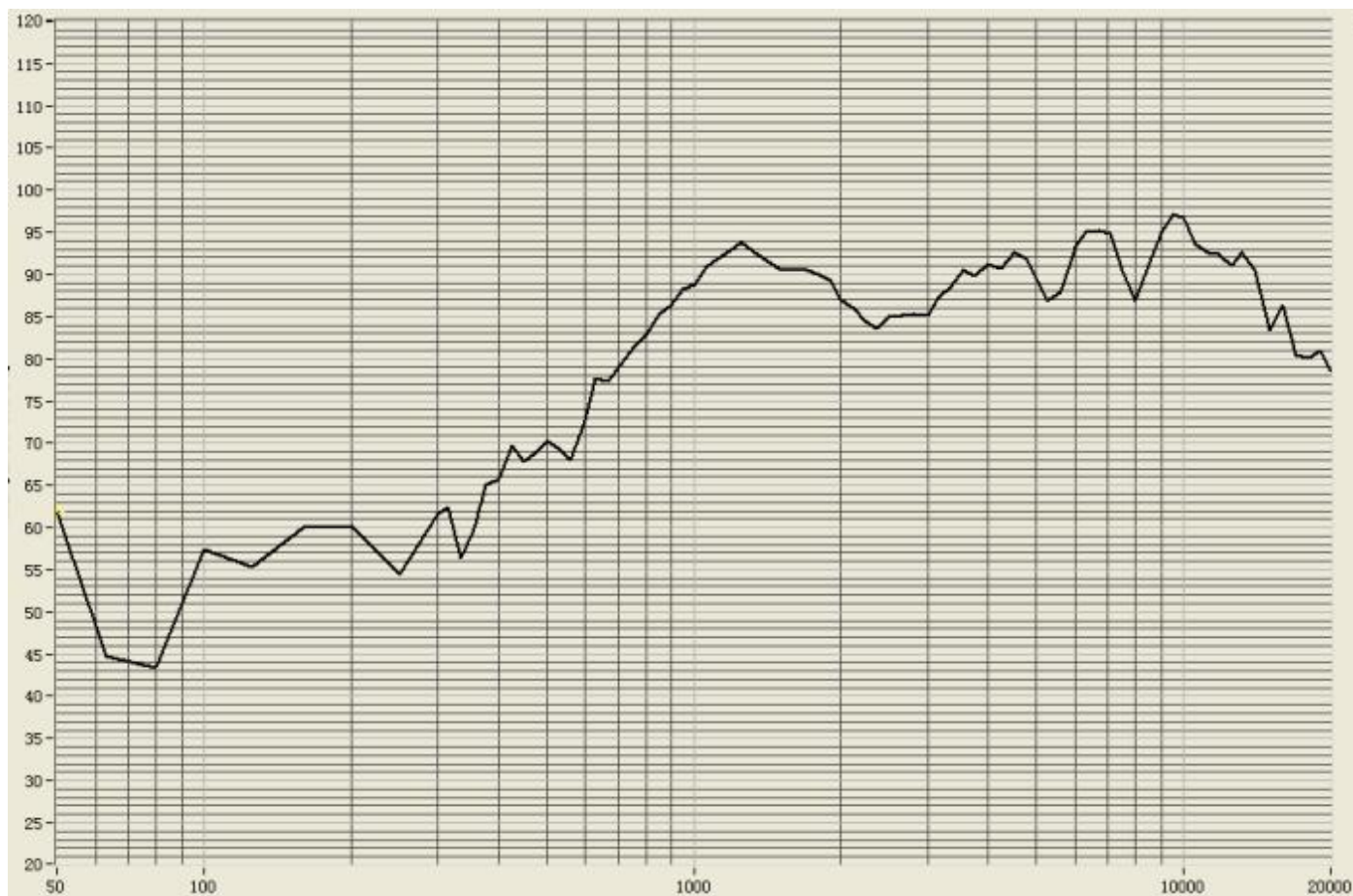
3. Mode : SPEAKER

4. potentiometer Range : 50dB

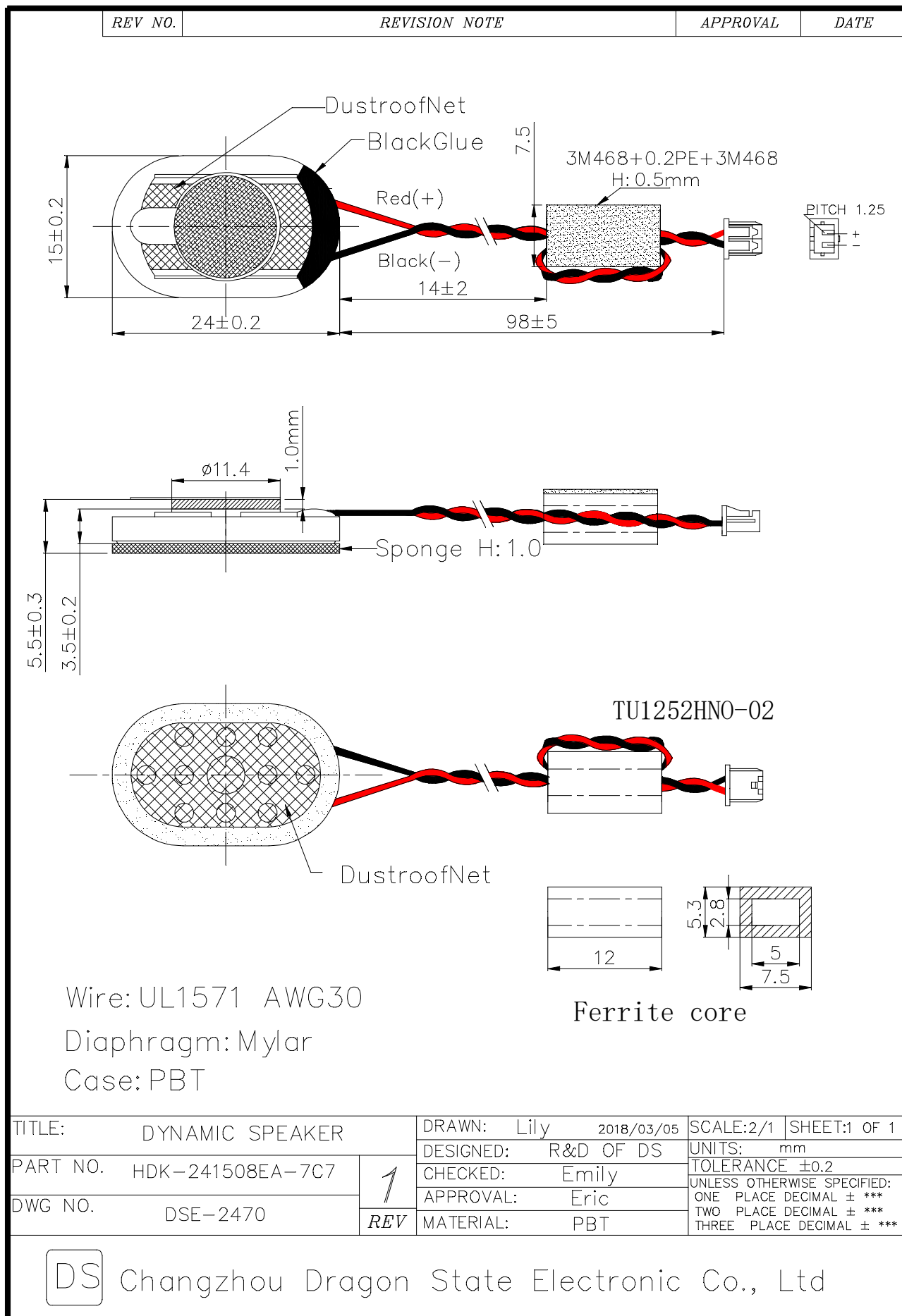
5. Sweep Time : 0.5sec



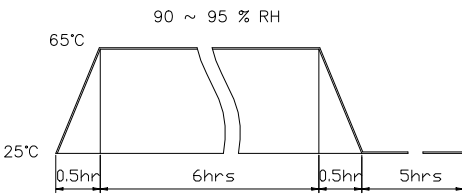
2.3 Frequency Response Curve



3. Dimension



4. Reliability Test

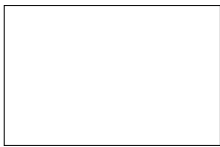
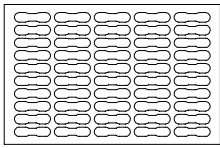
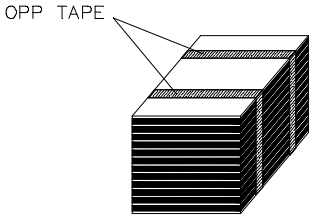
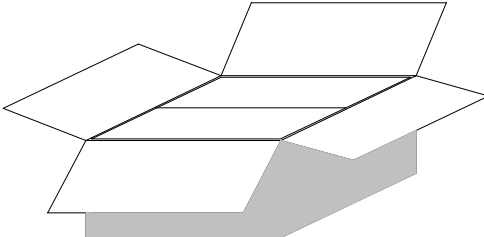
Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 96 hours at $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
03	Humidity 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	The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of; 
05	Thermal cycle test.	Low temperature: $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 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 2 hours of immersion under 3M pressure Product without leakage
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
 Cover(320*220*5mm) Material: Eps			
↓			
 Box(320*220*13.5mm) 100pcs Material: Eps			
↓			
 Middle(320*220*140mm) 1000pcs Material: Eps			
↓			
 Outer Box(360*270*280mm) 2000pcs Material: Paper			
单位: mm			
TITLE: packing		DRAWN: Lily 2015/4/23	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
		APPROVAL: Eric	
REV		MATERIAL: ***	
		SCALE: 2:1	
		SHEET: 1 of 1	
		UNITS: mm	
		TOLERANCE	
		20~11 ± 0.3	
		10~5 ± 0.2	
		<4 ± 0.1	
DS Changzhou Dragon State Electronic Co., Ltd			