

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

Product	DYNAMIC SPEAKER
Part No.	HDK-280908ZA-5C1 (RoHS)
Customer Approval	

Approved By	Checked By	Made By
王台平 NOV-12-2020	曹丽萍 NOV-12-2020	LILY NOV-12-2020

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EDITION:1.1

1.Specification

HDK-280908ZA-5C1 (RoHS)

ITEM		SPECIFICATIONS	
01	Type	Dynamic speaker	
02	Dimension	External diameter 28*09 mm	
03	Rated Input Power	1.0W (in 1CC box)	
04	Max. Input Power	1.5W (for 1 minute in 1CC box)	
05	Impedance	8 ohm $\pm$ 15% at 2000Hz.	
06	Resonance Frequency (Fo)	670Hz $\pm$ 20% at Fo, 1V in free air	
07	Sensitivity (S.P.L.)	93dB(1.0W/0.1m) $\pm$ 3 dB	at 2KHz
08	Frequency Range	Fo – 20KHz	
09	Dustproof and waterproof	IP67	
10	Total Harmonics Distortion	Max 10 % at 2 KHz,1.0W.	
11	Weight	2.2g $\pm$ 0.1g	
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 – 1.0W	
14	Buzz, Rattle, etc.	Should not be audible at 2.83V sine Wave between 300 to 5KHz	
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: -20℃ to +60℃ Storage temperature: -30℃ to +70℃	

2.Measuring Method

2-1 .Test Condition

Standard

Temperature : 15 ~ 35℃

Relative humidity : 45% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

Judgement

Temperature : 20±3℃

Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

2-2 . Standard Test Fixture

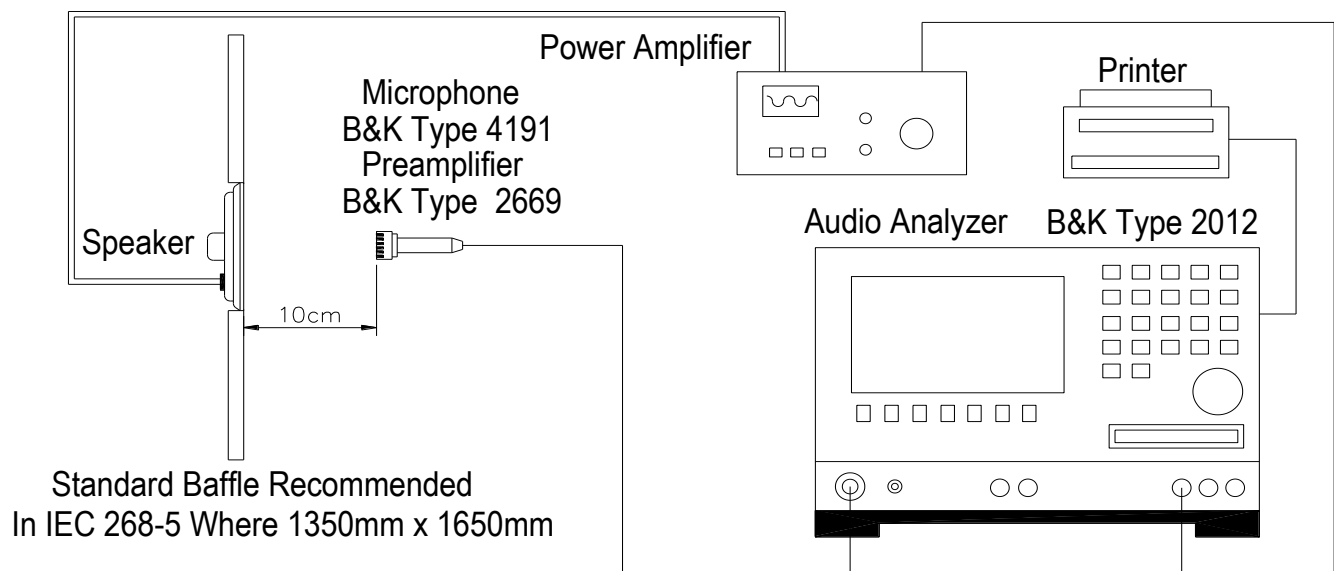
1.Input Power : 1.0W (2.83V)

2.Zero Level : -dB

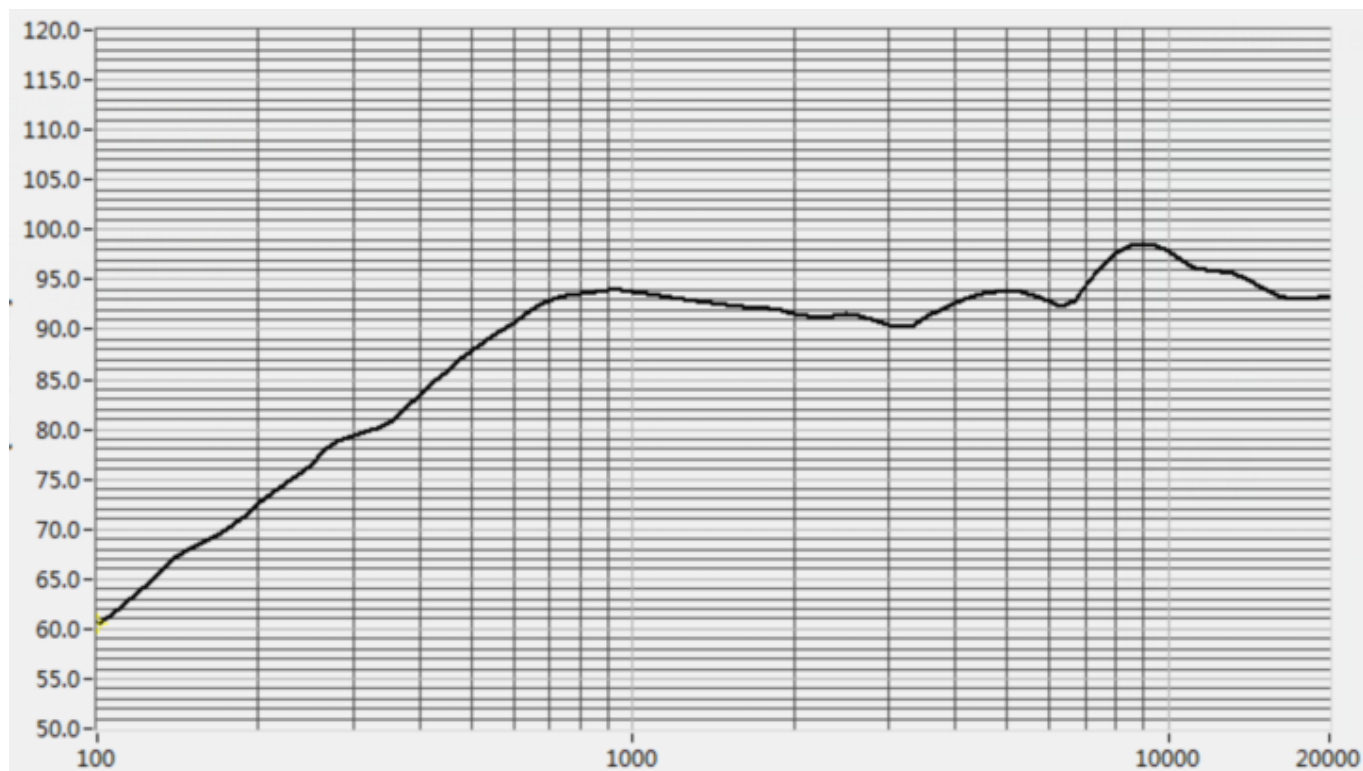
3.Mode : SPEAKER

4.potentiometer Range : 50dB

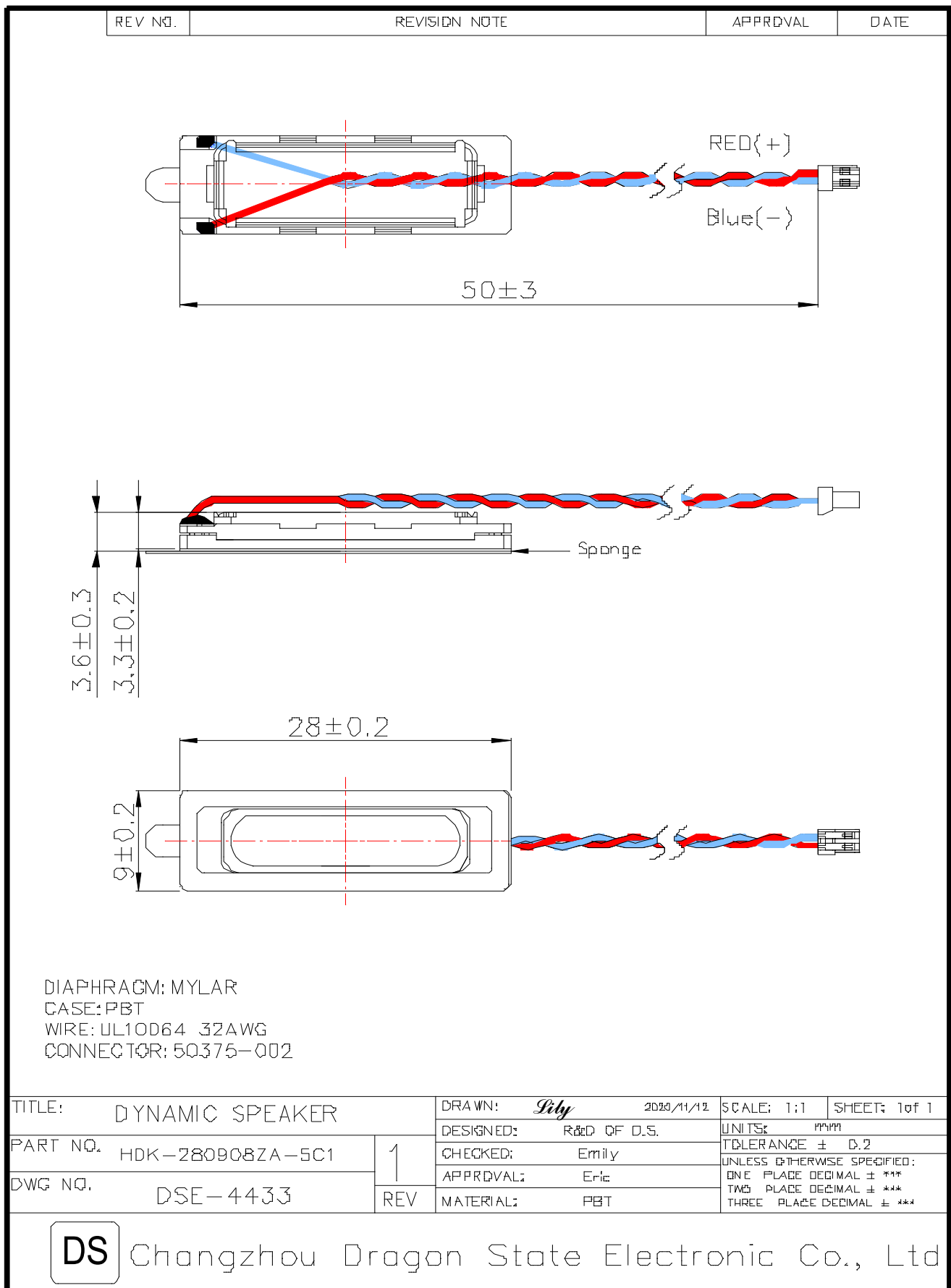
5.Sweep Time : 0.5sec



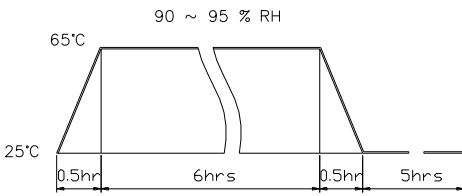
2-3. Frequency Response Curve



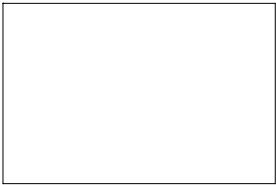
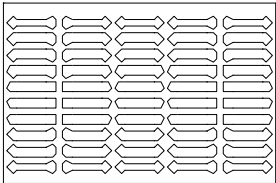
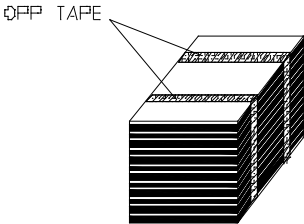
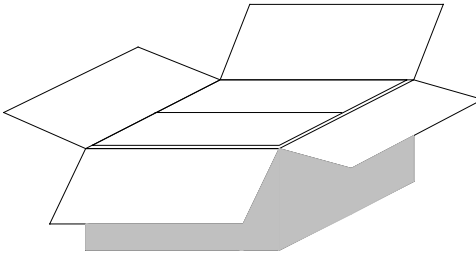
3.Dimension



4. Reliability Test

Items.		Specifications
01	High temp. Test	Keep 16 hours at $+70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check
02	Low temp. Test	Keep 16 hours at $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 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: $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$, temperature: $+70^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 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.
Criterion: After these test , the change of S.P.L shall be within ± 3 dB .		

5.Packing

REV NO.	REVISION NOTE	APPROVAL	DATE	
 Cover(320*220*5mm) Material: Paper ↓  Box(320*220*10mm) 100pcs Material: Paper+Epe  Middle(320*220*120mm) 1000pcs(10*100pcs) Material: Paper+Epe ↓  Outer Box(490*360*350mm) 4000pcs(4*1000pcs) Material: Paper 单位: mm				
TITLE: packing		DRAWN: Lily DESIGNED: R&D OF D.S. CHECKED: Emily APPROVAL: Eric MATERIAL: ***	SCALE: 3:1 UNITS: mm TOLERANCE 30~11 ± 0.3 10~5 ± 0.2 <4 ± 0.1	SHEET: 1 of 1
PART NO.	1			
DWG NO.				
		REV		

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