

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

Product	DYNAMIC SPEAKER
Part No.	HDK-160908ZA-23W (RoHS)
Customer Approval	
Customer Part No.	

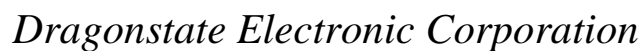
Approved By	Checked By	Made By
王台平 JUL-08-2023	曹丽萍 JUL-08-2023	LILY JUL-08-2023

常 州 华 龙 电 子 有 限 公 司**DRAGONSTATE ELECTRONIC CORPORATION**

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EDITION:1.1

[illegible]

1. Specification

HDK-160908ZA-23W (RoHS)

ITEM		SPECIFICATIONS
01	Type	Dynamic speaker
02	Dimension	External diameter 16*9 mm
03	Rated Input Power	1.0W (in 1cc closed box)
04	Max. Input Power	1.2W (in 1cc closed box)
05	Impedance	8 ohm \pm 15%(1.0Vrms at 2KHz)
	DC Resistance	7.2 ohm \pm 10%
06	Resonance Frequency (Fo)	600Hz \pm 20%(1Vrms)
		950Hz \pm 20%(1Vrms /in 1cc closed box at 1Vrms)
07	Sensitivity (S.P.L.)	82 \pm 3 dB SPL /1.0Vrms/10cm (at 2.0kHz in 1cc box)
08	Frequency Range	Fo – 10KHz
09	Total Harmonics Distortion	10%MAX. at 1KHz 1.0Vrms/10cm
10	Appearance	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc.
11	Operation Test	Must be normal at program source – 0.5W
12	Buzz, Rattle, etc.	Must be normal at sine wave 0.89Vrms (in free air) /2.83Vrms(in 1.0cc closed box) from 300~5KHz
13	Polarity	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.
14	Terminal Strength	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.
15	Temperature	Operating temperature: -20℃ to +60℃ Storage temperature: -30℃ to +70℃

2-1. 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

2-2. Standard Test Fixture

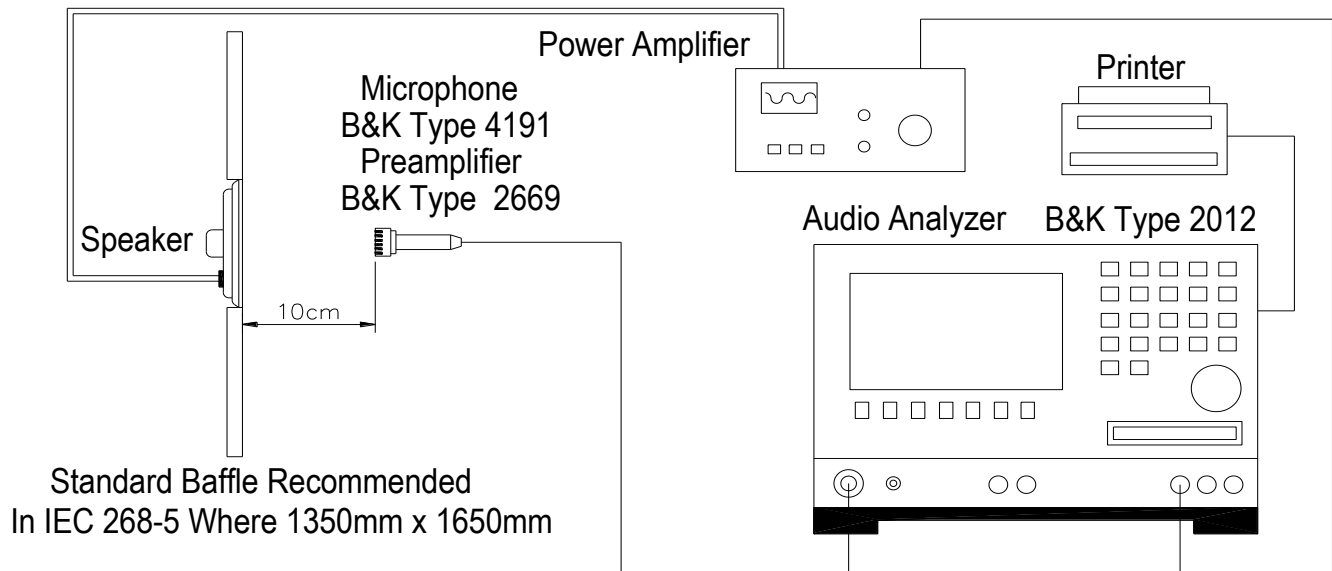
1. Input Power : 0.1W (0.89V)

2. Zero Level : -dB

3. Mode : Speaker

4. potentiometer Range : 50dB

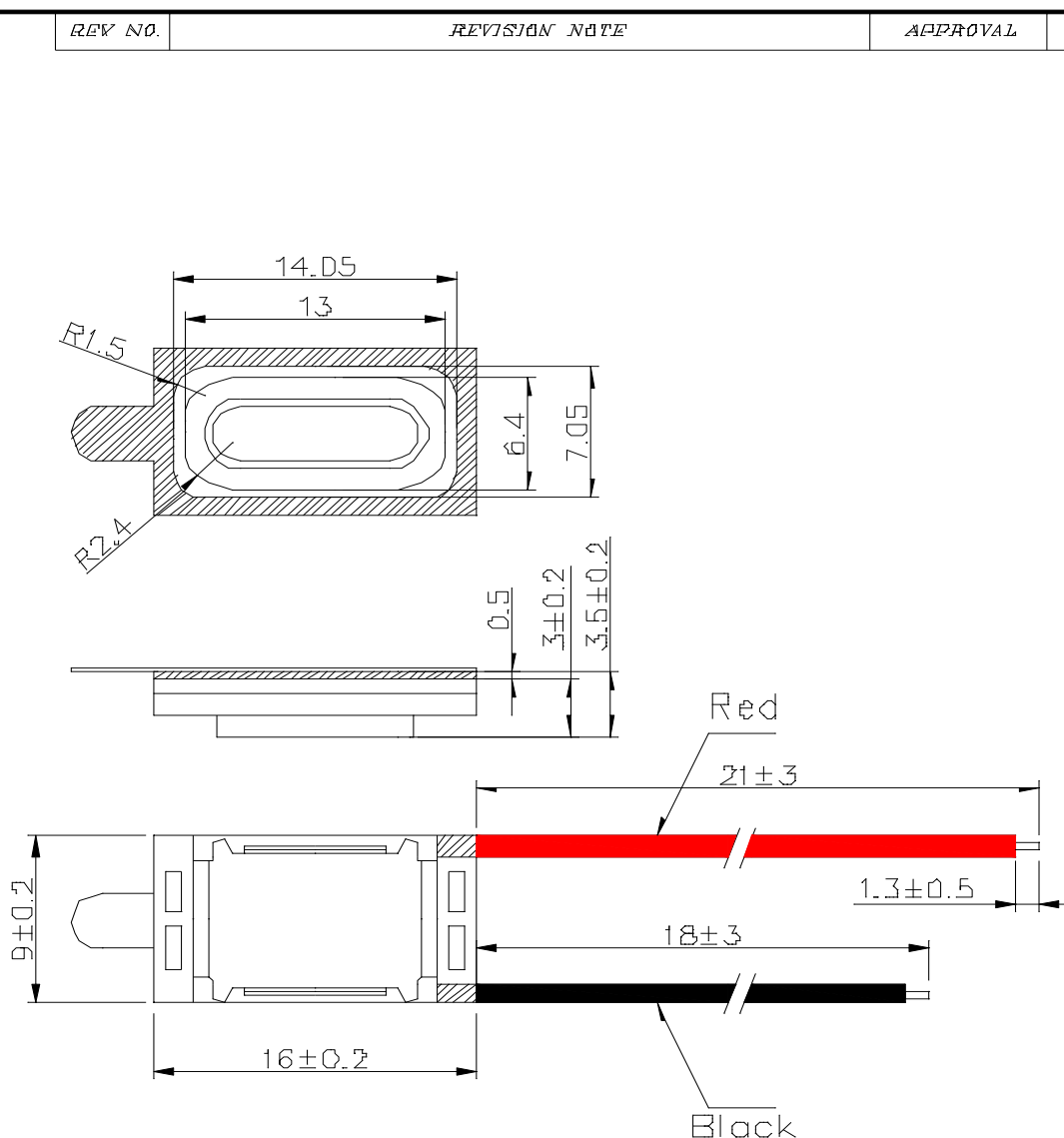
5. Sweep Time : 0.5sec






2-3.Frequency Response Curve



3.Dimension

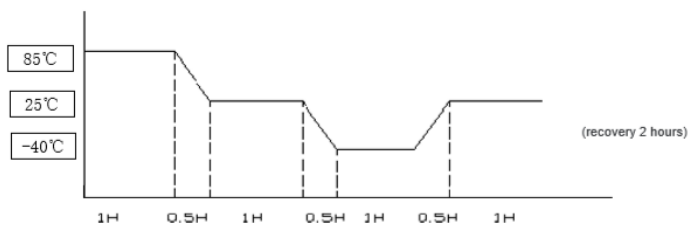


TITLE: DYNAMIC SPEAKER		DRAWN:  Z02Z/Q8/21	SCALE: 1/1	SHEET: 1 OF 1
PART NO. HDK-160908ZA-23W	2 REV	DESIGNED: R&D OF D.S.	UNITS: mm	
DWG NO. DSE-5954		CHECKED: 	TOLERANCE ± 0.2	
		APPROVAL: 	UNLESS OTHERWISE SPECIFIED: ONE PLACE DECIMAL \pm *** TWO PLACE DECIMAL \pm *** THREE PLACE DECIMAL \pm ***	
		MATERIAL: PBT		

DS

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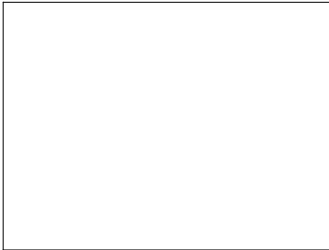
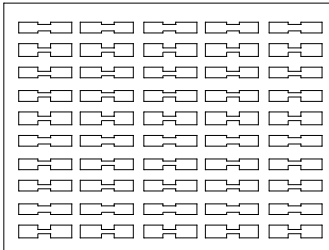
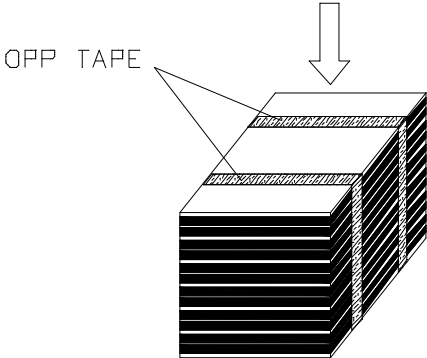
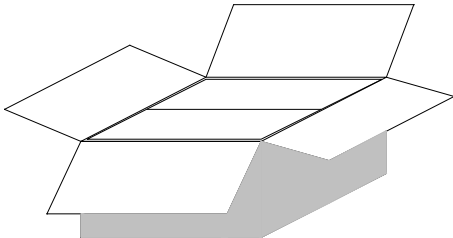
4. Reliability tests

Items.		Specifications
01	High temp. Test	Keep 96 hours at $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 2 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 2 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: $-25^{\circ}\text{C} \pm 3^{\circ}\text{C}$, temperature: $+65^{\circ}\text{C} \pm 3^{\circ}\text{C}$, cycle: 1 hour/cycle each, and then keep 10 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 120cm 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.
Criterion: After these test , the change of S.P.L shall be within $\pm 3 \text{ Db}$.		

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
	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;">  </div> <div> <p>Cover(290*225*3mm) Material: Paper</p> </div> </div>		
	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;">  </div> <div> <p>Box(290*225*10mm) 100pcs Material: Paper+Epe</p> </div> </div>		
	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;">  </div> <div> <p>Middle(290*225*135mm) 1000pcs(10*100pcs) Material: Paper+Epe</p> </div> </div>		
	<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;">  </div> <div> <p>Outer Box(515*320*280mm) 4000pcs(4*1000pcs) Material: Paper</p> </div> </div>		
单位: mm			
TITLE: Packing		DRAWN: Lily 2012/10/17	
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	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">DS</div> <div>DRAGONSTATE ELECTRONIC CORPORATION</div> </div>			