

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

| | |
|--------------------------|-------------------------------|
| Product | DYNAMIC SPEAKER |
| Part No. | HDK-241508AA-2W2(RoHS) |
| Customer | |
| Customer Part No. | |

| Approved By | Checked By | Made By |
|--------------------|--------------------|---------------------|
| 王台平 DEC-13-2018 | 曹丽萍 DEC-13-2018 | LILY DEC-13-2018 |

常 州 华 龙 电 子 有 限 公 司

Changzhou Dragon State Electronic Co., Ltd

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

EDITION:1.1

1.Specification

HDK-241508AA-2W2(RoHS)

| ITEM | | SPECIFICATIONS | |
|------|----------------------------|---|-------------------------------|
| 01 | Type | Dynamic speaker | |
| 02 | Dimension | External diameter 24×15 mm | |
| 03 | Rated Input Power | 1.0W | |
| 04 | Max. Input Power | 1.2W for 1 minute | |
| 05 | Impedance | 8 ohm ± 15% at 2000Hz 1.0V | |
| 06 | Resonance Frequency (Fo) | 800Hz ± 20% at Fo 1V | |
| 07 | Sensitivity (S.P.L.) | 93dB (0.5W / 0.1m) ± 3 dB | at AVE 1.0K,1.2K,1.5K,2.0KHz. |
| 08 | Frequency Range | Fo – 20KHz | |
| 09 | Total Harmonics Distortion | Max 8 % at 1 KHz,1.0W. | |
| 10 | Voice Coil | Diameter 8.5 mm | |
| 11 | Magnet | Rare earth permanent (Nd-Fe-B) magnet Φ8.0 x 1.0 mm | |
| 12 | Weight | 1.6g ± 0.2g | |
| 13 | Appearance | Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc. | |
| 14 | Operation Test | Must be normal at program source – 1.0W | |
| 15 | Buzz, Rattle, etc. | Should not be audible at 2.83V sine Wave between Fo to 20KHz | |
| 16 | Polarity | When positive voltage is applied to the terminal marked (+), diaphragm should move to the front. | |
| 17 | Terminal Strength | Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection. | |
| 18 | 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

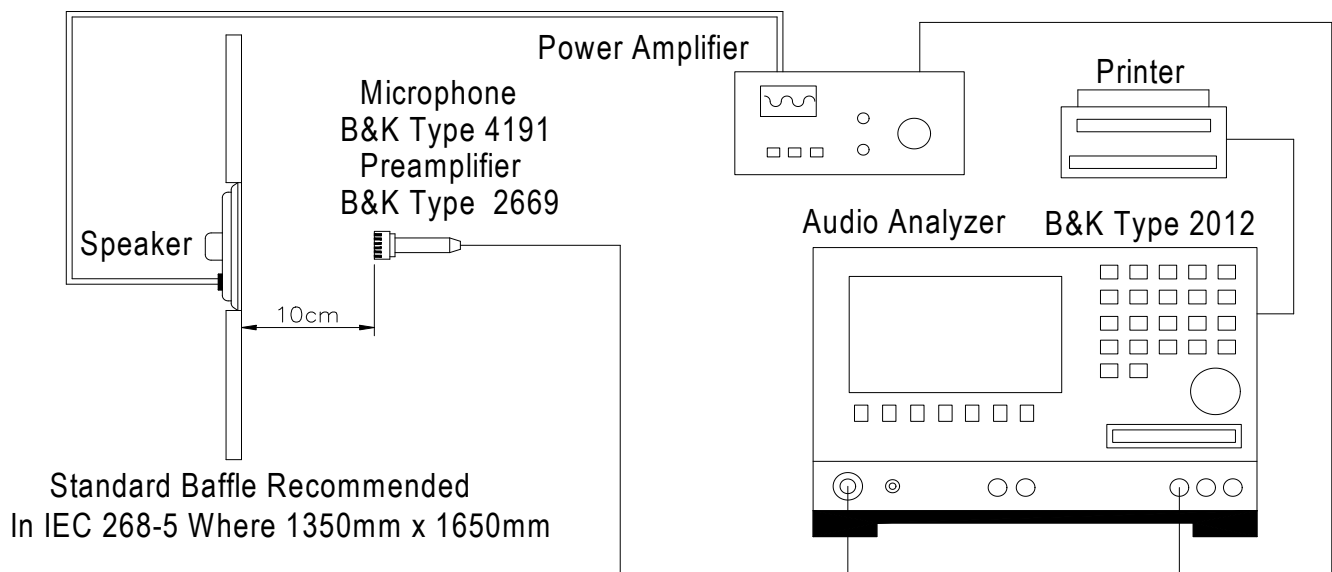
1. Input Power : 0.5W (2.0V)

2. Zero Level : -dB

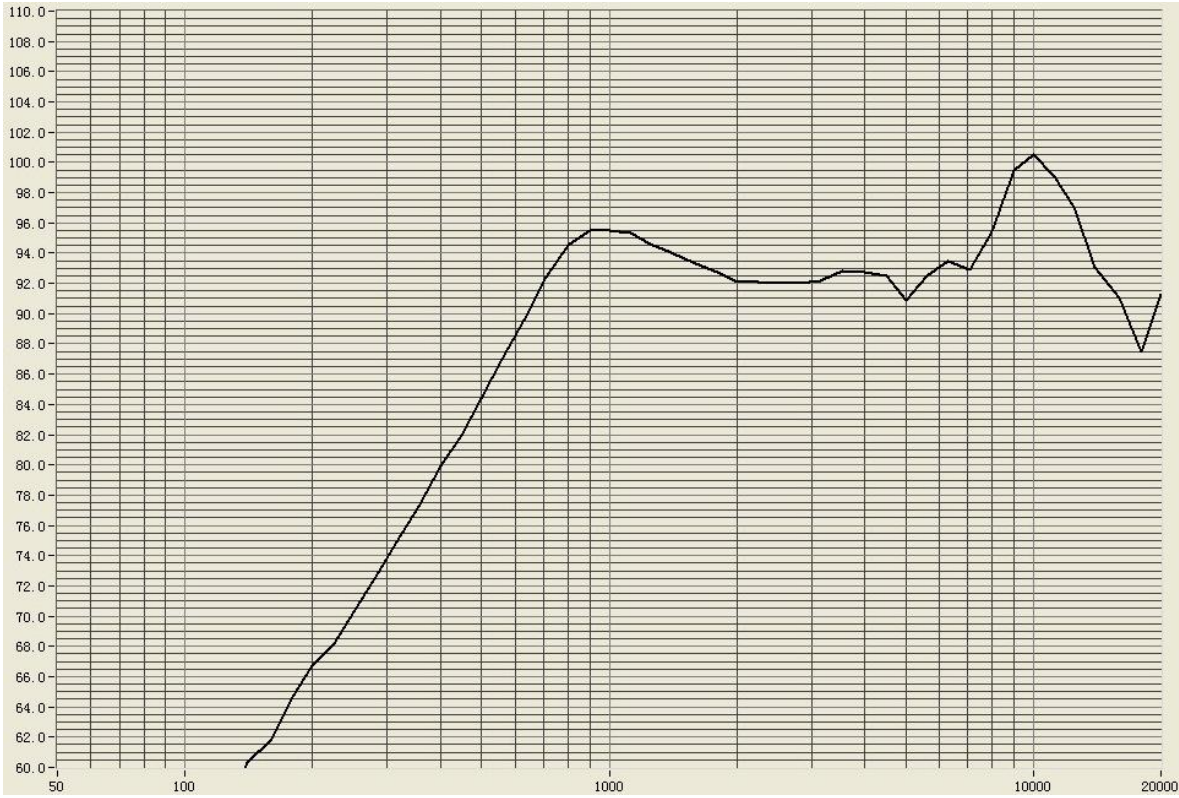
3. Mode : SPEAKER

4. potentiometer Range : 50dB

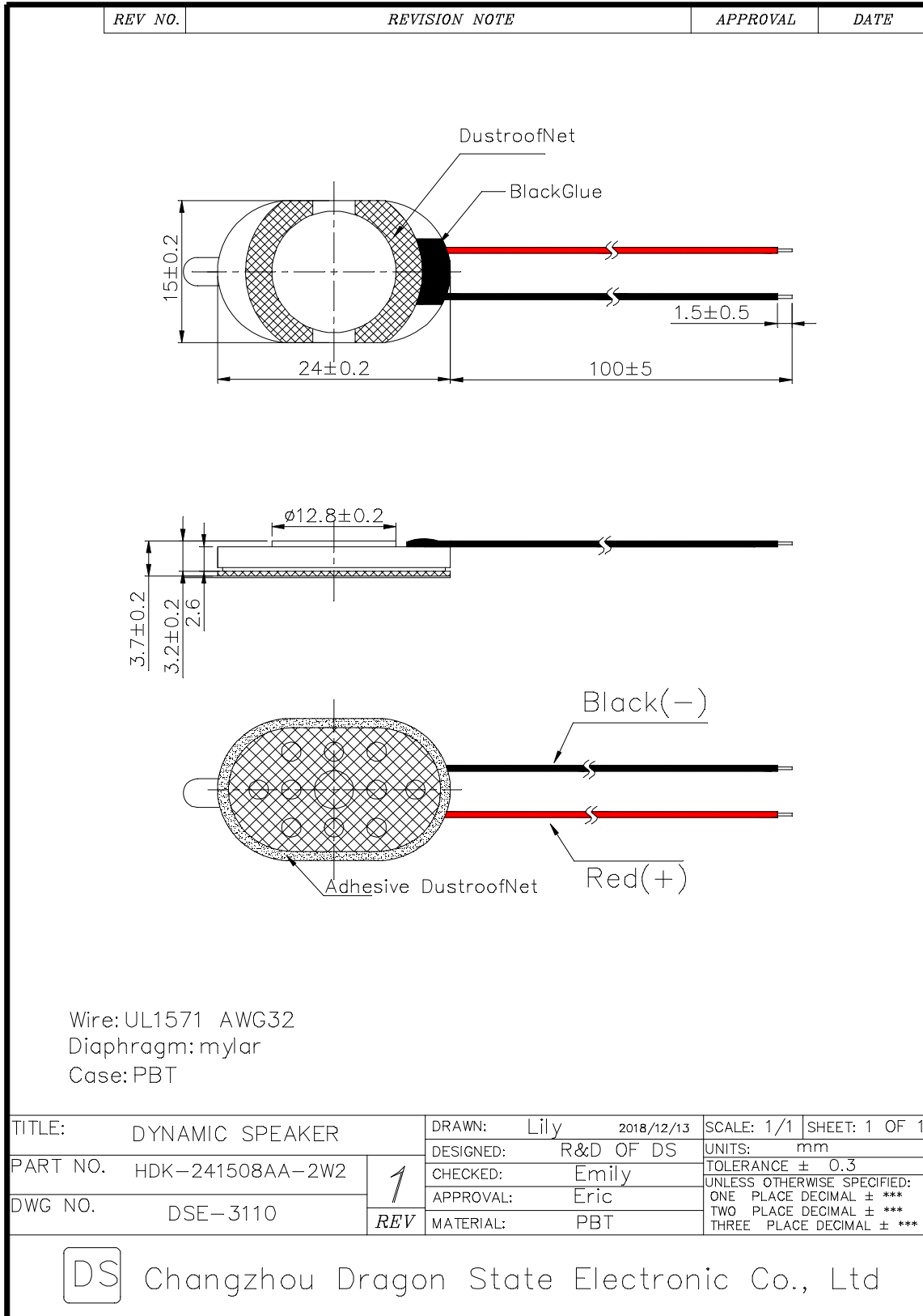
5. Sweep Time : 0.5sec



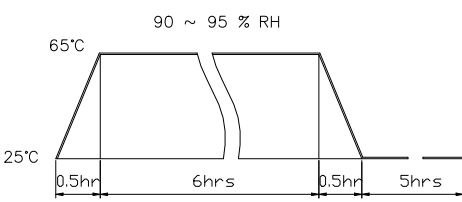
2-3.Frequency Response Curve



3.Dimension



4. Reliability Test


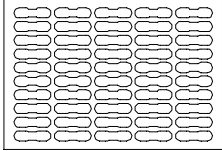
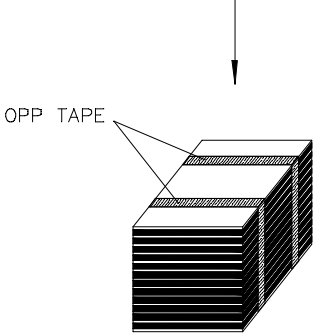
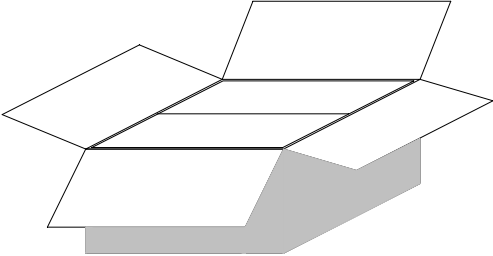

| Items. | | Specifications |
|--------|------------------------|---|
| 01 | High temp. Test | Keep 96 hours at $+70^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check |
| 02 | Low temp. Test | Keep 96 hours at $-30^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check |
| 03 | Humidity test | Keep 96 hours at $+40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ 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 | 10~200~10Hz 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 .

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 |
|--|---|-----------------------|---------------|
| |  <p>Cover(320*220*5mm) Material: Eps</p> | | |
| |  <p>Box(320*220*13.5mm) 100pcs Material: Eps</p> | | |
| |  <p>OPP TAPE</p> <p>Middle(320*220*140mm) 1000pcs Material: Eps</p> | | |
| |  <p>Outer Box(360*270*280mm) 2000pcs Material: Paper</p> | | |
| 单位: mm | | | |
| TITLE: packing | | DRAWN: Lily | 2015/4/23 |
| PART NO. | | DESIGNED: R&D OF D.S. | SCALE: 2:1 |
| | | CHECKED: Emily | SHEET: 1 of 1 |
| DWG NO. | | APPROVAL: Eric | UNITS: mm |
| | | MATERIAL: *** | TOLERANCE |
| REV 1 | | 20~11 | ± 0.3 |
| | | 10~5 | ± 0.2 |
| | | <4 | ± 0.1 |
|  Changzhou Dragon State Electronic Co., Ltd | | | |