

**MESSRS.**

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**SPECIFICATION FOR APPROVAL**  
**承 认 书**

|                   |                         |
|-------------------|-------------------------|
| Product           | DYNAMIC SPEAKER         |
| Part No.          | HDK-2014335R08-1 (RoHS) |
| Customer          |                         |
| Customer Part No. |                         |

|                    |                    |                     |
|--------------------|--------------------|---------------------|
| Approved By        | Checked By         | Made By             |
| 王台平<br>MAY-29-2018 | 曹丽萍<br>MAY-29-2018 | LILY<br>MAY-29-2018 |

**常 州 华 龙 电 子 有 限 公 司**

DRAGONSTATE ELECTRONIC CORPORATION

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EDITION:1.1

## 1. Specification

HDK-2014335R08-1 (RoHS)

| ITEM |                            | SPECIFICATIONS                                                                                                |                                      |
|------|----------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------|
| 01   | Type                       | Dynamic speaker                                                                                               |                                      |
| 02   | Dimension                  | External diameter 20*14 mm                                                                                    |                                      |
| 03   | Rated Input Power          | 0.8W                                                                                                          |                                      |
| 04   | Max. Input Power           | 1.0W                                                                                                          |                                      |
| 05   | Impedance                  | 8 ohm $\pm$ 15% at 2K Hz                                                                                      |                                      |
| 06   | Resonance Frequency (Fo)   | 600 Hz $\pm$ 20% at Fo, 1V                                                                                    |                                      |
| 07   | Sensitivity (S.P.L.)       | 92dB(0.8W/0.1m) $\pm$ 3 dB                                                                                    | at AVE<br>0.8K, 1.0K, 1.2K, 1.5K Hz. |
| 08   | Frequency Range            | Fo - 20K Hz                                                                                                   |                                      |
| 09   | Total Harmonics Distortion | Max. 10% at 2K Hz ,0.8W.                                                                                      |                                      |
| 10   | Weight                     | 1.8g $\pm$ 0.3g                                                                                               |                                      |
| 11   | Appearance                 | Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc. |                                      |
| 12   | Operation Test             | Must be normal at program source 0.8W                                                                         |                                      |
| 13   | Buzz, Rattle, etc.         | Should not be audible at 2.53V sine Wave between Fo to 20KHz                                                  |                                      |
| 14   | Polarity                   | When positive voltage is applied to the terminal marked (+), diaphragm should move to the front.              |                                      |
| 15   | Terminal Strength          | Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection.                    |                                      |
| 16   | Temperature                | Operating temperature: -30°C to +70°C<br>Storage temperature: -40°C to +85°C                                  |                                      |

## 2. Measuring Method

### 2-1 .Test Condition

#### STANDARD

Temperature : 15 ~ 35℃

Relative humidity : 45% ~ 85%,

Atmospheric pressure : 860mbar to 1060mbar.

#### JUDGEMENT

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

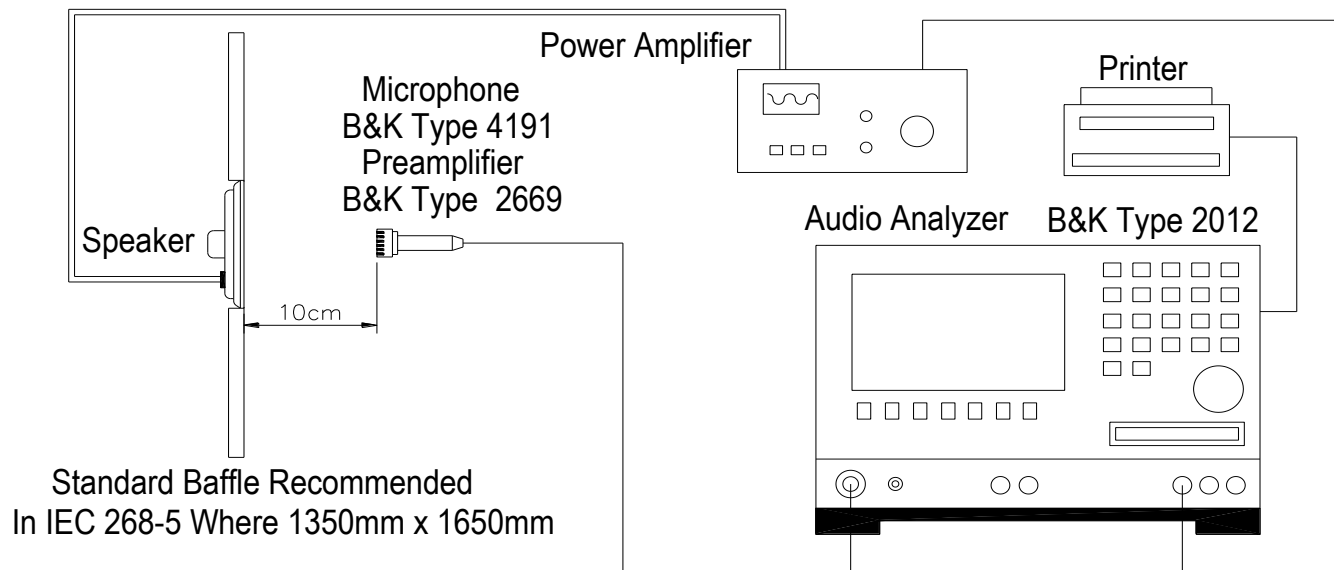
Relative humidity : 60% ~ 70%,

Atmospheric pressure : 860mbar to 1060mbar

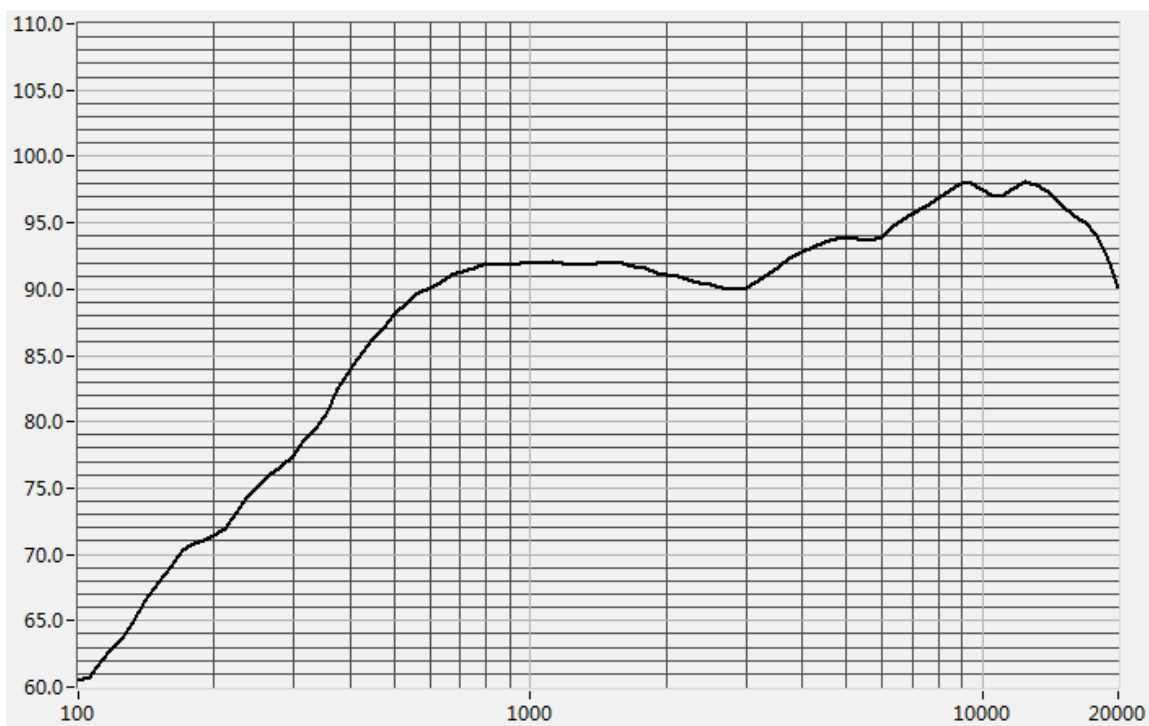
### 2-2 . Standard Test Fixture

1. Input Power : 0.8W (2.53V)
2. Zero Level : -dB
3. Mode : SPEAKER
4. potentiometer Range : 50dB

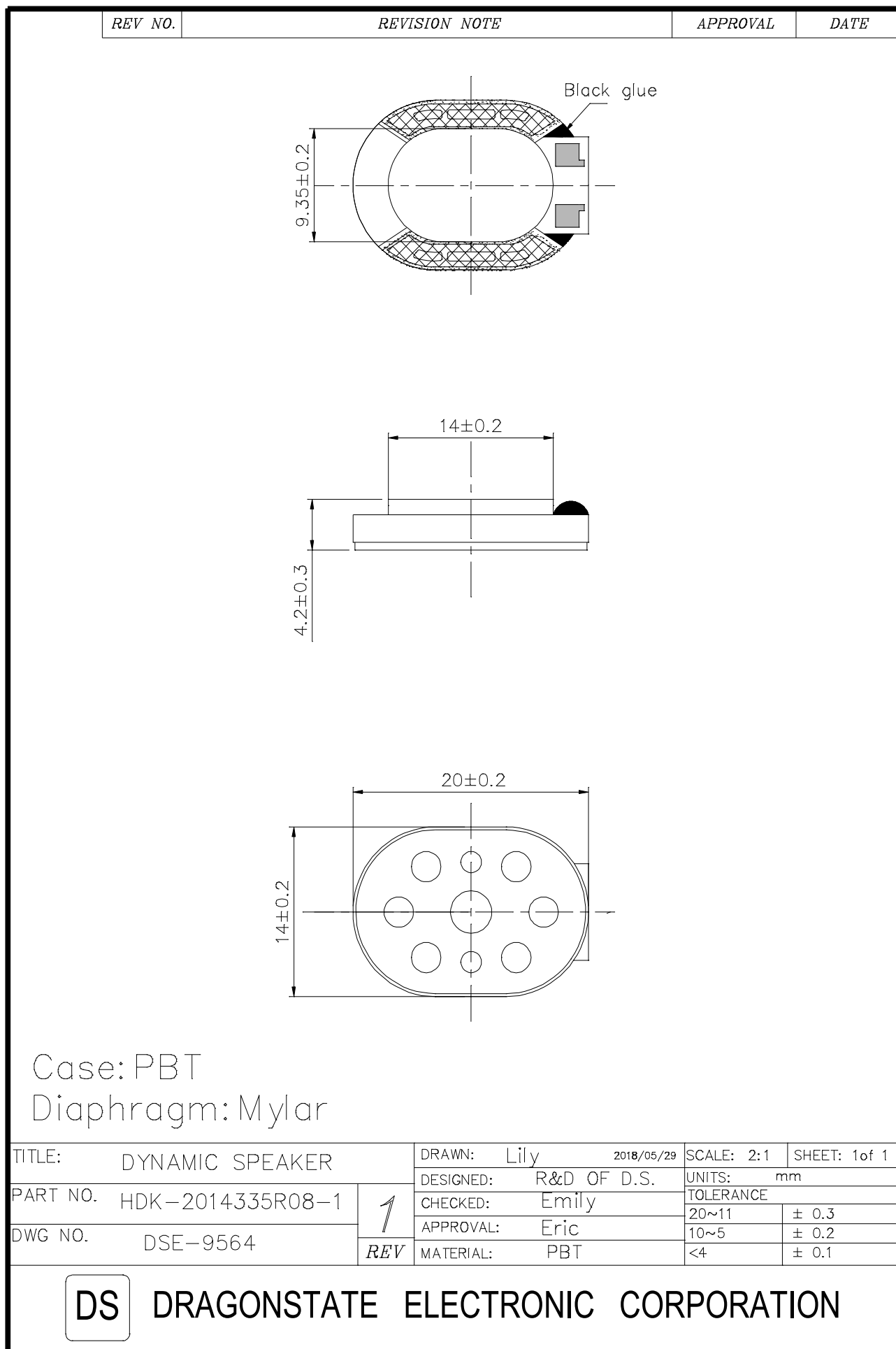
5. Sweep Time : 0.5sec



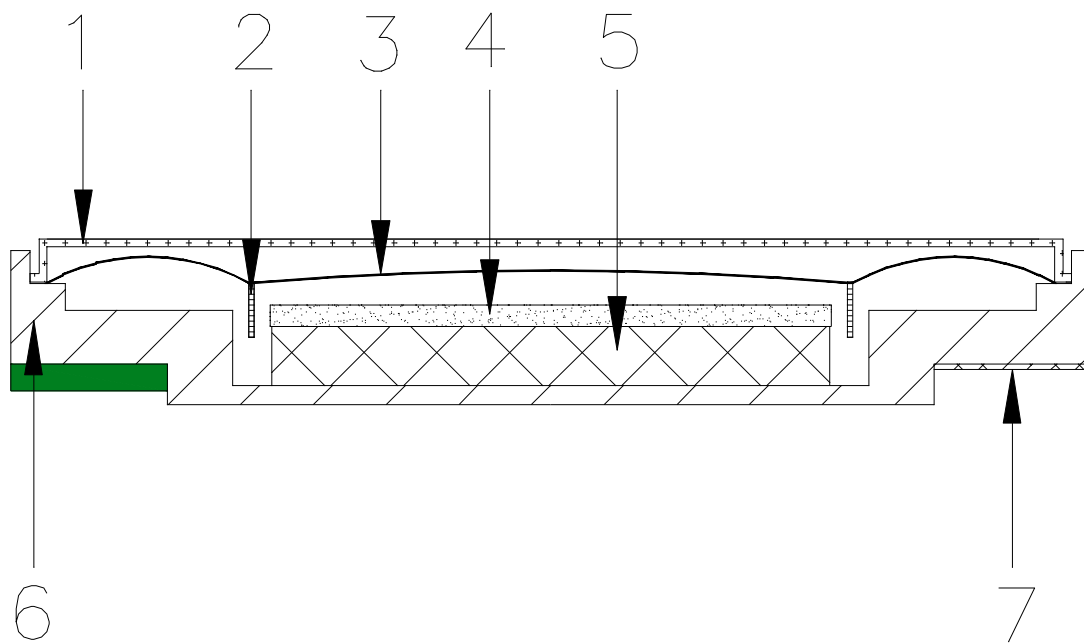
## 2-3. Frequency Response Curve



### 3. Dimension

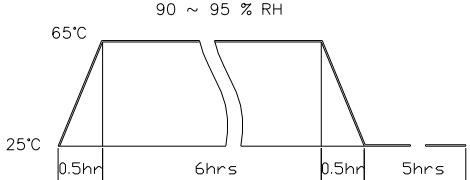


#### 4. Material and Structure



| NO | PART NAME      | MATERIAL     | Q`TY |
|----|----------------|--------------|------|
| 1  | CAP            | SUS304       | 1    |
| 2  | VOICE COIL     | COPPER       | 1    |
| 3  | DIAPHRAGM      | PEN          | 1    |
| 4  | PLATE          | SPCC         | 1    |
| 5  | MAGNET         | Nd-Fe-B      | 1    |
| 6  | FRAME          | PBT          | 1    |
| 7  | ACOUSTIC CLOTH | DUSTROOF NET | 2    |

## 5. Reliability Test

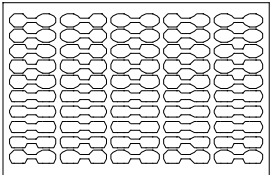
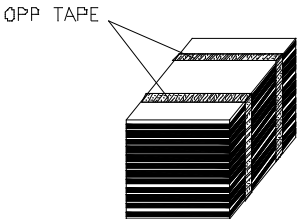
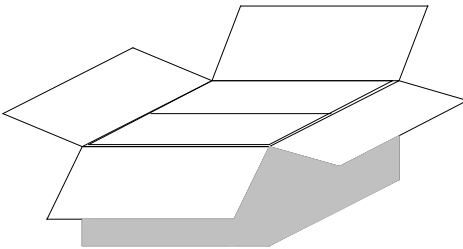
| Items.                                                                        |                        | Specifications                                                                                                                                                                        |
|-------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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: $-30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , 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)<br>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<br>X, y, z 6 direction. 5 times each, total 30 times.                                                                   |
| 08                                                                            | Free drop test         | Free drop from 100cm height to the concrete floor<br>X, Y, Z 6 direction. 1 times each, total 6 times.                                                                                |
| 09                                                                            | Load 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 $\pm 3$ dB |                        |                                                                                                                                                                                       |

### SOLDERING CONDITION

Recommend using constant branding iron in **30W**, and in temperature range  $350 \pm 10^{\circ}\text{C}$ .

Soldering time **2** seconds.

## 6. Packing

| REV NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | REVISION NOTE | APPROVAL               | DATE |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|------|
| <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Cover(320*220*5mm)<br/>Material: Paper</p> </div> <div style="text-align: center;">↓</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Box(320*220*10mm)<br/>100pcs<br/>Material: Paper+Epe</p> </div> <div style="text-align: center;">↓</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Middle(320*220*120mm)<br/>1000pcs(10*100pcs)<br/>Material: Paper+Epe</p> </div> <div style="text-align: center;">↓</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Outer Box(490*360*350mm)<br/>4000pcs(4*1000pcs)<br/>Material: Paper</p> </div> </div> <p style="text-align: right; margin-top: 20px;">单位: mm</p> |               |                        |      |
| TITLE: packing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               | DRAWN: Lily 2013/12/08 |      |
| PART NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               | DESIGNED: R&D OF D.S.  |      |
| DWG NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | CHECKED: Emily         |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               | APPROVAL: Eric         |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               | MATERIAL: ***          |      |
| <div style="font-size: 2em; font-weight: bold;">1</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | 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: 5px;">DS</div> <div>DRAGONSTATE ELECTRONIC CORPORATION</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                        |      |