



soberton inc.

ST BUZZER

Acoustic Product Specification

Product Number: ST-0502



Release | Revision: C/2018

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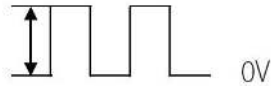
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Specifications

| Item | Unit | Specification | Condition |
|-------------------------------------|-------|-----------------------|---|
| Rated Voltage | Vo-p | 3.0 | Vo-p  0V |
| Operating Voltage | Vo-p | 2.0 ~ 4.0 | |
| Mean Current | mA | 110 Max. | At rated voltage, 4000 Hz square wave, 1/2 duty |
| Coil Resistance | Ω | 12 ±3 | |
| Sound Output | dB(A) | 75 | At 10cm (A-weight free air). At rated voltage, 4000Hz, square wave, ½ duty |
| Rated Frequency | Hz | 4000 | |
| Operating Temp | °C | -30 ~ +70 | |
| Storage Temp | °C | -40 ~ +80 | |
| Dimension | mm | 5.2×5.2×H2.0 | See attached drawing |
| Weight | gram | 0.3 | |
| Material | | LCP (Black) | |
| Terminal | | SMD type (Plating Sn) | See attached drawing |
| Environmental Protection Regulation | | RoHS | |

Test Condition

Temperature : +25±2 °C Related humidity: 65±5% Air pressure: 86-106KPa

Mechanical Characteristics

| Item | Test condition | Evaluation standard |
|------------------------------|---|--|
| Solderability | Lead terminals are immersed in rosin for 5 seconds and then immersed in the solder bath of +250 ±5°C for 3 ±1 seconds. | 90% min. lead terminals shall be wet with solder. No interference in operation. |
| Soldering Heat Resistance | The product follows the reflow profile to test its reflow thermal stability. | |
| Terminal Mechanical Strength | A force of 0.5 kg will be applied to the part for 60 seconds. | No damage and cutting off |
| Vibration | The part shall be subjected to a vibration cycle of 10Hz to 55Hz to 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm(9.3G). The vibration test shall consist of 2 hours per axis in each three axes (X,Y,Z). Total 6 hours. | After the test, the part shall meet specifications without any damage in appearance and performance except SPL. The SPL should be in ±10dB(A) compared with initial one. |
| Drop Test | The part is dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X,Y,Z). Total of 9 times. | |



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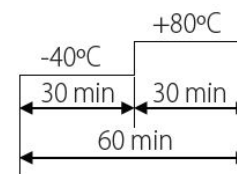
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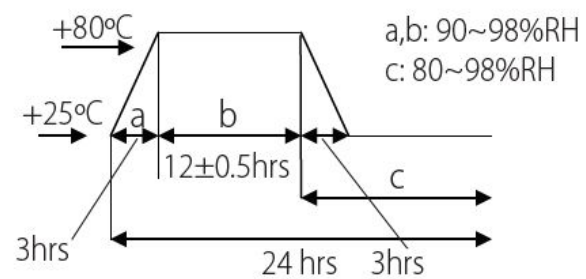
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Environment Test

| Item | Test condition | Evaluation standard |
|-----------------|--|--|
| High Temp. Test | The part is placed in a chamber at +80°C for 96 hours. | After the test, the part shall meet specifications without any degradation in appearance and performance except SPL. After 4 hours at +25°C, the SPL should be in ±10dBA compared with initial one. |
| Low Temp. Test | The part is placed in a chamber at -40°C for 96 hours. | |
| Thermal Shock | The part shall be subjected to 10 cycles. Each cycle shall consist of: | |



Temp./Humidity Cycle
The part shall be subjected to 10 cycles. One cycle shall be 24 hours and consist of:



Reliability Test

| Item | Test condition | Evaluation standard |
|---------------------|--|--|
| Operating Life Test | Ordinary Temperature The part shall be subjected to 96 hours of continuous operation at +25°C±10°C. | After the test, the part shall meet specifications without any degradation in appearance and performance except SPL. After 4 hours at +25°C, the SPL should be in ±10dBA compared with initial one. |
| | High Temperature The part shall be subjected to 96 hours of continuous operation at +70°C at 3.0V, 4000Hz applied. | |
| | Low Temperature The part shall be subjected to 96 hours of continuous operation at -30°C at 3.0V, 4000Hz applied. | |

Standard test condition:

- a) Temperature: +5~+35°C
- b) Humidity: 45~85%
- c) Pressure: 86~106KPa



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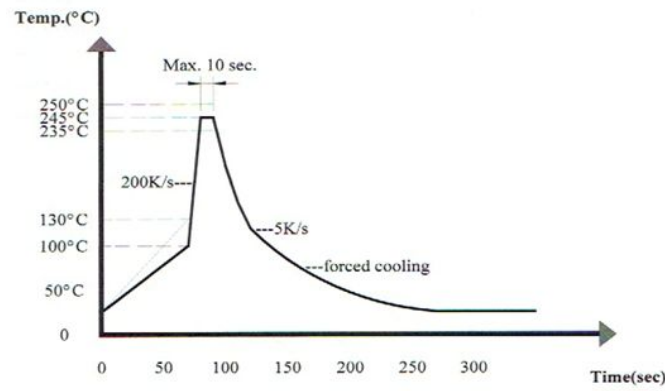
Recommended Temperature Profile for Reflow Oven

Recommendable wave soldering condition is as follows:

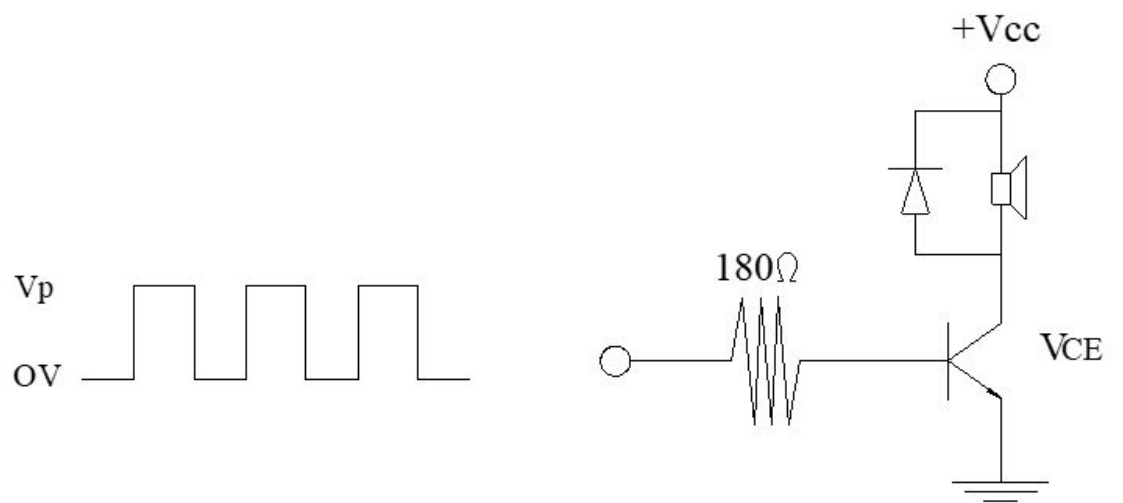
Note 1: It is requested that reflow soldering should be executed after heat of product goes down to normal temperature.

Note 2: Peak reflow temperature of 250°C maximum of 10 seconds

* Wave Soldering profile of lead-free



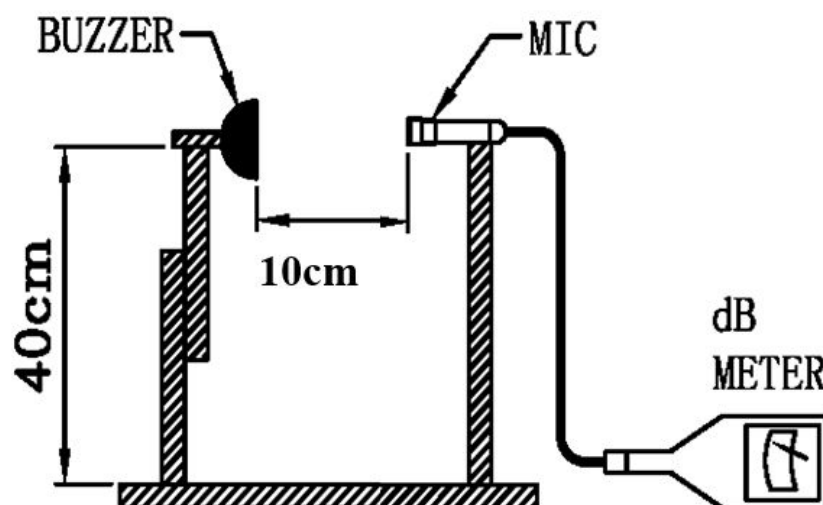
Measurement Test Circuit



Inspection Fixture

S.P.L Measuring Circuit

Input Signal: 3.0 Vo-p, square wave, 1/2 duty, 4000Hz



Mic: RION S.P.L meter UC30 or equivalent

S.G: Hewlett Packard 33120A Function Generator or equivalent



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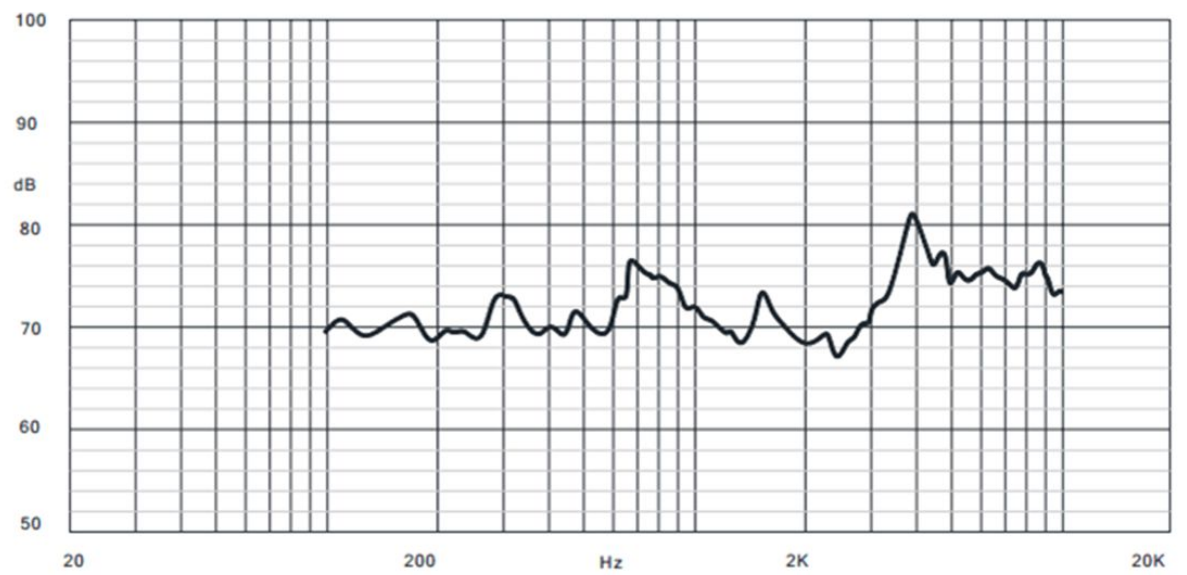
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Typical Frequency Response Curve





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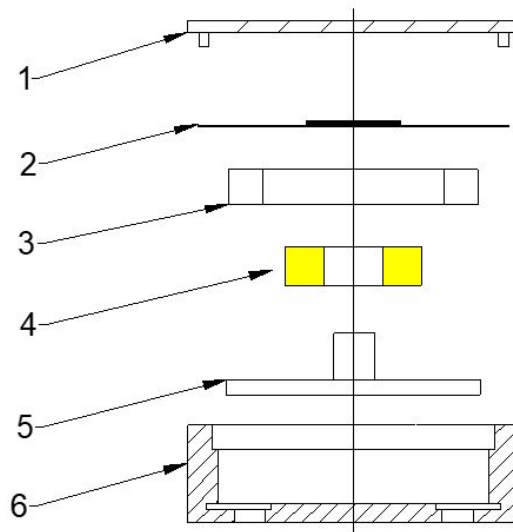
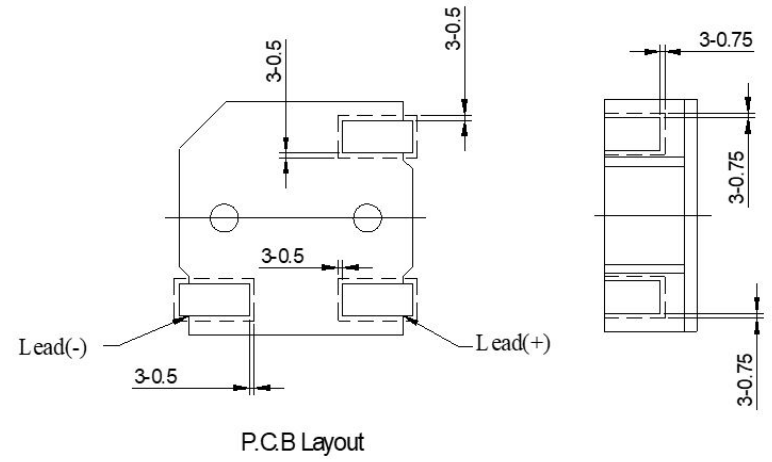
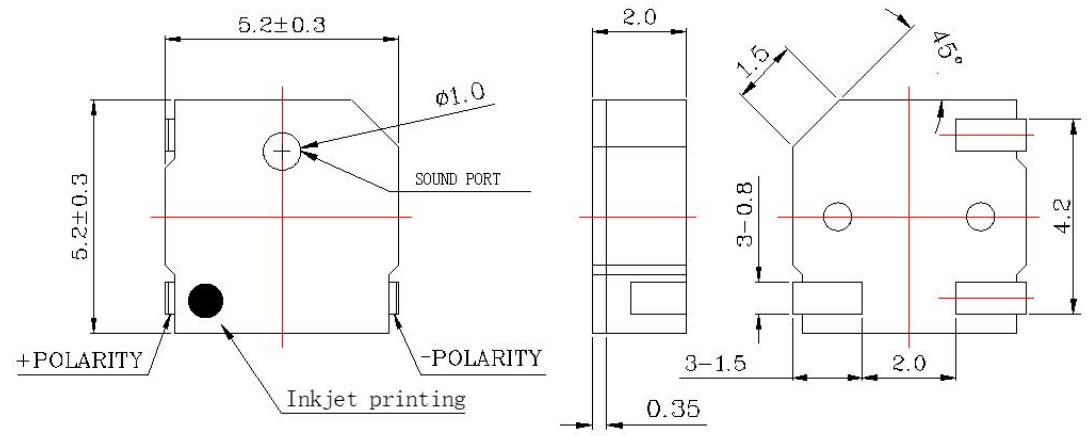
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Dimensions

Tolerance: ± 0.3 (unit: mm)



| No. | Part Name | Material | Quantity |
|-----|-------------|----------|----------|
| 1 | Case | LCP | 1 |
| 2 | Diaphragm | Ferrum | 1 |
| 3 | Magnet Ring | NdFeB | 1 |
| 4 | Coil | Copper | 1 |
| 5 | Core | Ferrum | 1 |
| 6 | Case | LCP | 1 |



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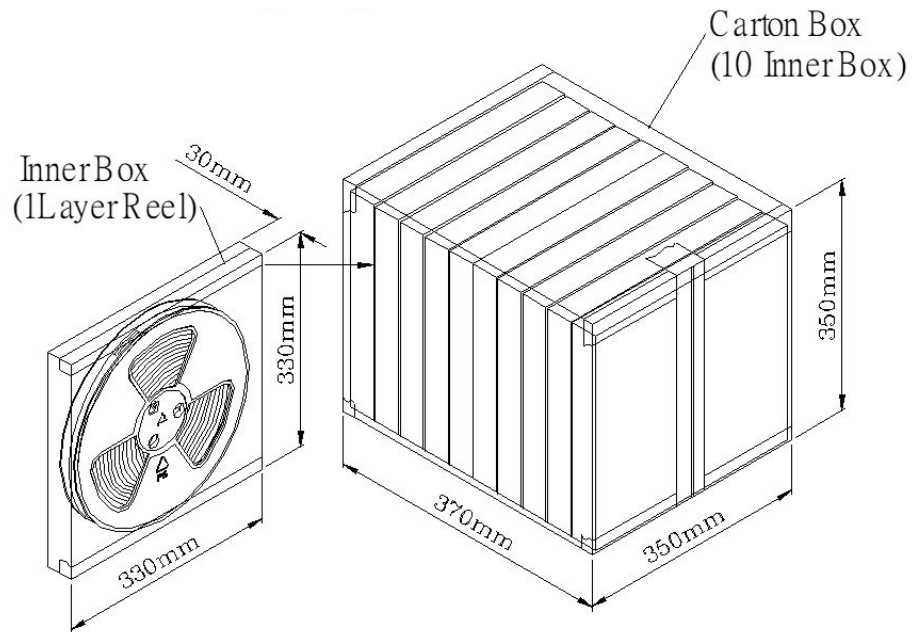
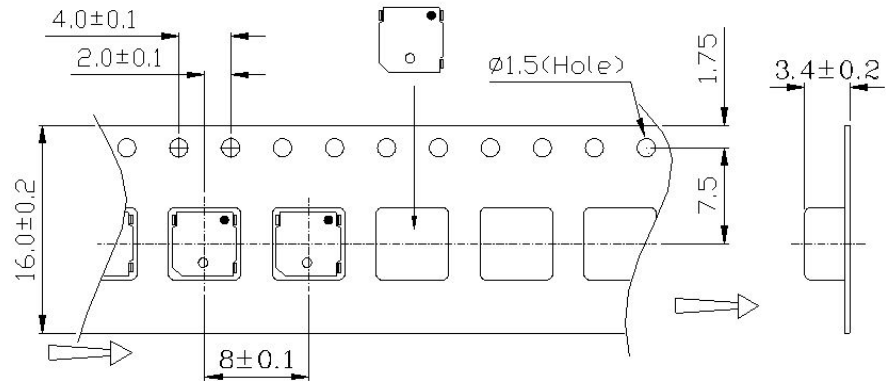
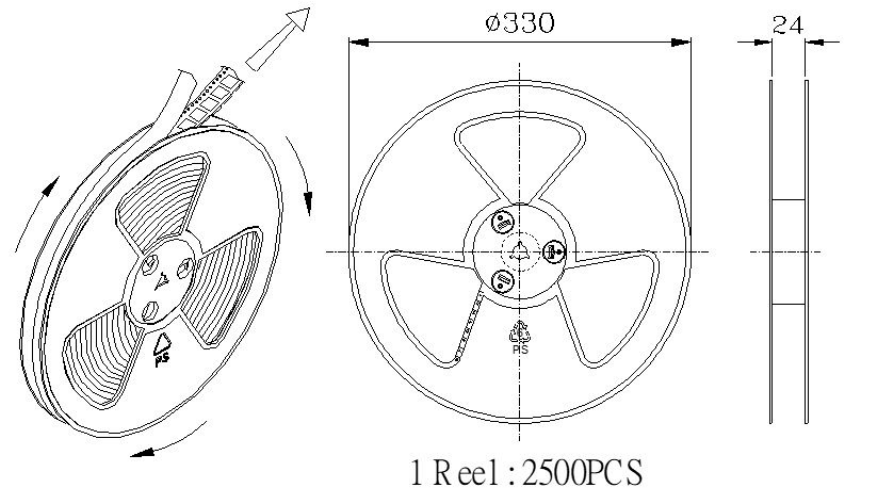
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Packing



| Packing Job | L x W x H (mm) | Pieces |
|-------------|-----------------|-----------------------|
| Inner Box | 330 x 330 x 30 | 1 x 2500 = 2,500pcs |
| Carton Box | 370 x 350 x 350 | 10 x 2500 = 25,000pcs |