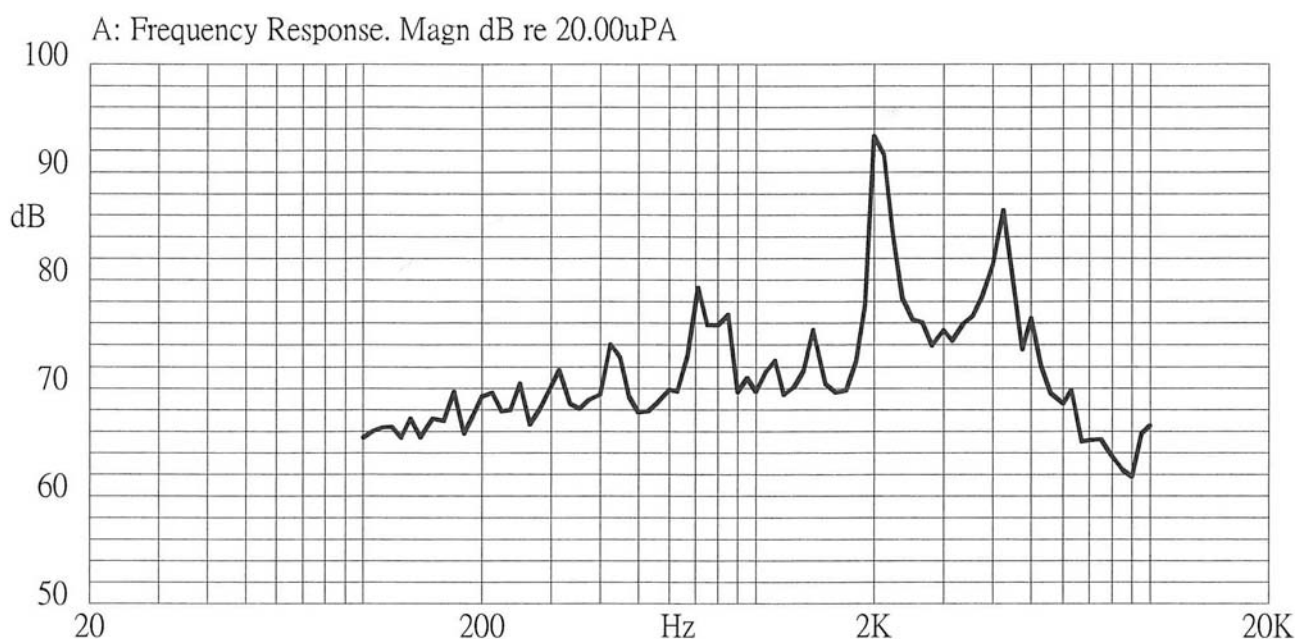




## Specifications

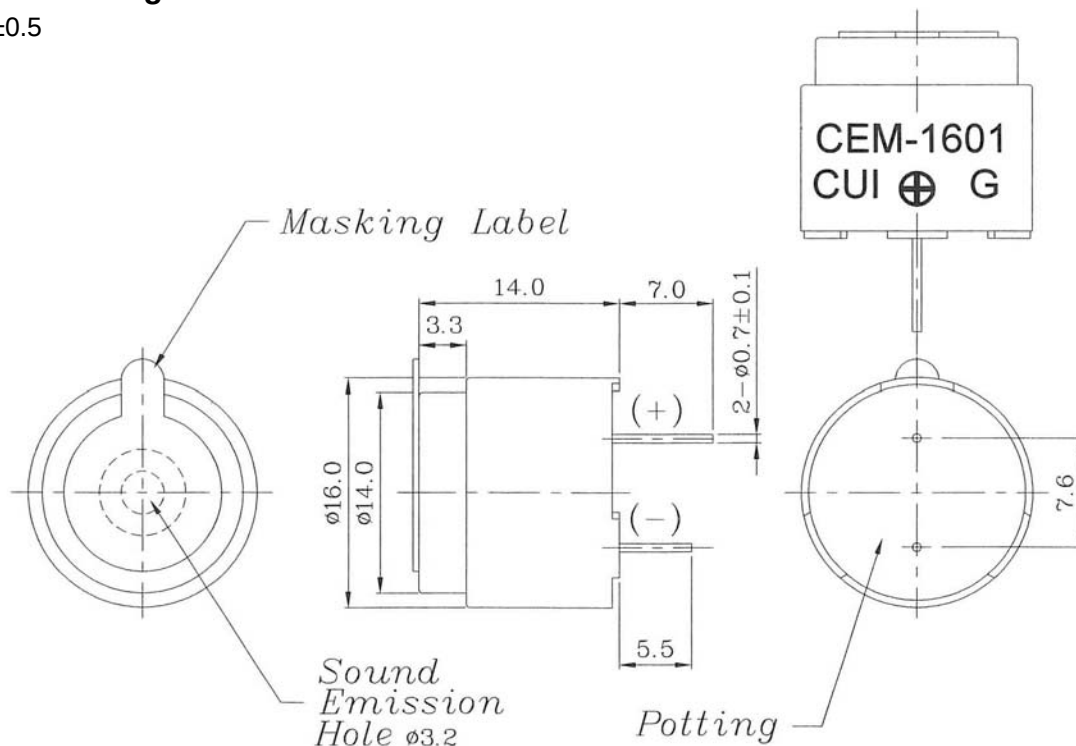
|                       |                               |                                                                                                 |
|-----------------------|-------------------------------|-------------------------------------------------------------------------------------------------|
| Rated voltage         | 1.5 Vo-p                      |              |
| Operating voltage     | 1.0 - 3.0 Vo-p                |                                                                                                 |
| Mean current          | 20 mA max.                    |                                                                                                 |
| Coil resistance       | 30 $\pm$ 4.5 $\Omega$         | Applying rated voltage, 2048 Hz square wave, 1/2 duty                                           |
| Coil impedance        | 105 $\Omega$                  | See impedance measurements graph                                                                |
| Sound output          | Min. 80 (Typical 88) dBA      | Distance at 10cm (A-weight free air). Applying rated voltage of 2048 Hz, square wave, 1/2 duty. |
| Rated frequency       | 2,048 Hz                      |                                                                                                 |
| Operating temperature | -20 ~ +60° C                  |                                                                                                 |
| Storage temperature   | -30 ~ +70° C                  |                                                                                                 |
| Dimensions            | $\varnothing$ 16.0 x H14.0 mm | See attached drawing                                                                            |
| Weight                | 4.6 g                         |                                                                                                 |
| Material              | PPO (Black)                   |                                                                                                 |
| Terminal              | Pin type (Au Plating)         | See attached drawing                                                                            |
| RoHS                  | yes                           |                                                                                                 |

## Frequency Response Curve

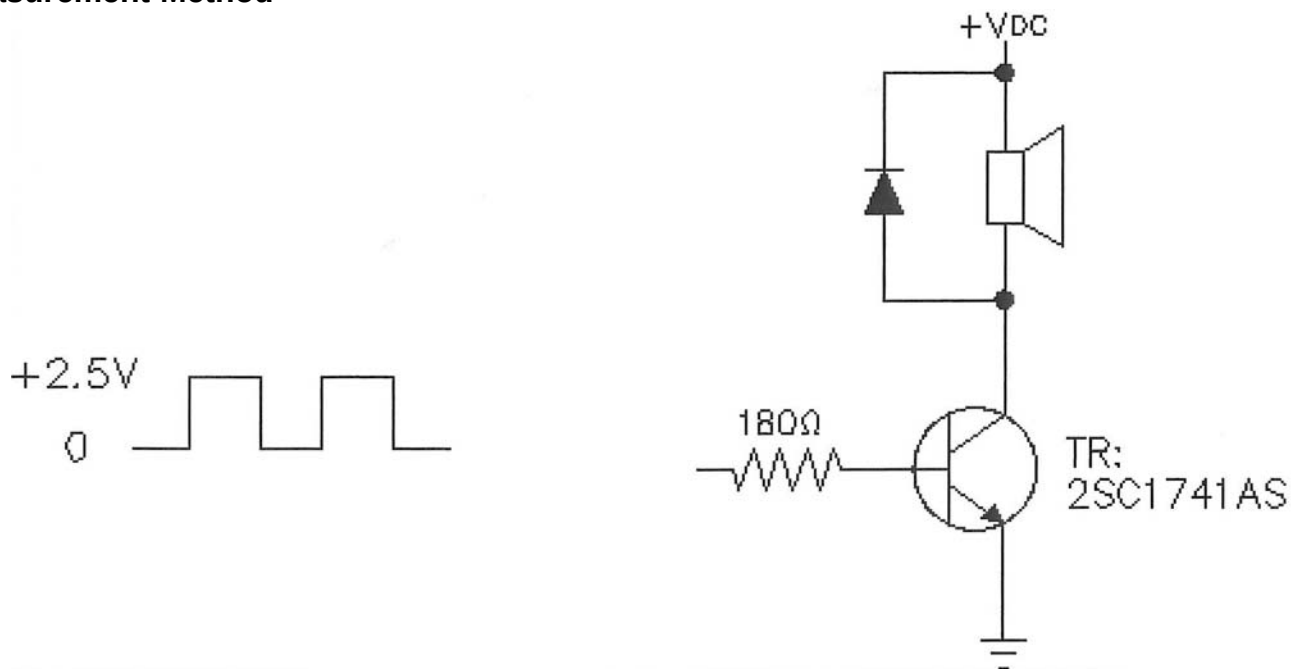


## Appearance Drawing

Tolerance:  $\pm 0.5$



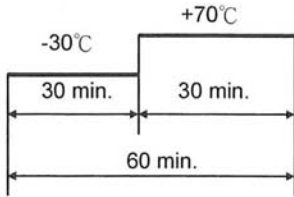
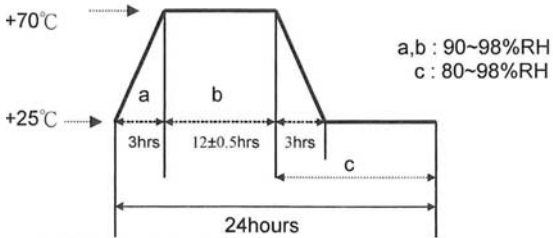
## Measurement Method



## Mechanical Characteristics

| Item                         | Test Condition                                                                                                                                                                  | Evaluation Standard                                                                                                                                            |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solderability                | Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $270 \pm 5^{\circ}\text{C}$ for $3 \pm 1$ seconds.                                       | 90% min. lead terminals should be wet with solder.<br>(Except the edge of the terminal.)                                                                       |
| Soldering Heat Resistance    | Lead terminals are immersed up to 1.5 mm from the buzzer's body in solder bath of $260 \pm 5^{\circ}\text{C}$ for $3 \pm 1$ seconds.                                            | No in interference in operation.                                                                                                                               |
| Terminal Mechanical Strength | Apply a force of 9.8 N (1.0 kg) to each terminal in each axial direction.                                                                                                       | No damage or cutting off.                                                                                                                                      |
| Vibration                    | The buzzer will be measured after applying a vibration amplitude of 1.52 mm with 10 to 55 Hz band of vibration frequency to each of the 3 perpendicular directions for 2 hours. | After the test, the part should meet specifications without any damage to the appearance and the SPL should be within $\pm 10$ dBA of the initial measurement. |
| Drop Test                    | The part is to be dropped from a height of 75 cm onto a 40 mm thick wooden board 3 times in 3 axis (X, Y, Z) for a total of 9 drops.                                            |                                                                                                                                                                |

## Environment Test

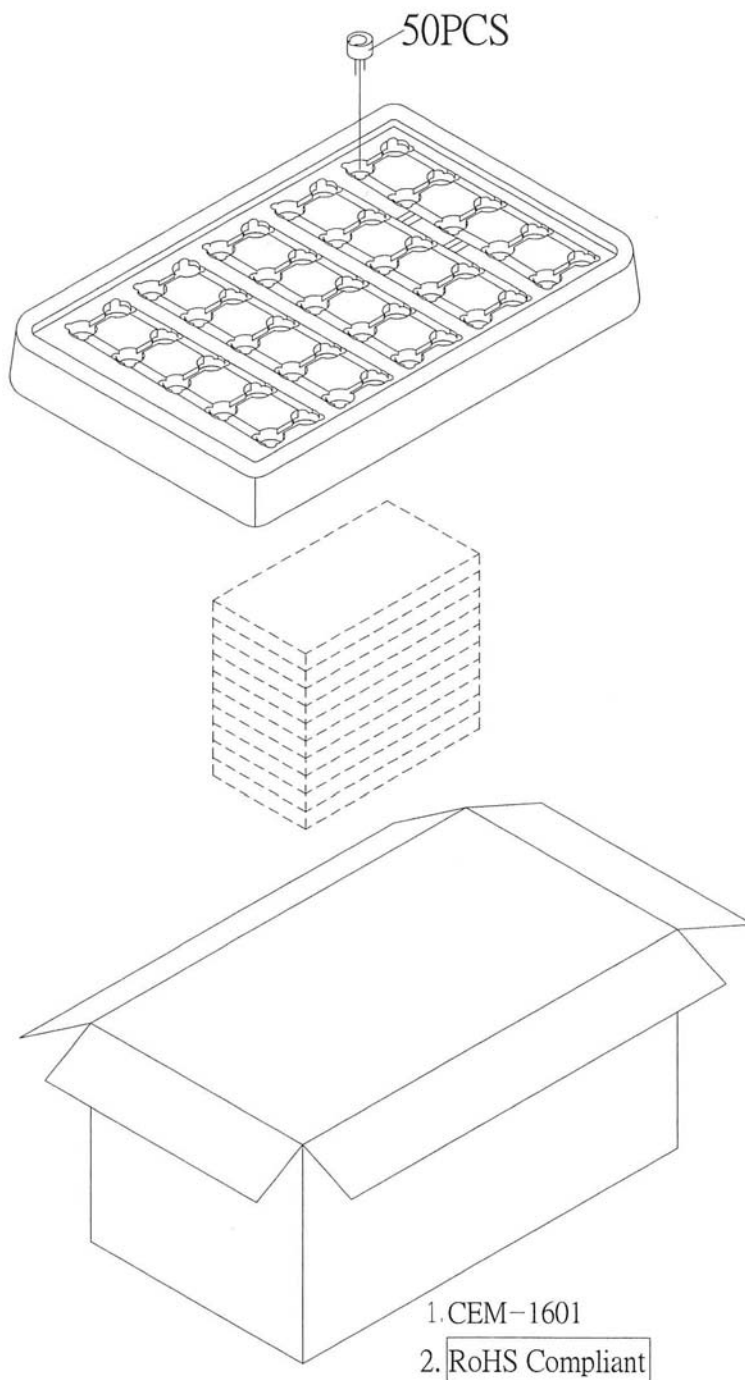
| Item                 | Test Condition                                                                                                                                                                   | Evaluation Standard                                                                                                                                                                                                           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High temp. test      | The part will be subjected to $+70^{\circ}\text{C}$ for 96 hours.                                                                                                                | After the test, the part should meet specifications without any damage to the appearance or performance except SPL. After 4 hours at $25^{\circ}\text{C}$ , the SPL should be within $\pm 10$ dBA of the initial measurement. |
| Low temp. test       | The part will be subjected to $-30^{\circ}\text{C}$ for 96 hours                                                                                                                 |                                                                                                                                                                                                                               |
| Thermal shock        | The part will be subjected to 10 cycles. One cycle will consist of:<br><br>                   |                                                                                                                                                                                                                               |
| Temp./Humidity cycle | The part shall be subjected to 10 cycles. One cycle will be 24 hours and consist of:<br><br> |                                                                                                                                                                                                                               |

## Reliability Tests

| Item                  | Test Condition                                                                                                                                                                                                                                                                    | Evaluation Standard                                                                                                                                                          |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating (Life Test) | <p>1. Continuous life test:<br/>The part will be subjected to 72 hours at 45°C with 1.5 V, 2048 Hz applied.</p> <p>2. Intermittent life test:<br/>A duty cycle of 1 minute on, 1 minute off, a minimum of 10,000 times at room temp. (+25 ±10°C) with 1.5 V, 2048 Hz applied.</p> | <p>After the test, the part shall meet specifications without any damage to the appearance. After 4 hours at +25°C, the SPL should be within ±10 dBA of the initial SPL.</p> |

## Test Conditions

|                          |                            |                       |                              |
|--------------------------|----------------------------|-----------------------|------------------------------|
| Standard Test Condition  | a) Temperature: +5 ~ +35°C | b) Humidity: 45 - 85% | c) Pressure: 860 - 1060 mbar |
| Judgement Test Condition | a) Temperature: +25±2°C    | b) Humidity: 60 - 70% | c) Pressure: 860 - 1060 mbar |

**Packaging**


|                   |                  |
|-------------------|------------------|
| 320mmx170mmx28mm  | 1x50PCS=50PCS    |
| 340mmx190mmx310mm | 10x50PCS=500PCS  |
| 690mmx390mmx350mm | 4x500PCS=2000PCS |