



Part No: CEM-1612

Description: magnetic buzzer

Date: 9/13/2006

Unit: mm

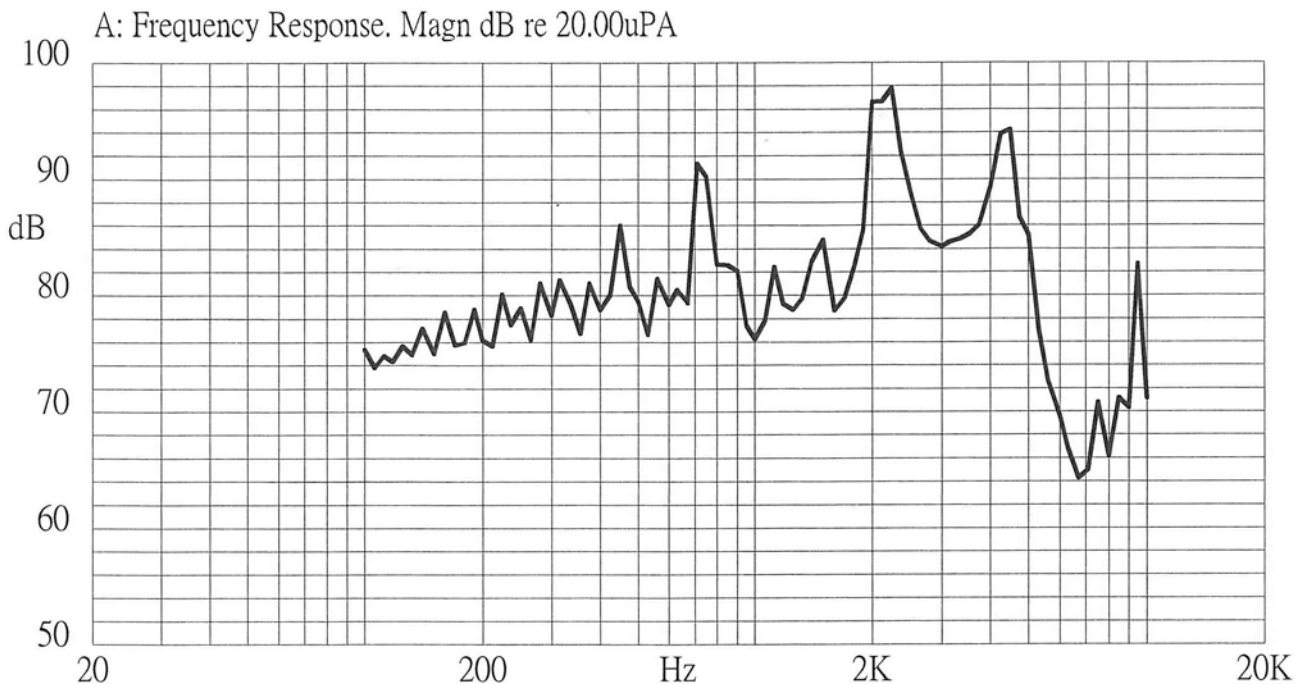
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### Specifications

|                       |                          |   |
|-----------------------|--------------------------|---|
| Rated voltage         | 12 Vo-p                  |   |
| Operating voltage     | 6.0 - 18.0 Vo-p          |   |
| Mean current          | 40 mA max.               |   |
| Coil resistance       | 115.0 ±17.0 Ω            | Applying rated voltage, 2048 Hz square wave, ½ duty   |
| Sound output          | Min. 85 (Typical 97) dBA | Distance at 10cm (A-weight free air). Applying rated voltage of 2048 Hz, square wave, ½ duty. |
| Rated frequency       | 2,048 Hz                 |   |
| Operating temperature | -20 ~ +60° C             |   |
| Storage temperature   | -30 ~ +70° C             |   |
| Dimensions            | ø16.0 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





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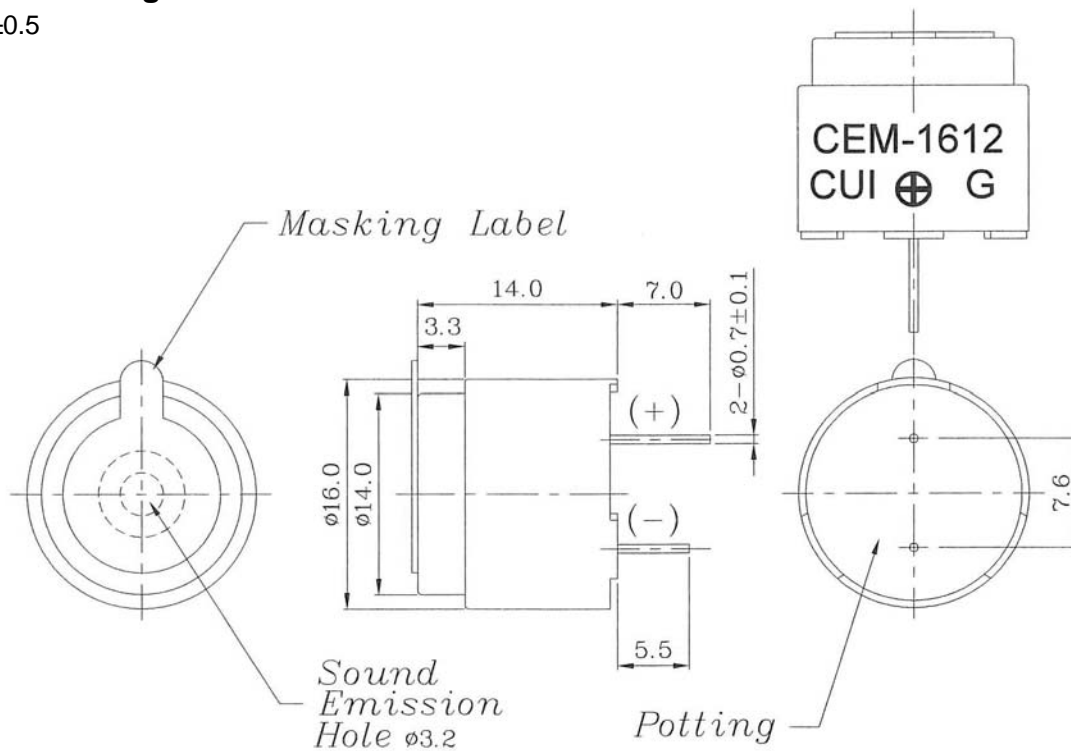
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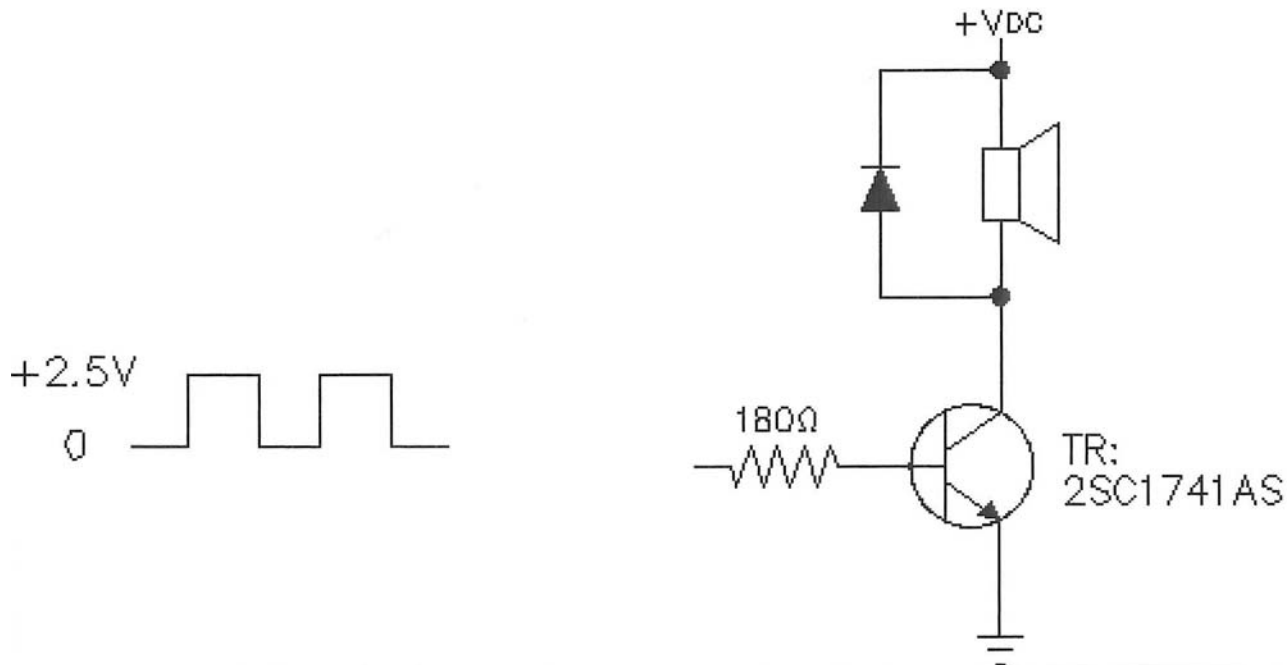
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### Appearance Drawing

Tolerance:  $\pm 0.5$



### Measurement Method





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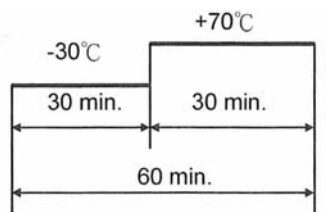
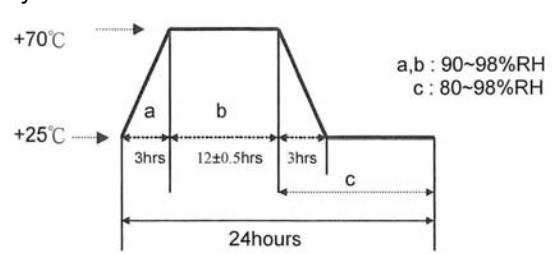
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**Mechanical Characteristics**

| Item                         | Test Condition  | Evaluation Standard   |
|------------------------------|---|---|
| Solderability <sup>1</sup>   | Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of 270 ±5°C for 3 ±1 seconds.   | 90% min. lead terminals should be wet with solder. (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 ±5°C for 3 ±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 1.5mm 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 ±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.  |   |

Notes: 1. Not recommended for wave soldering

**Environment Test**

| Item                 | Test Condition   | Evaluation Standard   |
|----------------------|--|---|
| High temp. test      | The part will be subjected to +70°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°C, the SPL should be within ±10 dBA of the initial measurement. |
| Low temp. test       | The part will be subjected to -30°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> |   |



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## 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 12 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 12 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 |



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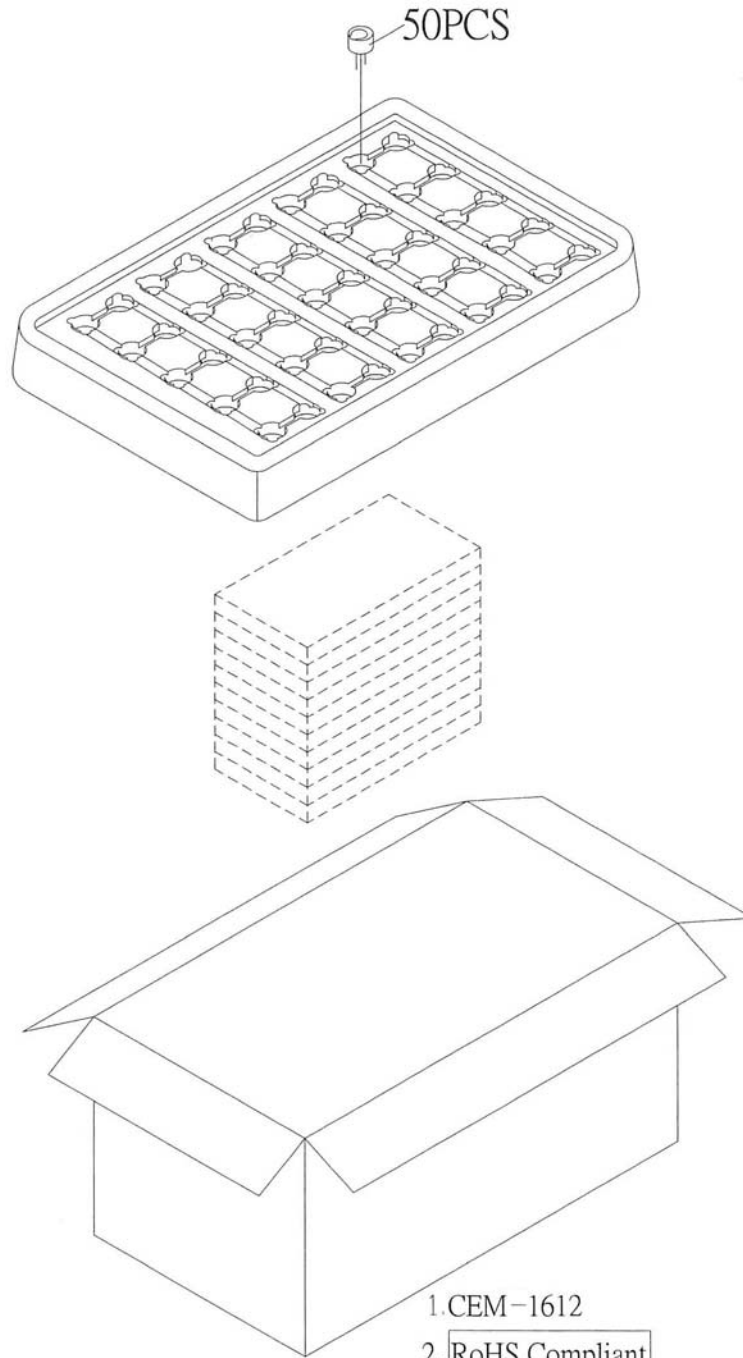
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### Packaging



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

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