



Part No: CEP-1152

Description: piezo audio transducer

Date: 9/18/2006

Unit: mm

Page No: 1 of 5

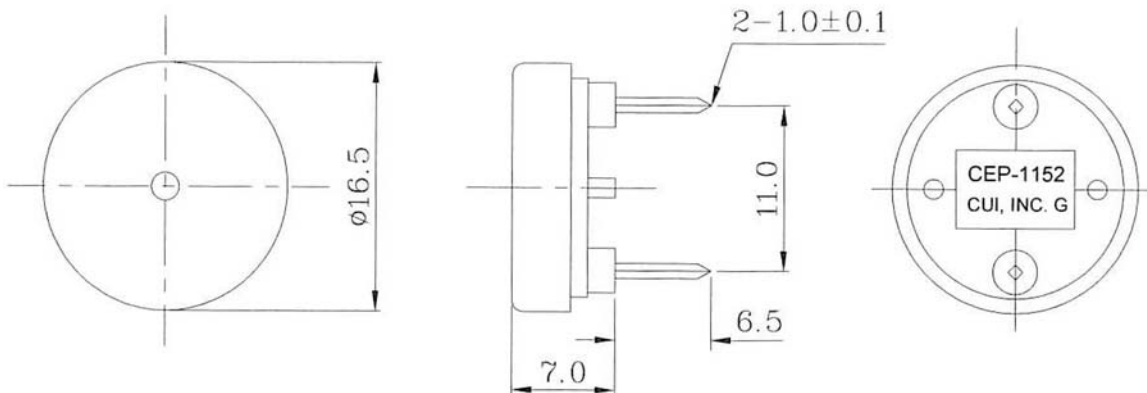


### Specifications

|                        |                            |                                          |
|------------------------|----------------------------|------------------------------------------|
| Operating voltage      | 30 Vp-p max.               |                                          |
| Current consumption    | 9 mA max.                  | at 10 Vp-p, square wave, 5.0 KHz         |
| Sound pressure level   | 84 db min.                 | at 10 cm / 10 Vp-p, square wave, 5.0 KHz |
| Electrostatic capacity | 11,000 pF $\pm$ 30%        | at 1KHz / 1 V                            |
| Operating temperature  | -30 ~ +85° C               |                                          |
| Storage temperature    | -40 ~ +95° C               |                                          |
| Dimensions             | $\phi$ 16.5 x H7.0 mm      |                                          |
| Weight                 | 1.0 g max.                 |                                          |
| Material               | ABS UL-94 1/16" HB (Black) |                                          |
| Terminal               | Pin type (Sn Plating)      |                                          |
| RoHS                   | yes                        |                                          |

### Appearance Drawing

Tolerance:  $\pm$ 0.5





Part No: CEP-1152

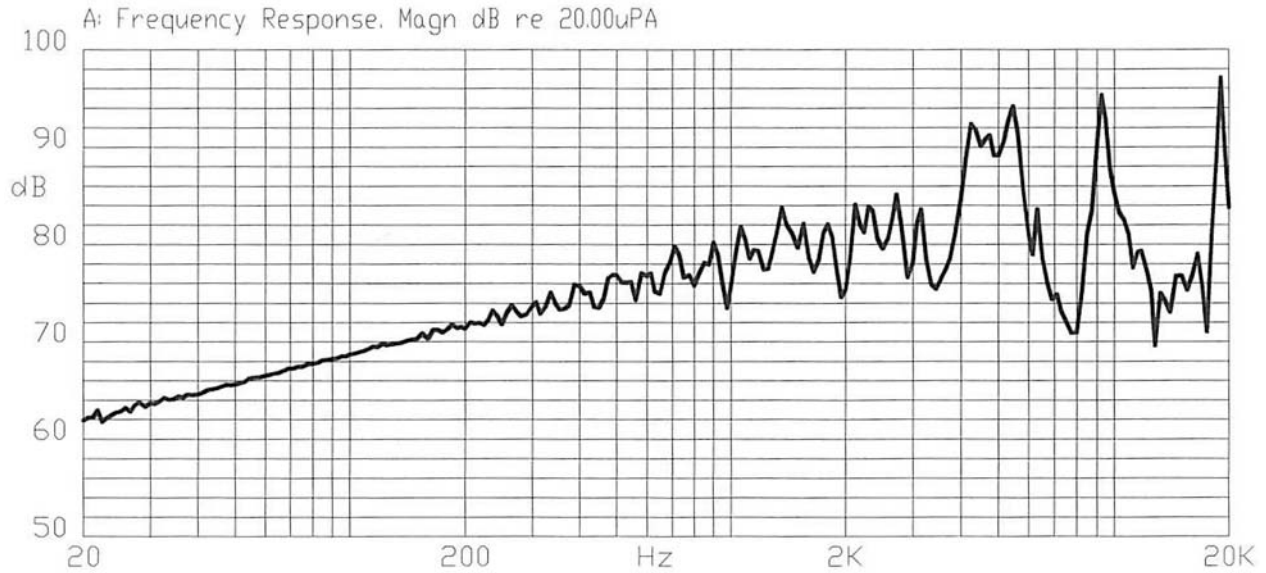
Description: piezo audio transducer

Date: 9/18/2006

Unit: mm

Page No: 2 of 5

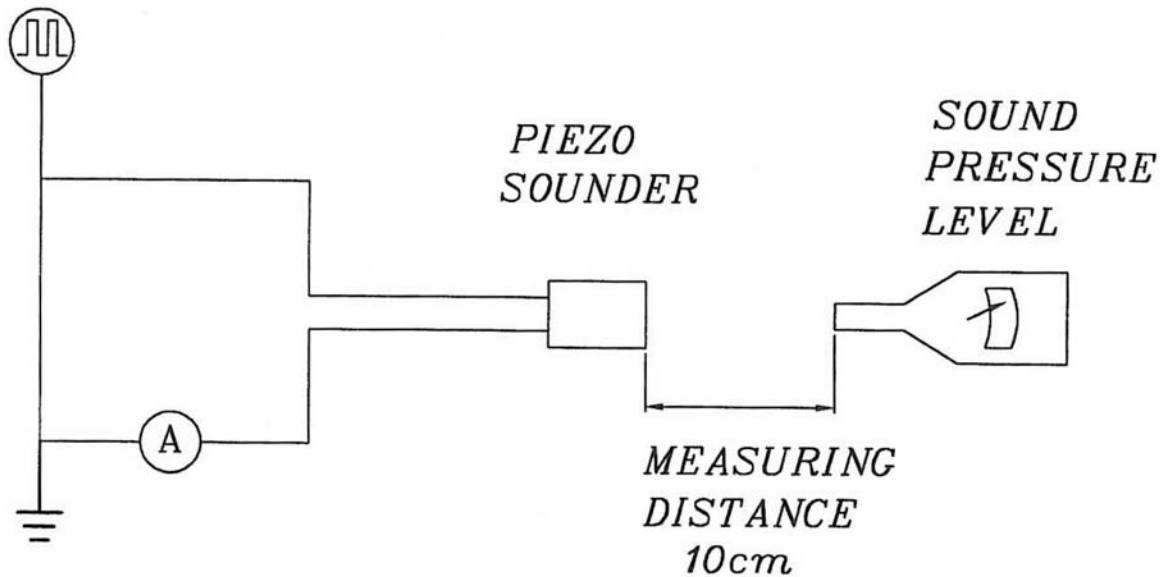
### Typical Frequency Response Curve



### Measurement Method

S.P.L. Measuring Circuit

Input Signal: 10Vp-p, 5.0kHz, Square Wave



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

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



Part No: CEP-1152

Description: piezo audio transducer

Date: 9/18/2006

Unit: mm

Page No: 3 of 5

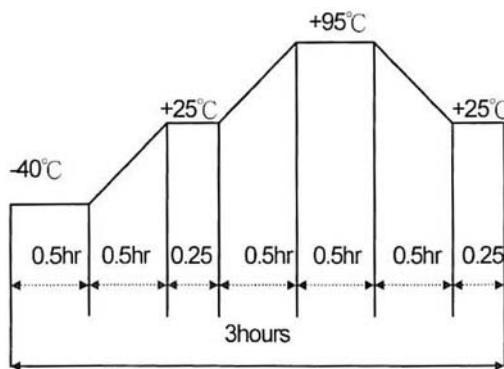
### Mechanical Characteristics

| 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. of the lead terminals will be wet with solder. (Except the edge of the terminal)                                                                                |
| Soldering Heat Resistance    | Lead terminals are immersed up to 1.5mm from buzzer's body in solder bath of 300 ±5°C or 260 ±5°C for 10 ±1 seconds.                                                            | No interference in operation.                                                                                                                                            |
| Terminal Mechanical Strength | For 10 seconds, the force of 9.8N (1.0kg) is applied to each terminal in axial direction.                                                                                       | No damage or cutting off.                                                                                                                                                |
| Vibration                    | The buzzer shall be measured after applying a vibration amplitude of 1.5 mm with 10 to 55 Hz band of vibration frequency to each of the 3 perpendicular directions for 2 hours. | The value of oscillation frequency/current consumption should be ±10% of the initial measurements. The SPL should be within ±10dB compared with the initial measurement. |
| Drop Test                    | The part will be dropped from a height of 75 cm onto a 40 mm thick wooden board 3 times in 3 axes (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  | After being placed in a chamber at +95°C for 240 hours.                             | The buzzer will be measured after being placed at +25°C for 4 hours. The value of the oscillation frequency/current consumption should be ±10% compared to the initial measurements. The SPL should be within ±10dB compared to the initial measurements. |
| Low temp. test   | After being placed in a chamber at -40°C for 240 hours.                             |                                                                                                                                                                                                                                                           |
| Humidity test    | After being placed in a chamber at +40°C and 90±5% relative humidity for 240 hours. |                                                                                                                                                                                                                                                           |
| Temp. cycle test | The part shall be subjected to 5 cycles. One cycle will consist of:                 |                                                                                                                                                                                                                                                           |





**Part No: CEP-1152**

**Description: piezo audio transducer**

**Date: 9/18/2006**

**Unit: mm**

**Page No: 4 of 5**

**Reliability Test**

| <b>Item</b>           | <b>Test Condition</b>                                                                                                                                                                                                                                                                                  | <b>Evaluation Standard</b>                                                                                                                                                                                                                                       |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating (Life Test) | <p>1. Continuous life test:<br/>The part will be subjected to 48 hours of continuous operation at +70°C with rated voltage applied.</p> <p>2. Intermittent life test:<br/>A duty cycle of 1 minute on, 1 minutes off, a minimum of 5,000 times at room temp (+25 ±2°C) with rated voltage applied.</p> | <p>The buzzer will be measured after being placed at +25°C for 4 hours. The value of the oscillation frequency/current consumption should be ±10% compared to the initial measurements. The SPL should be within ±10dB compared to the initial measurements.</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 |



Part No: CEP-1152

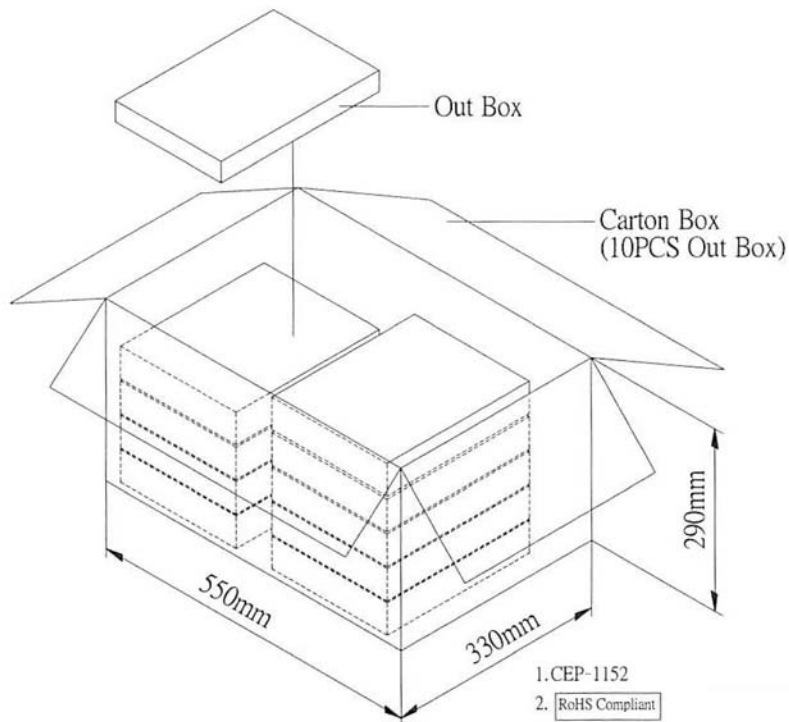
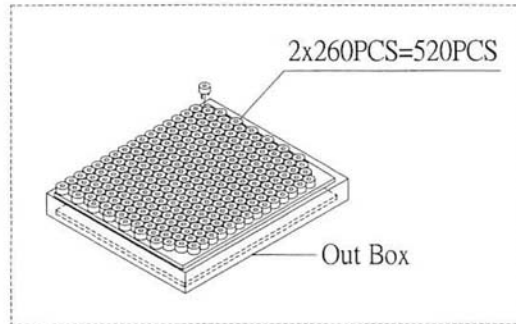
Description: piezo audio transducer

Date: 9/18/2006

Unit: mm

Page No: 5 of 5

**Packaging**



|            |                   |                    |
|------------|-------------------|--------------------|
| Out Box    | 310mmx248mmx49mm  | 2x260PCS=520PCS    |
| Carton Box | 550mmx330mmx290mm | 520PCSx10=5,200PCS |