



Part No: CEP-1110

Description: piezo audio transducer

Date: 9/18/2006

Unit: mm

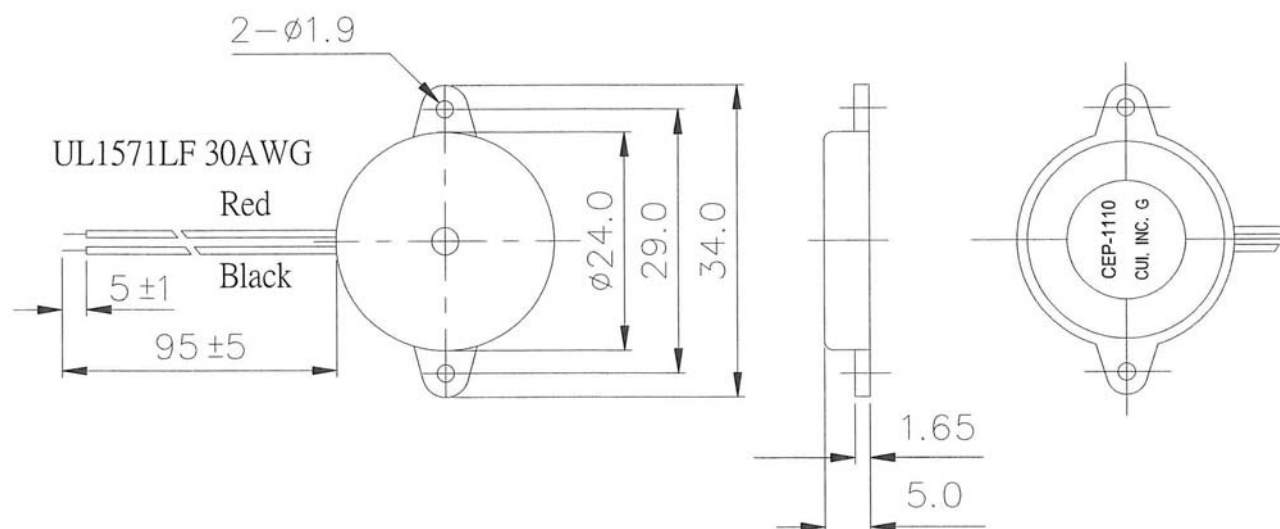
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## Specifications

|                           |                                      |                                          |
|---------------------------|--------------------------------------|------------------------------------------|
| Operating voltage         | 30 Vp-p max.                         |                                          |
| Current consumption       | 12 mA max.                           | at 10 Vp-p, square wave, 4.1 KHz         |
| Sound pressure level      | 90 db min.                           | at 10 cm / 10 Vp-p, square wave, 4.1 KHz |
| Electrostatic capacitance | 25,000 pF $\pm$ 30%                  | at 1 KHz / 1 V                           |
| Operating temperature     | -30 ~ +85° C                         |                                          |
| Storage temperature       | -40 ~ +95° C                         |                                          |
| Dimensions                | $\phi$ 24.0 x H5.0 mm                |                                          |
| Weight                    | 2.2 g max.                           |                                          |
| Material                  | ABS UL-94 1/16" HB High Heat (Black) |                                          |
| Terminal                  | Wire type                            |                                          |
| RoHS                      | yes                                  |                                          |

## Appearance Drawing

Tolerance:  $\pm$ 0.5



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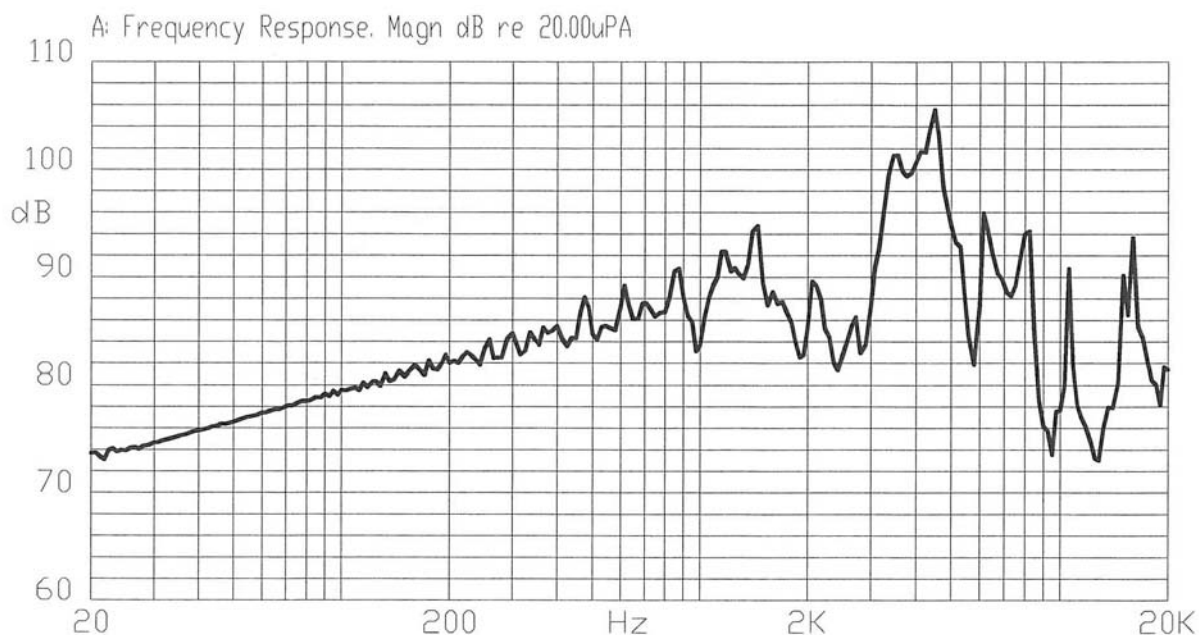
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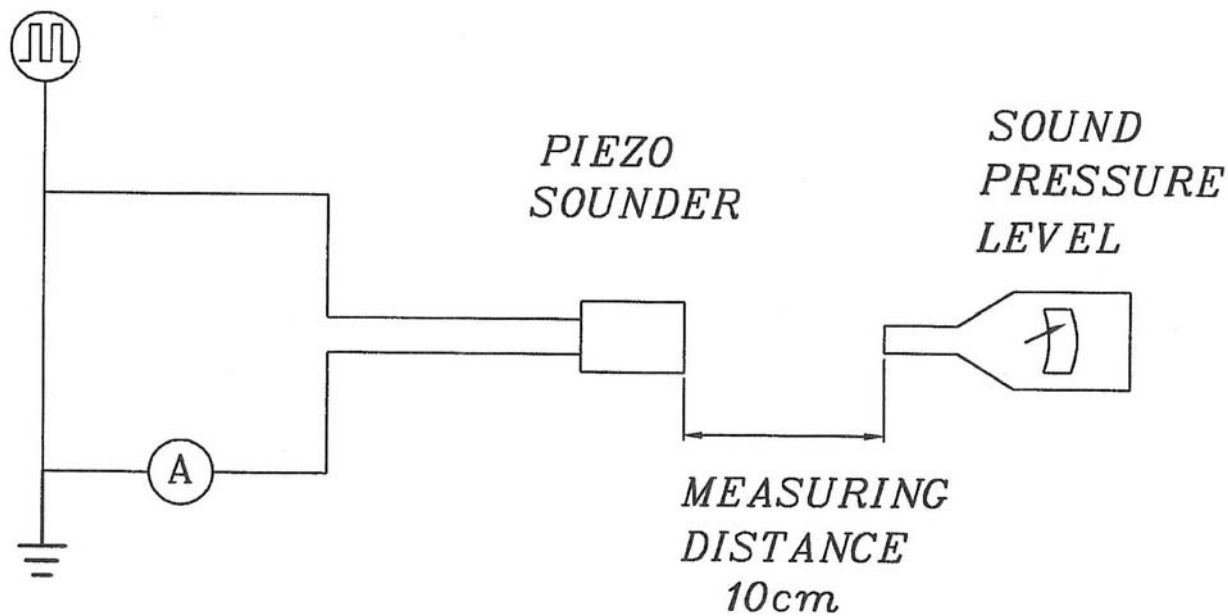
Unit: mm

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## Typical Frequency Response Curve



## Measurement Method



S.P.L. Measuring Circuit

Input Signal: 10 V p-p, 4.1 KHz, Square Wave

Mic: RION UC 30

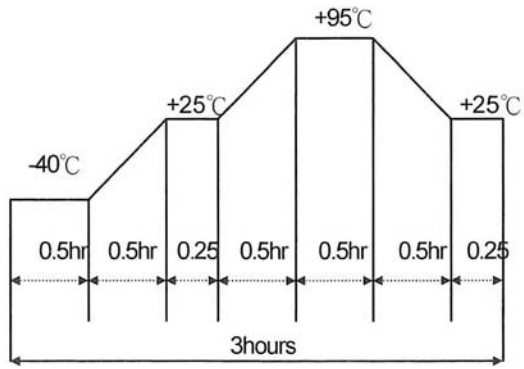
S.G.: Hewlett Packard 33120A Function Generator or equivalent

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## 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 $3 \pm 0.5$ seconds.                                      | 90% min. of the stripped wires will be wet with solder. (Except the edge of the terminal)                                                                                                  |
| Terminal Mechanical Strength | The pull force should be applied to the double lead wire:<br>Horizontal 3.0N (0.306kg) for 30 seconds<br>Vertical 2.0N (0.204kg) for 30 seconds                                  | No damage or cutting off.                                                                                                                                                                  |
| Vibration                    | The buzzer should 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 $\pm 10\%$ of the initial measurements. The SPL should be within $\pm 10\text{dB}$ 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.                                              |                                                                                                                                                                                            |

## Environment Test

| Item             | Test Condition                                                                                                                                                  | Evaluation Standard                                                                                                                                                                                                                                                                         |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High temp. test  | After being placed in a chamber at $+95^{\circ}\text{C}$ for 240 hours.                                                                                         | The buzzer will be measured after being placed at $+25^{\circ}\text{C}$ for 4 hours. The value of the oscillation frequency/current consumption should be $\pm 10\%$ compared to the initial measurements. The SPL should be within $\pm 10\text{dB}$ compared to the initial measurements. |
| Low temp. test   | After being placed in a chamber at $-40^{\circ}\text{C}$ for 240 hours.                                                                                         |                                                                                                                                                                                                                                                                                             |
| Humidity test    | After being placed in a chamber at $+40^{\circ}\text{C}$ and $90 \pm 5\%$ relative humidity for 240 hours.                                                      |                                                                                                                                                                                                                                                                                             |
| Temp. cycle test | The part shall be subjected to 5 cycles. One cycle will consist of:<br><br> |                                                                                                                                                                                                                                                                                             |

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## Reliability Test

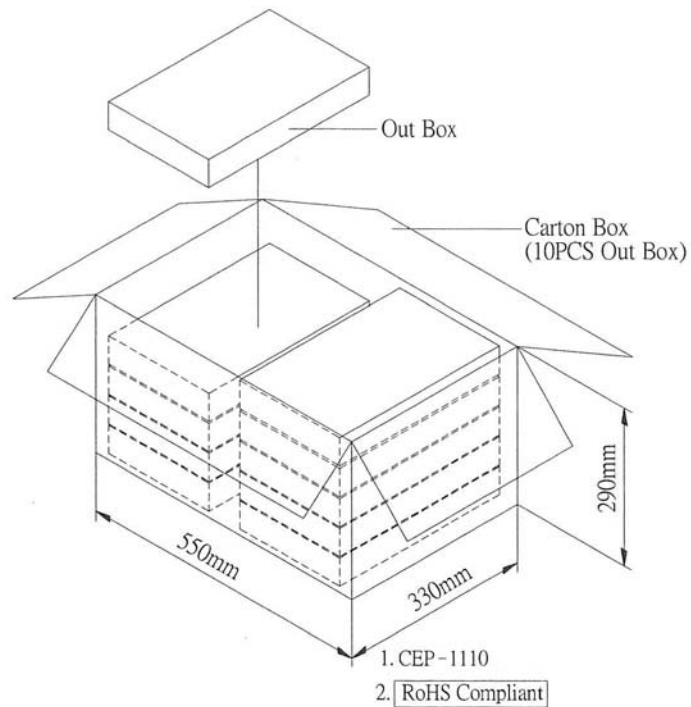
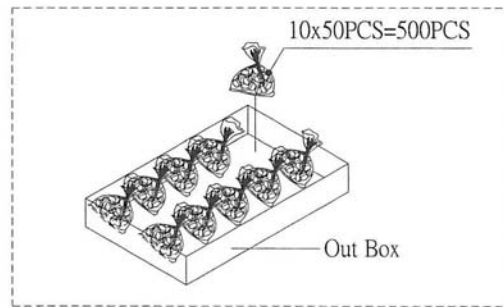
| Item                  | Test Condition                                                                                                                                                                                                                                                                                           | Evaluation Standard                                                                                                                                                                                                                                              |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating (Life Test) | <p>1. Continuous life test:<br/>The part will be subjected to 250 hours of continuous operation at +85°C with rated voltage applied.</p> <p>2. Intermittent life test:<br/>A duty cycle of 1 minute on, 5 minutes off, a minimum of 10,000 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 |


**CUI INC**
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## Packaging



|            |                   |                    |
|------------|-------------------|--------------------|
| Out Box    | 310mmx248mmx49mm  | 10x50PCS=500PCS    |
| Carton Box | 550mmx330mmx290mm | 500PCSx10=5,000PCS |