

**PART NUMBER:** CPE-353A

**DESCRIPTION:** piezo audio indicators

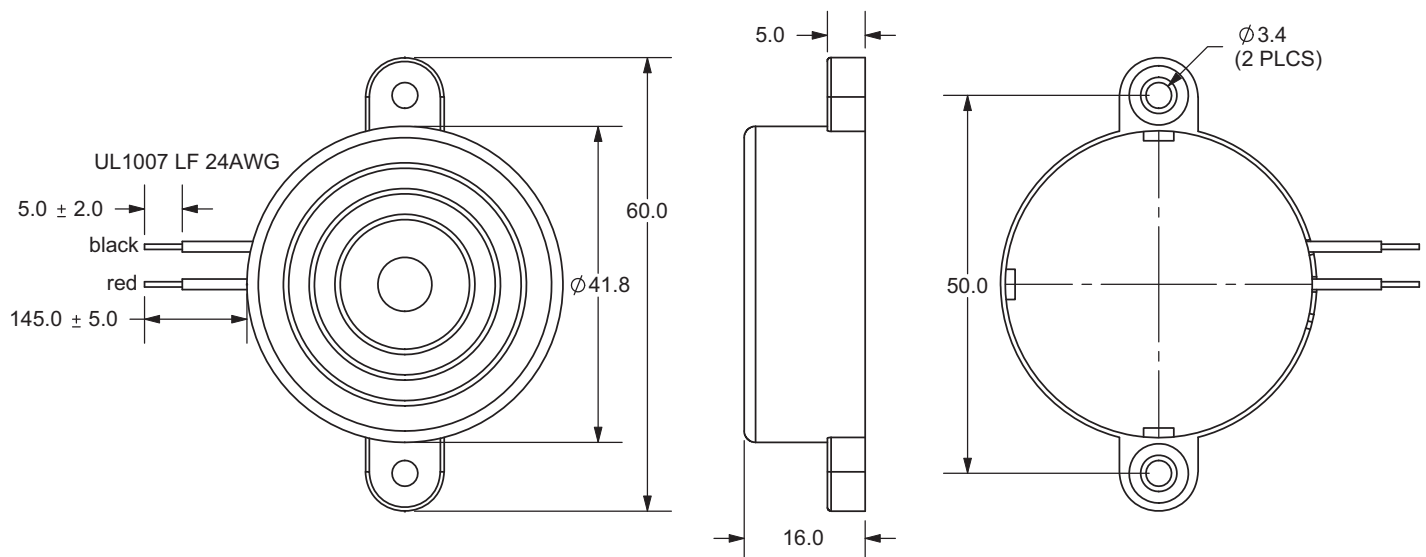
## SPECIFICATONS

|                         |                                   |                  |
|-------------------------|-----------------------------------|------------------|
| operating frequency     | 2.8 ± 0.5 KHz                     |                  |
| operating voltage range | 3 ~ 20 V DC                       |                  |
| current consumption     | 10 mA max.                        | at 12 V DC       |
| sound pressure level    | 88 db min.                        | at 30 cm/12 V DC |
| rated voltage           | 12 V DC                           |                  |
| tone                    | slow pulse (1.5Hz±20%)            |                  |
| operating temperature   | -30 ~ +85° C                      |                  |
| storage temperature     | -40 ~ +95° C                      |                  |
| dimensions              | Ø41.8 x H16.0 mm                  |                  |
| weight                  | 14.2 g max.                       |                  |
| material                | ABS UL-94 1/16" high heat (black) |                  |
| terminal                | wire type                         |                  |
| RoHS                    | yes                               |                  |

## APPEARANCE DRAWING

tolerance: ±0.5

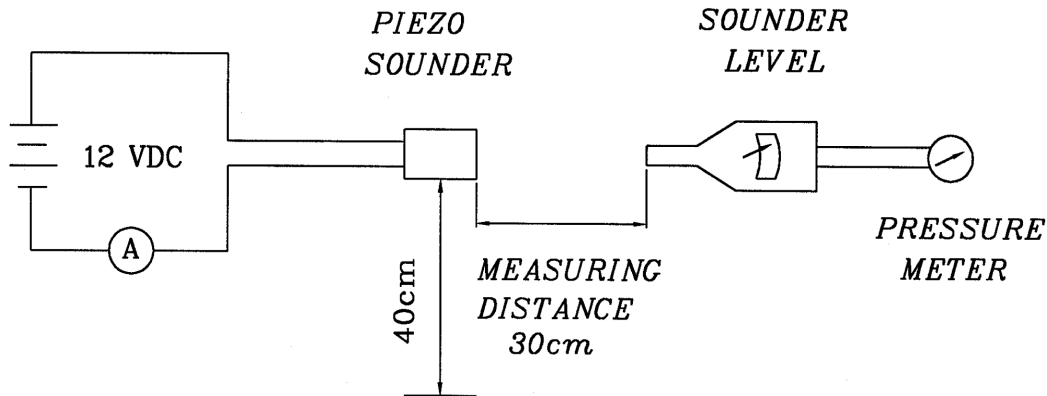
units: mm



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## MEASUREMENT METHOD



S.P.L. Measuring Circuit

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

S.G.: Hewlett Packard 33120A function generator or equivalent

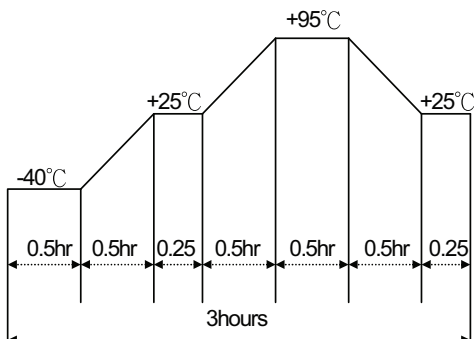
## MECHANICAL CHARACTERISTICS

| item                    | test condition                                                                                                                                                                  | evaluation standard                                                                                                                                                                        |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| solderability           | Stripped wires 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. of the lead terminals will be wet with solder (except the edge of the terminal).                                                                                                  |
| lead wire pull strength | The pull force shall be applied to lead wire:<br>Horizontal 3.0N for 30 seconds<br>Vertical 2.0N for 30 seconds                                                                 | 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 $\pm 10\%$ 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.                                             |                                                                                                                                                                                            |

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## 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 $\pm 10\%$ 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°C for 240 hours.                                                                                                        |                                                                                                                                                                                                                                                                             |
| humidity test    | After being placed in a chamber at +40°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> |                                                                                                                                                                                                                                                                             |

## RELIABILITY TEST

| item                  | test condition                                                                                                                                                                                                                                                                                                                     | evaluation standard                                                                                                                                                                                                                                                         |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 <math>\pm 2^\circ\text{C}</math>) with rated voltage applied.</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 $\pm 10\%$ compared to the initial measurements. The SPL should be within $\pm 10\text{dB}$ compared to the initial measurements. |

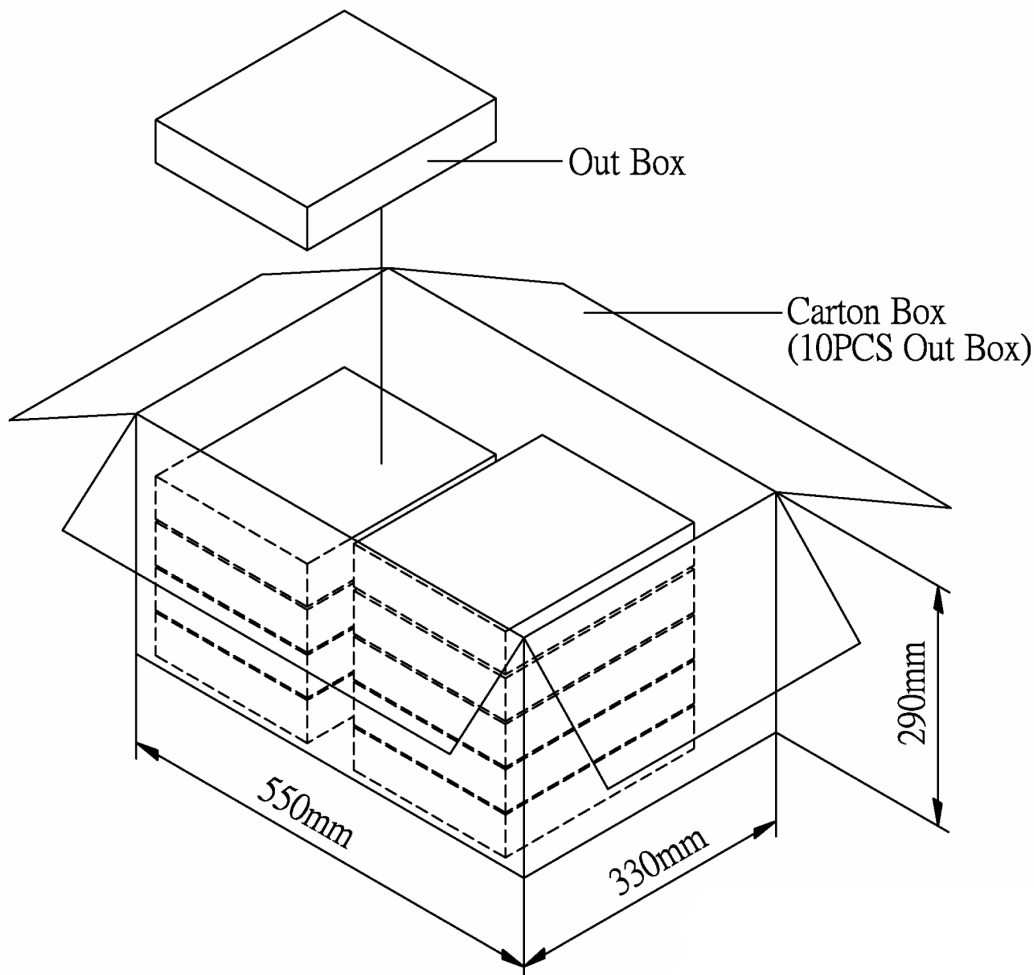
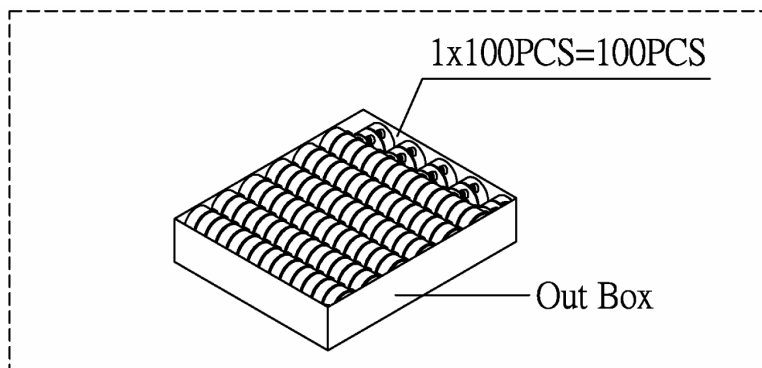
## TEST CONDITIONS

|                          |                                           |                       |                            |
|--------------------------|-------------------------------------------|-----------------------|----------------------------|
| standard test condition  | a) temperature: +5 ~ +35°C                | b) humidity: 45 - 85% | c) pressure: 860-1060 mbar |
| judgement test condition | a) temperature: +25 $\pm 2^\circ\text{C}$ | b) humidity: 60 - 70% | c) pressure: 860-1060 mbar |

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## PACKAGING



|            |                   |                    |
|------------|-------------------|--------------------|
| Out Box    | 310mmx248mmx49mm  | 1x100PCS=100PCS    |
| Carton Box | 550mmx330mmx290mm | 100PCSx10=1,000PCS |