

**PART NUMBER:** CPE-223

**DESCRIPTION:** piezo audio indicators

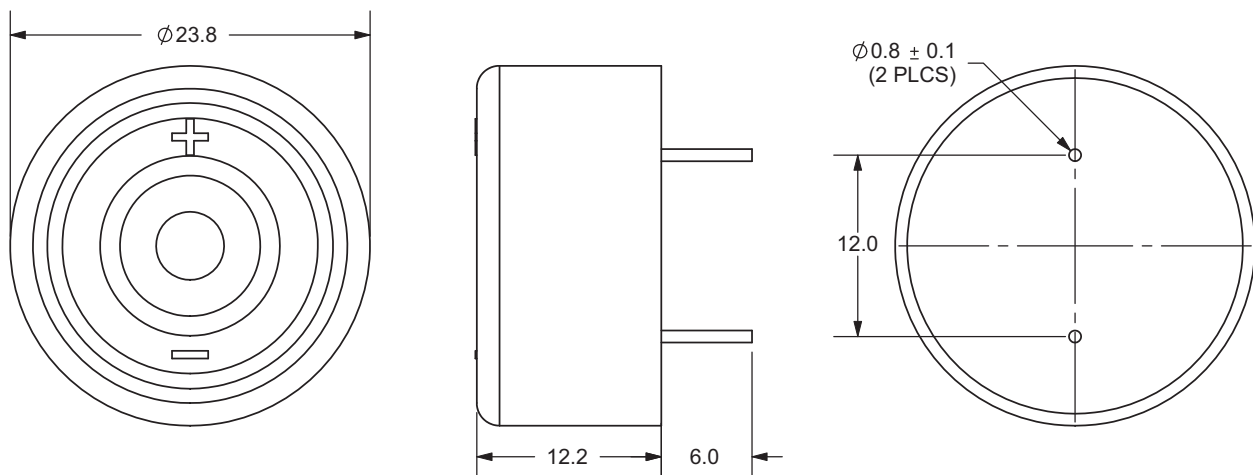
## SPECIFICATIONS

|                         |                       |                  |
|-------------------------|-----------------------|------------------|
| resonant frequency      | 3.3 ± 0.5 KHz         |                  |
| operating voltage range | 3 ~ 20 V DC           |                  |
| current consumption     | 13 mA max.            | at 12 V DC       |
| sound pressure level    | 81 db min.            | at 30 cm/12 V DC |
| rated voltage           | 12 V DC               |                  |
| tone                    | continuous            |                  |
| operating temperature   | -20 ~ +85°C           |                  |
| storage temperature     | -30 ~ +95°C           |                  |
| dimensions              | Ø23.8 x H12.2 mm      |                  |
| weight                  | 3.5 g max.            |                  |
| material                | PBT+15% glass (black) |                  |
| terminal                | pin type (Sn plating) |                  |
| RoHS                    | yes                   |                  |

## APPEARANCE DRAWING

tolerance: ±0.5

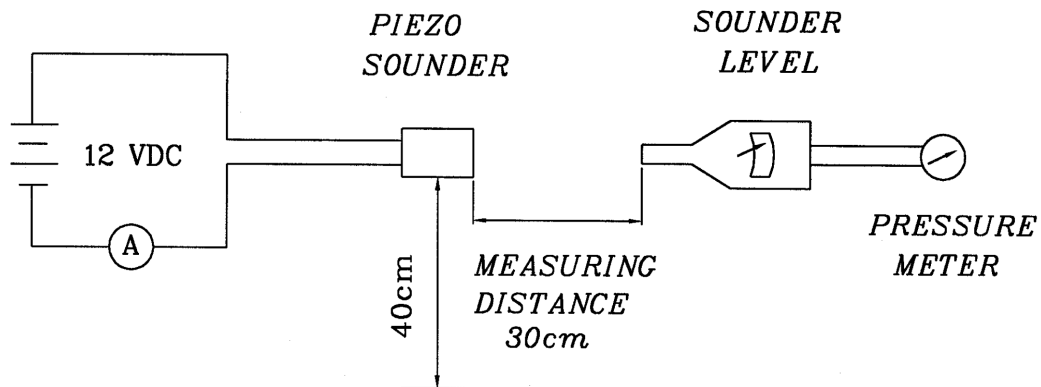
units: mm



**PART NUMBER:** CPE-223

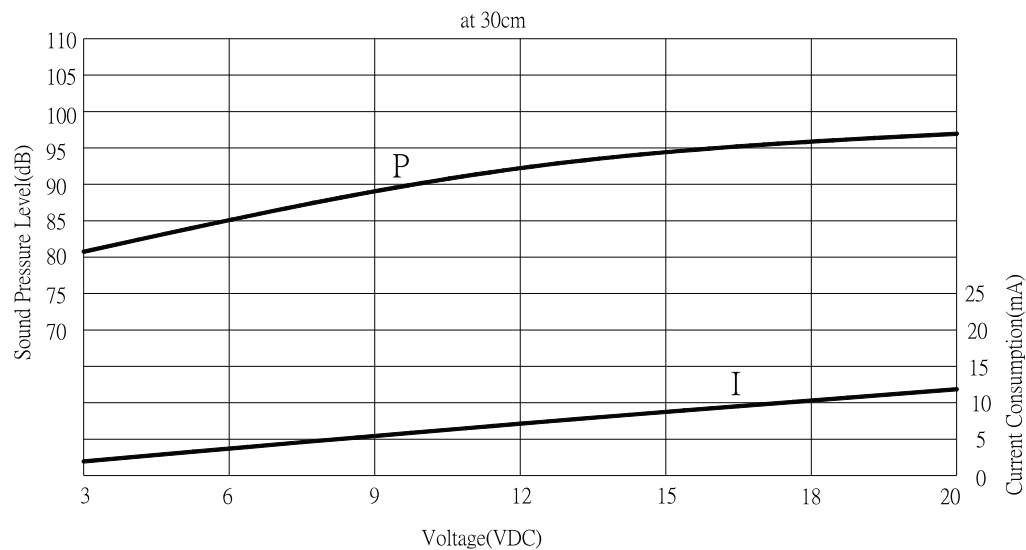
**DESCRIPTION:** piezo audio indicators

## MEASUREMENT METHOD



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

## CURRENT CONSUMPTION/SOUND PRESSURE LEVEL



**PART NUMBER:** CPE-223

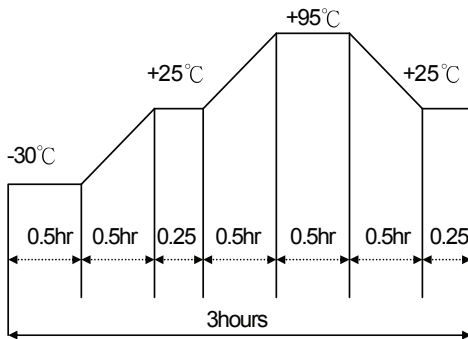
**DESCRIPTION:** piezo audio indicators

## 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 $270 \pm 5^{\circ}\text{C}$ for $3 \pm 1$ seconds.                                               | 90% min. of the lead terminals will be wet with solder (except the edge of the terminal).                                                                                                  |
| soldering heat resistance  | Lead terminals are immersed up to 1.5mm from buzzer's body in solder bath of $300 \pm 5^{\circ}\text{C}$ for $3 \pm 0.5$ seconds or $260 \pm 5^{\circ}\text{C}$ for $10 \pm 1$ seconds. | No interference in operation.                                                                                                                                                              |
| terminal strength pulling  | For 10 seconds, the force of 300g 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 $\pm 10\%$ 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.                                                     |                                                                                                                                                                                            |

Notes: 1. Not recommended for wave soldering

## ENVIRONMENT TEST

| item             | test condition                                                                                                                                                  | evaluation standard                                                                                                                                                                                                                                                                         |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| high temp. test  | After being placed in a chamber at $+95^{\circ}\text{C}$ 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 $-30^{\circ}\text{C}$ 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> |                                                                                                                                                                                                                                                                                             |

**PART NUMBER:** CPE-223**DESCRIPTION:** piezo audio indicators**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 ±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> |

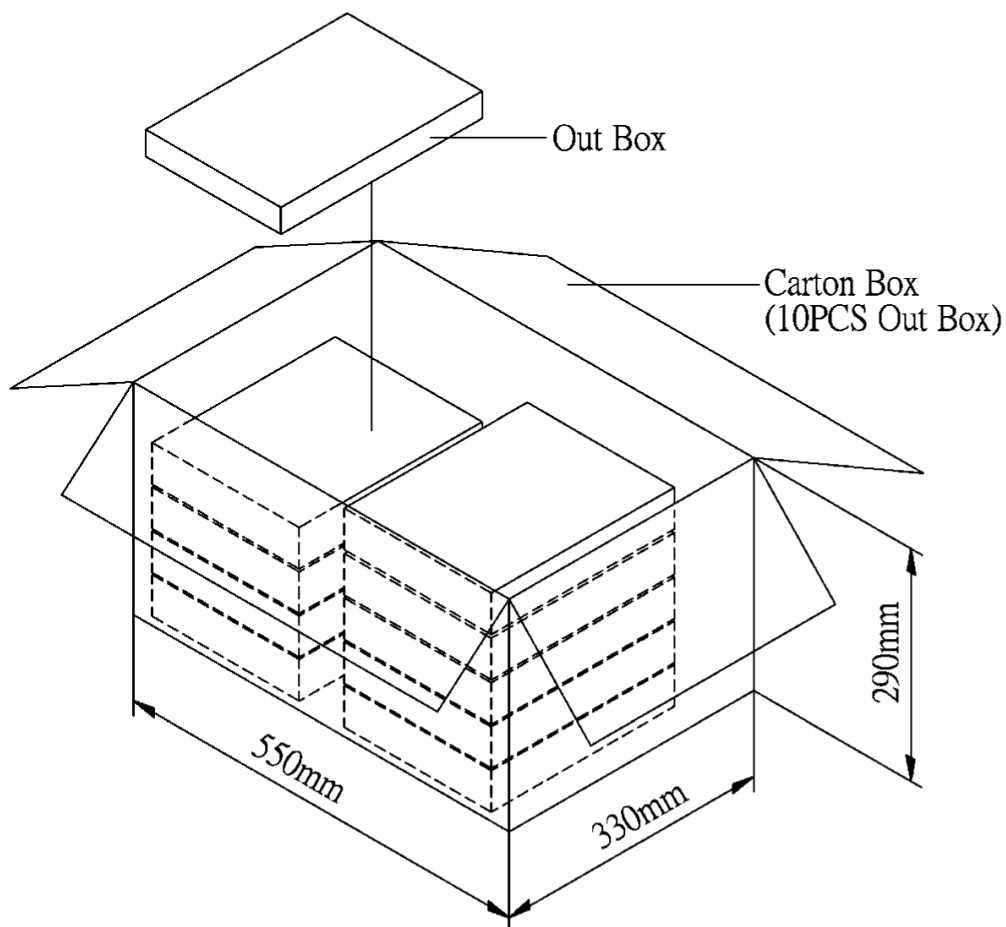
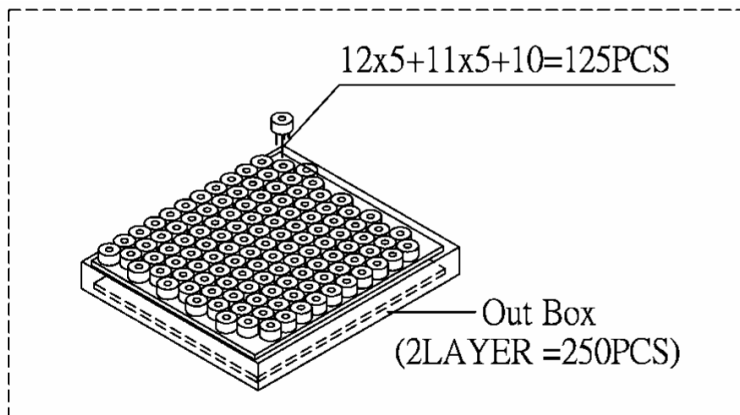
**TEST CONDITIONS**

|                          |                            |                       |                            |
|--------------------------|----------------------------|-----------------------|----------------------------|
| 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 NUMBER:** CPE-223

**DESCRIPTION:** piezo audio indicators

## PACKAGING



|            |                   |                    |
|------------|-------------------|--------------------|
| Out Box    | 310mmx248mmx49mm  | 2x125PCS=250PCS    |
| Carton Box | 550mmx330mmx290mm | 250PCSx10=2,500PCS |