

# SPECIFICATION FOR APPROVAL

## 承認書

Description : Piezo Audio Indicator

Kingstate Part No. : KPEG243

Customer's Model No. : \_\_\_\_\_

Specification No. : PKD-7333

Number Of The Edition : 1.2

| CUSTOMER'S APPROVED SIGNATURE |  |  |
|-------------------------------|--|--|
|                               |  |  |

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## A. SCOPE 範疇

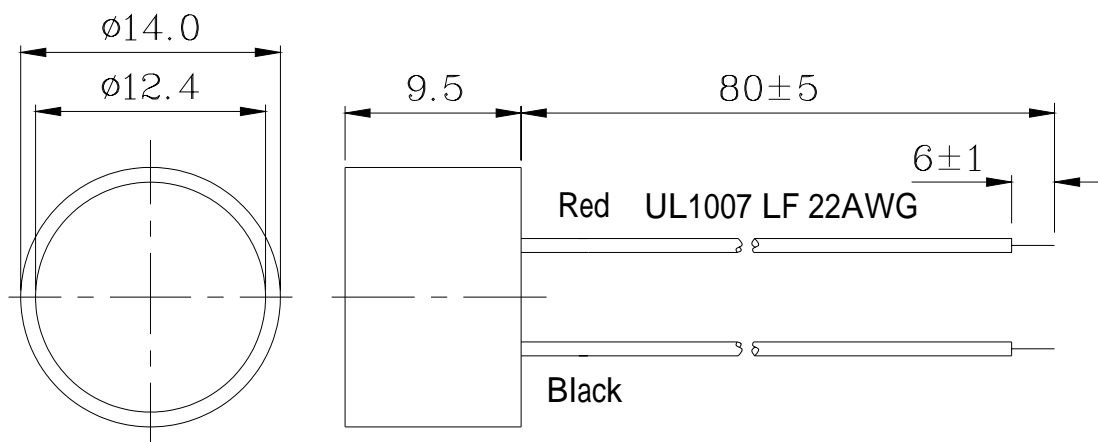
This specification applies piezo audio indicator, **KPEG243**

此規格書適用於壓電式蜂鳴器, **KPEG243**

## B. SPECIFICATION 規格

| No. | Item                                           | Unit | Specification                           | Condition                          |
|-----|------------------------------------------------|------|-----------------------------------------|------------------------------------|
| 1   | Operating Frequency<br>操作頻率                    | KHz  | 5.0 ± 0.5                               |                                    |
| 2   | Operating Volt. range<br>操作電壓範圍                | VDC  | 9 ~ 16                                  |                                    |
| 3   | Current consumption<br>消耗電流                    | mA   | MAX 35                                  | at 12VDC                           |
| 4   | Sound pressure level<br>輸出音壓                   | dB   | MIN 80                                  | at 30cm/12VDC                      |
| 5   | Rated Voltage<br>額定電壓                          | VDC  | 12                                      |                                    |
| 6   | Tone<br>聲音                                     |      | Continuous<br>直音                        | at 12VDC                           |
| 7   | Operating temp.<br>操作溫度                        |      | -30~ +85                                |                                    |
| 8   | Storage temp.<br>儲存溫度                          |      | -40 ~ +95                               |                                    |
| 9   | Dimension<br>尺寸                                | mm   | 14.0 x H9.5                             | See appearance drawing<br>請參照外觀尺寸圖 |
| 10  | Weight (MAX)<br>重量                             | gram | 10.0                                    |                                    |
| 11  | Material<br>材質                                 |      | ABS UL-94 1/16" HB HIGH HEAT<br>(BLACK) |                                    |
| 12  | Terminal<br>端子                                 |      | Wire type                               | See appearance drawing<br>請參照外觀尺寸圖 |
| 13  | Environmental<br>Protection Regulation<br>環保法規 |      | RoHS                                    |                                    |

## C. APPEARANCE DRAWING 外觀尺寸圖

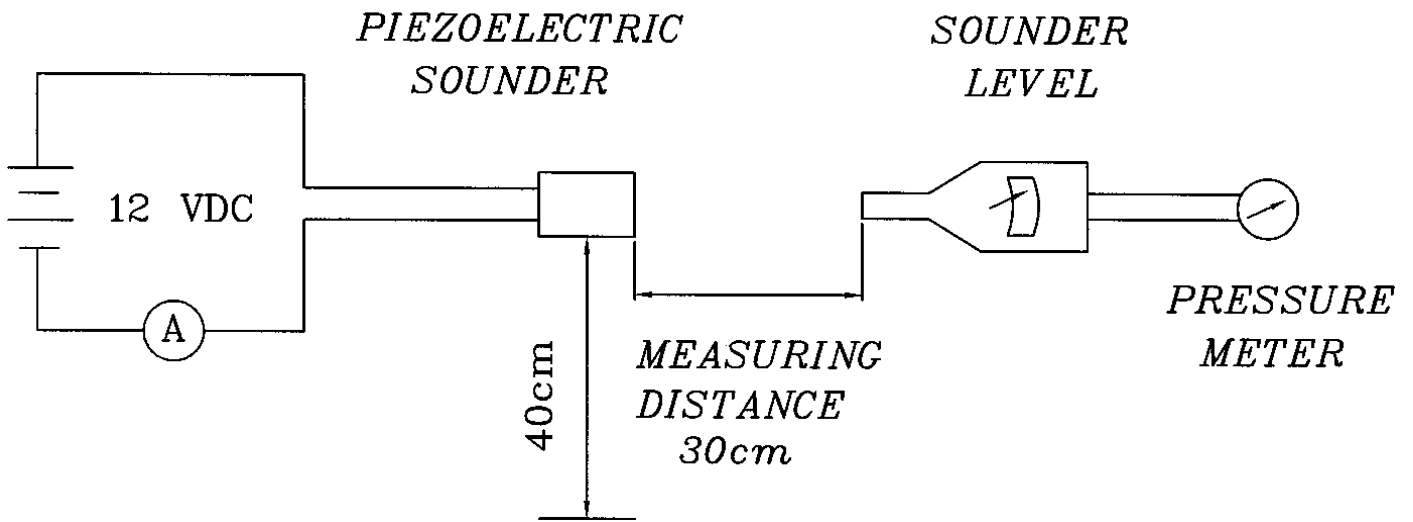


**Tol: ± 0.5**

**Unit: mm**

## D. MEASURING METHOD 測量方法

S.P.L. Measuring Circuit 音壓測試接線圖



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

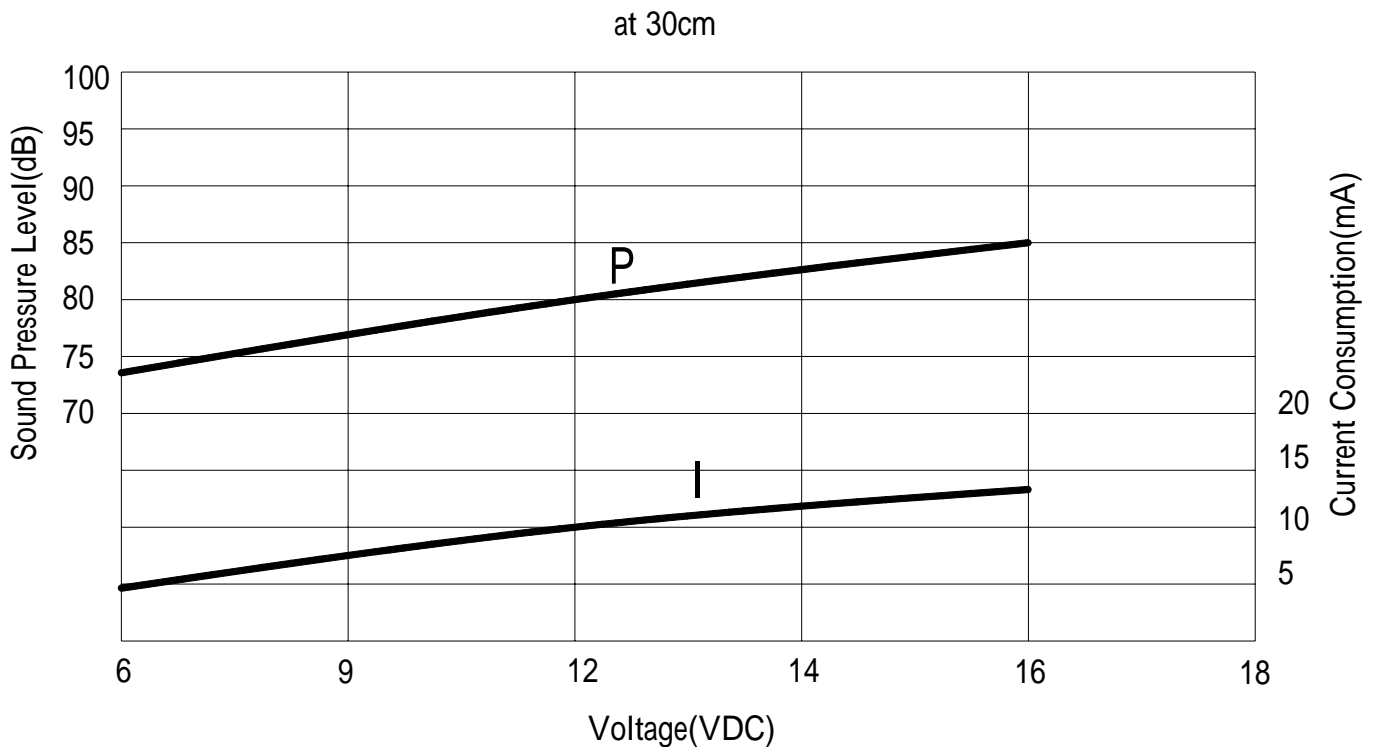
Mic : RION 噪音計 UC30 或同等品

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

S.G : Hewlett Packard 33120A 函數信號產生器或同等品

## E. VOLTAGE: SOUND PRESSURE LEVEL / VOLTAGE: CURRENT CONSUMPTION

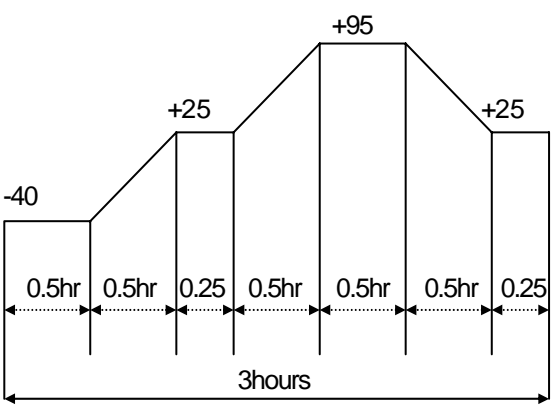
### CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



## F. MECHANICAL CHARACTERISTICS 機械特性

| No. | Item                                                         | Test Condition                                                                                                                                                                                                                 | Evaluation standard                                                                                                                                                     |
|-----|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Solderability<br>焊錫附著性<br>(Connector excepted)<br>(端子類不適用此項) | Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm 5$ for $3\pm 0.5$ seconds.<br>裸線部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5$ 溶錫焊錫槽 $3\pm 0.5$ 秒。                                | 90% min. stripped wires shall be wet with solder.(Except the edge of terminal)<br>浸入裸線部份附著焊錫 90% 以上.(末端斷面不算)                                                            |
| 2   | Lead Wire Pull<br>Strength<br>線材拉力                           | The pull force shall be applied to double lead wire :<br>Horizontal 3.0N(0.306kg) for 30 seconds.<br>Vertical 2.0N(0.204kg) for 30 seconds.<br>雙線材水平方向施以 3.0N(0.306kg)的力量, 垂直方向施以 2.0N(0.204kg) 的力量,各 30 秒。                    | No damage and cutting off.<br>線材不鬆動,不脫落。                                                                                                                                |
| 3   | Vibration<br>振動試驗                                            | Buzzer shall be measured after being applied vibration of amplitude of 1.5mm with 10 to 55hz band of vibration frequency to each of 3 per-pendicular directions for 2 hours.<br>振動加週波數 10 55HZ、全振幅 1.5mm 於 X.Y.Z 3 個方向,各 2 小時。 | The value of oscillation frequency/ current consumption should be in $\pm 10\%$ compared with initial ones .The SPL should be in $\pm 10$ dB compared with initial one. |
| 4   | Drop test<br>落下測試                                            | The part only shall be dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X.Y.Z). (a total of 9 times).<br>單體從 75 公分高處, X.Y.Z.3 個方向,各 3 回,落於 40mm 厚木板上。                                           | 諧振頻率與消耗電流變化量須在 $\pm 10\%$ 內. 輸出音壓變化量須在 $\pm 10$ dB 內。                                                                                                                   |

## G. ENVIRONMENT TEST 環境測試

| No. | Item                       | Test Condition                                                                                                                                                                                | Evaluation standard                                                                                                                                                                                                                                                                                                           |
|-----|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | High temp. test<br>高溫測試    | After being placed in a chamber at $+95$ for 240 hours<br>置於 $+95$ 環境中 240 小時                                                                                                                 | Being placed for 4 hours at $+25$ , buzzer shall be measured. The value of oscillation frequency/ current consumption should be in $\pm 10\%$ compared with initial ones .The SPL should be in $\pm 10$ dB compared with initial one.<br>經測試後, 靜置於 $+25$ (室溫) 環境中 4 小時後,諧振頻率與消耗電流變化量須在 $\pm 10\%$ 內. 輸出音壓變化量須在 $\pm 10$ dB 內。 |
| 2   | Low temp. test<br>低溫測試     | After being placed in a chamber at $-40$ for 240 hours<br>置於 $-40$ 環境中 240 小時                                                                                                                 |                                                                                                                                                                                                                                                                                                                               |
| 3   | Humidity test<br>相對濕度測試    | After being placed in a chamber at $+40$ and $90\pm 5\%$ relative humidity for 240 hours<br>置於 $+40$ , 相對濕度 $90\pm 5\%$ 環境中 240 小時                                                            |                                                                                                                                                                                                                                                                                                                               |
| 4   | Temp. cycle test<br>溫度循環試驗 | The part shall be subjected to 5 cycles. One cycle shall be consist of :<br>單體承受溫度循環測試 5 次,其循環內容如圖示 :<br> |                                                                                                                                                                                                                                                                                                                               |

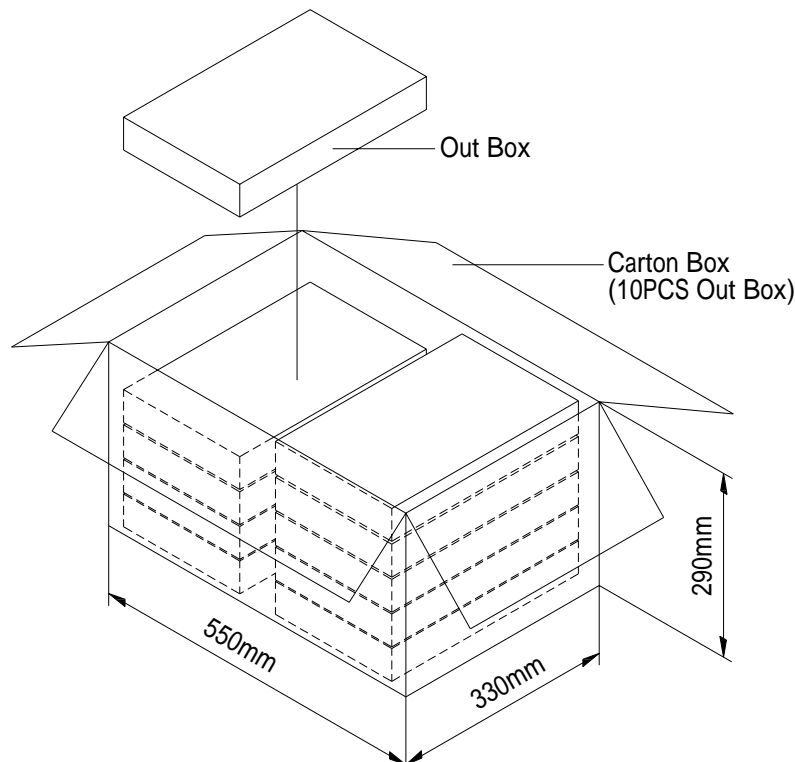
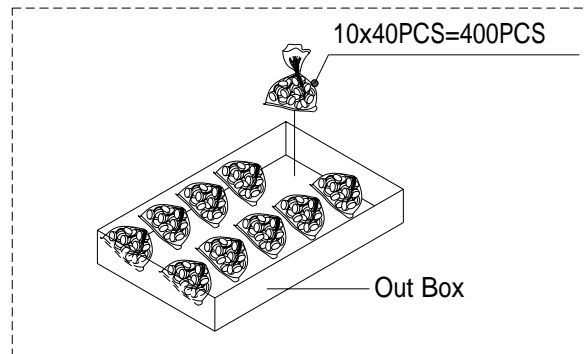
## H. RELIABILITY TEST 信賴性測試

| No. | Item                        | Test condition                                                                                                                                                                                                                                                                                                                                              | Evaluation standard                                                                                                                                                                                                                                                                            |
|-----|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Operating life test<br>壽命測試 | 1. Continuous life test 高溫壽命測試(連續)<br>48 hours continuous operation at +70 with rated voltage applied.<br>在+70 環境下,以額定電壓連續操作 48 小時。<br>2. Intermittent life test 室溫壽命測試(間歇)<br>A duty cycle of 1 minute on, 1 minutes off, a minimum of 5000 times at room temp. (+25±2 ) and rated voltage applied.<br>在室溫下(+25±2 ), 以額定電壓操作, 通電 1 分鐘斷電 1 分鐘, 測試 5000 次循環。 | Being placed for 4 hours at +25 , buzzer shall be measured. The value of oscillation frequency/ current consumption should be in ±10% compared with initial ones .The SPL should be in ±13dB compared with initial one.<br>經測試後, 靜置於+25 (室溫) 環境中 4 小時後, 諧振頻率與消耗電流變化量須在±10%內. 輸出音壓變化量須在±13dB 內。 |

### TEST CONDITION.

|                                     |   |                           |                      |                            |
|-------------------------------------|---|---------------------------|----------------------|----------------------------|
| Standard Test Condition<br>一般測試條件   | : | a) Temperature : +5 ~ +35 | b) Humidity : 45-85% | c) Pressure : 860-1060mbar |
| Judgement Test Condition<br>爭議時測試條件 | : | a) Temperature : +25 ± 2  | b) Humidity : 60-70% | c) Pressure : 860-1060mbar |

## I. PACKING STANDARD 包裝規格



|            |                   |                    |
|------------|-------------------|--------------------|
| Out Box    | 310mmx248mmx49mm  | 10x40PCS=400PCS    |
| Carton Box | 550mmx330mmx290mm | 400PCSx10=4,000PCS |