

# SPECIFICATION FOR APPROVAL

## 承認書

Description : Piezo Audio Indicator

Kingstate Part No. : KPEG253

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

Specification No. : PKD-7589

Number Of The Edition : 1.1

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

志豐電子股份有限公司 KINGSTATE ELECTRONICS CORP.

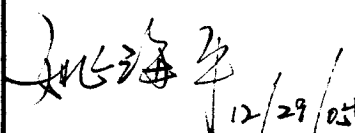
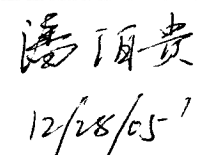


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| Approved by   | Checked by  | Issued by                     |
|---|---|-------------------------------|
| <br>12/29/05 | <br>12/28/05 | <b>Qin</b><br><b>12/28/05</b> |

## A. SCOPE 範疇

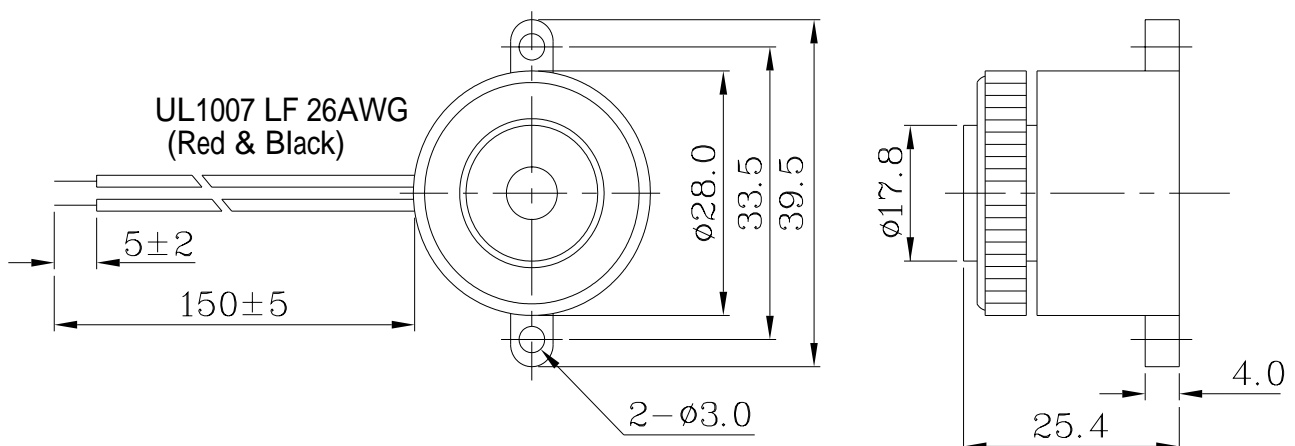
This specification applies piezo audio indicator, **KPEG253**

此規格書適用於壓電式蜂鳴器, **KPEG253**

## B. SPECIFICATION 規格

| No. | Item   | Unit | Specification                           | Condition                          |
|-----|--|------|---|------------------------------------|
| 1   | Resonant frequency<br>共振頻率                     | KHz  | 3.5 ± 0.5                               |                                    |
| 2   | Operating Volt. range<br>操作電壓範圍                | VDC  | 4 ~ 28                                  |                                    |
| 3   | Current consumption<br>消耗電流                    | mA   | MAX 6                                   | at 12VDC                           |
| 4   | Sound pressure level<br>輸出音壓                   | dB   | MIN 87                                  | at 30cm/12VDC                      |
| 5   | Rated Voltage<br>額定電壓                          | VDC  | 12                                      |                                    |
| 6   | Tone<br>聲音                                     |      | Slow Pulse(1.2Hz±20%)<br>慢斷續音           |                                    |
| 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   | 28.0 x H25.4                            | See appearance drawing<br>請參照外觀尺寸圖 |
| 10  | Weight (MAX)<br>重量                             | gram | 10.2                                    |                                    |
| 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

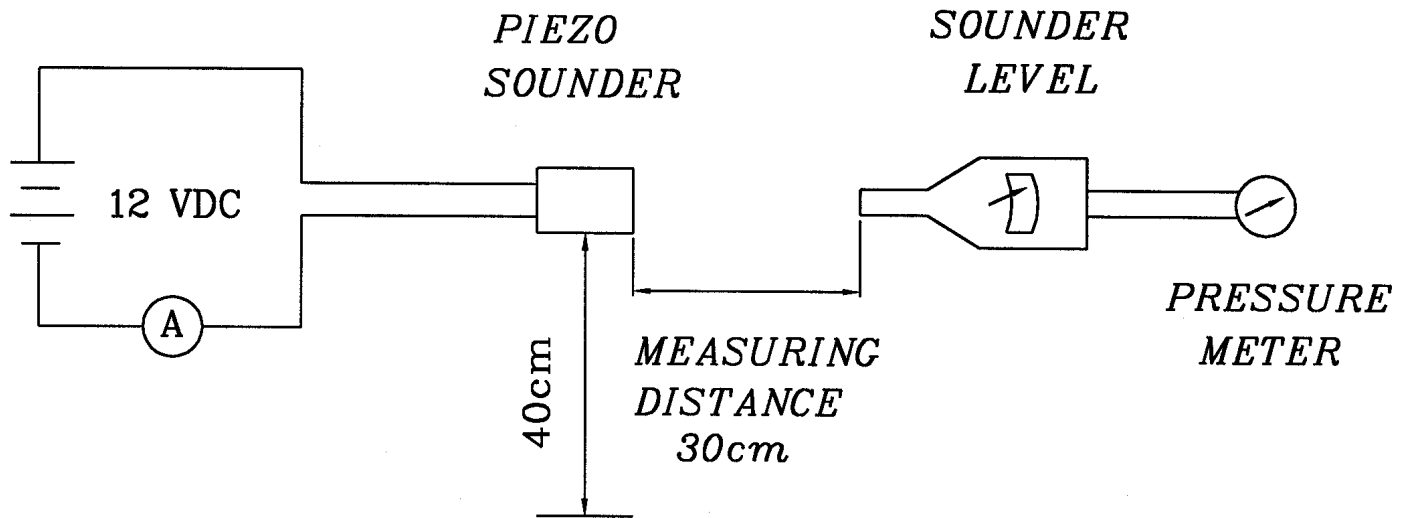


Tol : ± 0.5

Unit: mm

## D. Measuring Method 測量方法

S.P.L. Measuring Circuit 音壓測試式接線圖



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

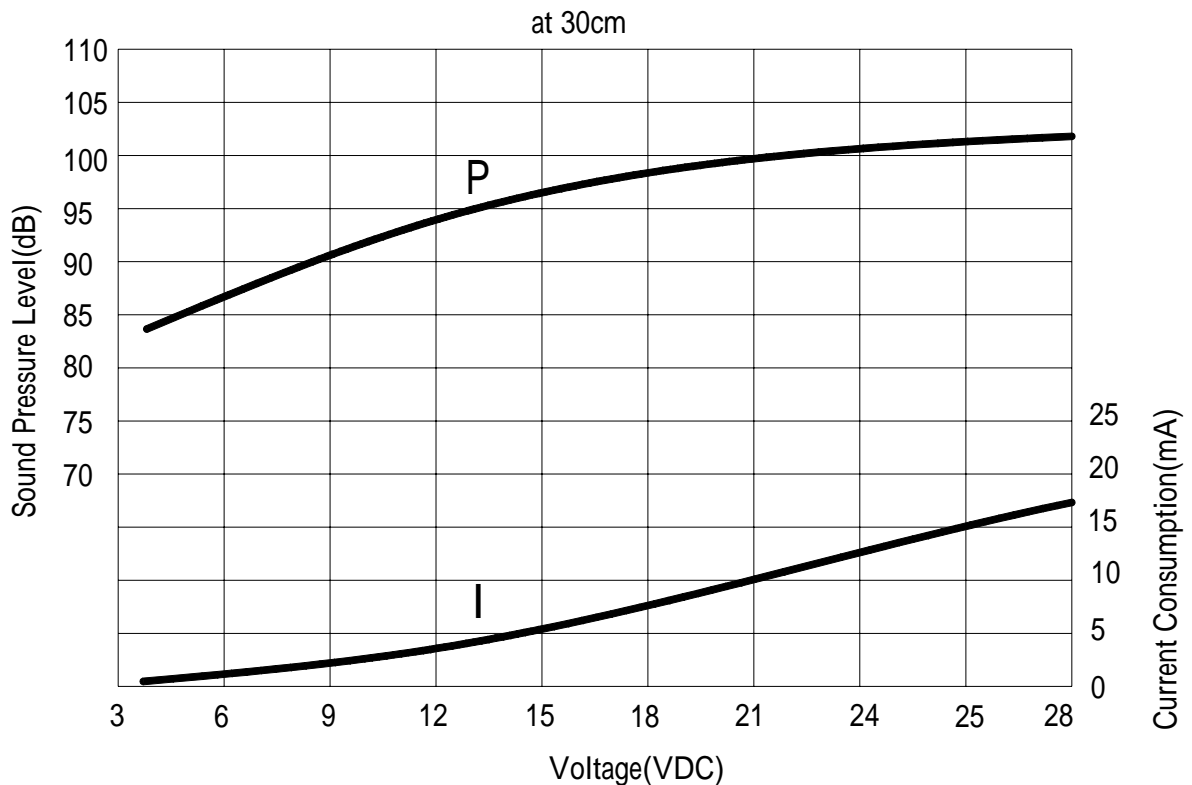
Mic : RION 噪音計 UC30 或同等品

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

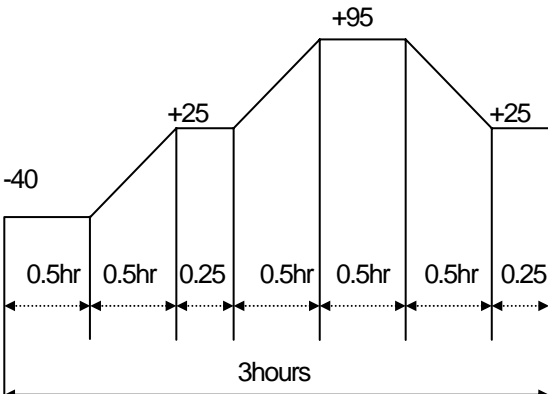
CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



## 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 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>振動幅波數 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 $\pm 10\text{dB}$ 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 $\pm 10\text{dB}$ 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 $\pm 10\text{dB}$ 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 $\pm 10\text{dB}$ 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 ±10dB 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±10dB 內。 |

### TEST CONDITION.

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

## I. PACKING STANDARD 包裝規格

