

# SPECIFICATION FOR APPROVAL

## 承認書

Description : **Piezo Audio Indicator**

Kingstate Part No. : **KPEG653SAN**

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

Specification No. : **PKD-7576**

Number Of The Edition : **1.1**

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



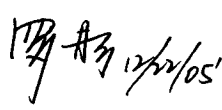
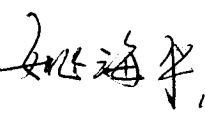
志豐電子股份有限公司 KINGSTATE ELECTRONICS CORP.

Address : 10F, No. 69-11, Sec. 2, Chung Cheng E. Rd., Tamshui County, Taipei Hsien, Taiwan, R.O.C.

International sales dept.: TEL:886-2-2809-5651 FAX:886-2-2809-7151

Domestic sales dept.: TEL:886-2-2809-0668 FAX:886-2-28096748

<http://www.kingstate.com.tw>

| Approved by   | Checked by  | Issued by        |
|---|---|------------------|
|  12/22/05' |  12/22/05' | Fei<br>12/14/05' |

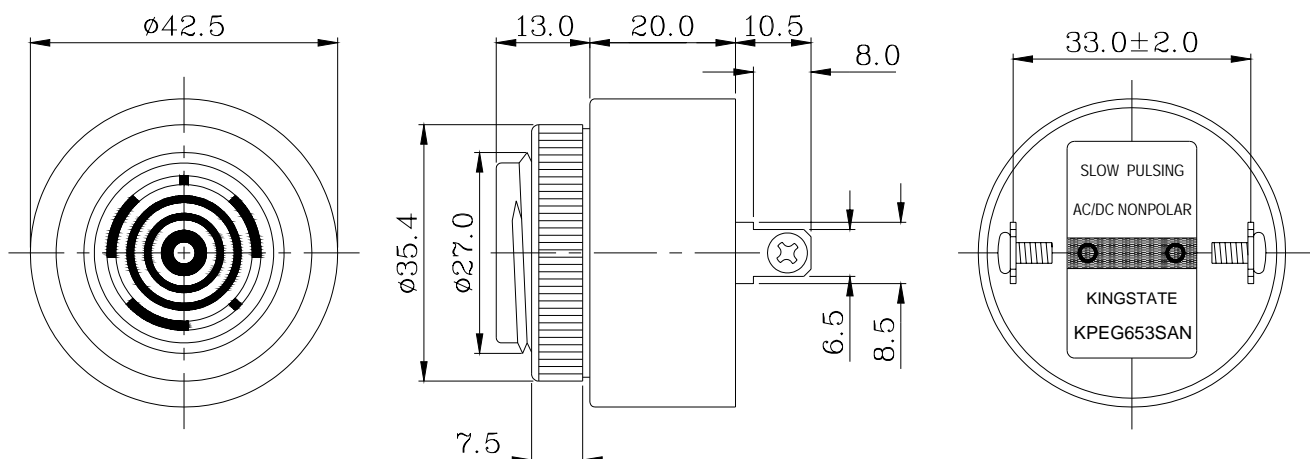
## A. SCOPE 範疇

This specification applies piezo audio indicator, **KPEG653SAN**  
 此規格書適用於壓電式蜂鳴器, **KPEG653SAN**

## B. SPECIFICATION 規格

| No. | Item   | Unit  | Specification                               | Condition   |
|-----|--|-------|---|---|
| 1   | Resonant frequency<br>共振頻率                     | KHz   | 2.8 ± 0.5                                   |   |
| 2   | Operating Volt. range<br>操作電壓範圍                | AC/DC | 6 ~ 28                                      |   |
| 3   | Current consumption<br>消耗電流                    | mA    | MAX. 10                                     | at 12VDC  |
| 4   | Sound pressure level<br>輸出音壓                   | dB    | MIN. 77                                     | at 30cm/12 VDC  |
| 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            | 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    | 42.5 x H33.0                                | See appearance drawing<br>請參照外觀尺寸圖  |
| 10  | Weight (MAX)<br>重量                             | gram  | 37.0  |   |
| 11  | Material<br>材質                                 |       | ABS UL-94 1/16"HB High Heat<br>( Black )    |   |
| 12  | Terminal<br>端子                                 |       | Tin-Plated Tapped Screw<br>(鍍全錫/Plating Sn) | See appearance drawing<br>請參照外觀尺寸圖  |
| 13  | Environmental<br>Protection Regulation<br>環保法規 |       | RoHS  |   |
| 14  | Storage life<br>保存期限                           | month | 6   | 6 months preservation at room temp.<br>(25±3 ), Humidity40%<br>在室溫下 25±3 , 濕度 40% 以下可保存 6 個月. |

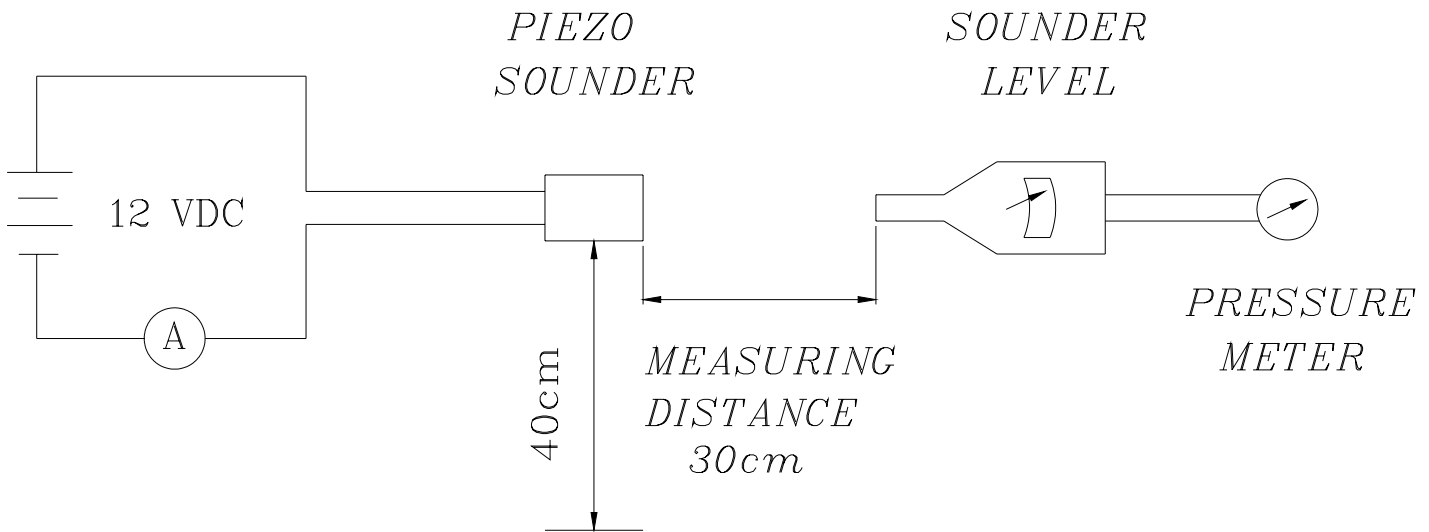
## C. APPEARANCE DRAWING 外觀尺寸圖



**Tol : ± 0.5**  
**Unit: mm**

## D. MEASURING METHOD 測量方法

S.P.L. Measuring Circuit 音壓測試接線圖



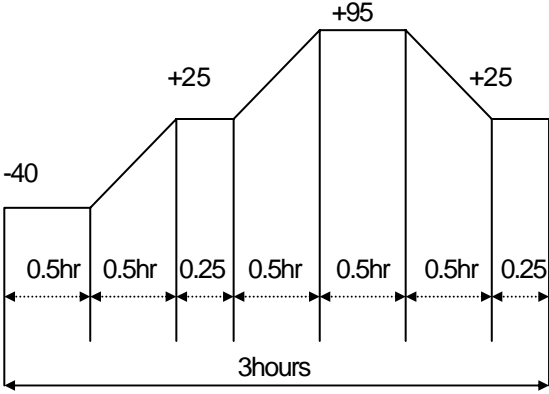
Mic : RION S.P.L meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

## E. MECHANICAL CHARACTERISTICS 機械特性

| No. | Item                                 | Test Condition   | Evaluation standard  |
|-----|--------------------------------------|--|--|
| 1   | Solderability<br>焊錫附著性               | Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm5$ for $3\pm1$ seconds.<br>端子部份浸入松香溶液 5 秒後,再浸入 $+270\pm5$ 溶錫焊錫槽中 $3\pm1$ 秒.   | 90% min. lead terminals shall be wet with solder. (Except the edge of terminal)<br>浸入端子部份附著焊錫 90%以上.(末端端面不算)   |
| 2   | Soldering Heat Resistance<br>焊錫耐熱性   | Lead terminal are immersed up to 1.5mm from sounder's body in solder bath of $+300\pm5$ for $3\pm0.5$ seconds or $+260\pm5$ for $10\pm1$ seconds.<br>距離端子根部 1.5mm 的位置,浸入 $+300\pm5$ 的焊錫槽 $3\pm0.5$ 秒,或 $+260\pm5$ 的焊錫槽 $10\pm1$ 秒. | No interference in operation<br>操作上無任何不良.  |
| 3   | Terminal Mechanical Strength<br>端子強度 | The force 10 seconds of 9.8N (1.0kg) is applied to each terminal in axial direction.<br>各端子的軸方向施以 9.8N (1.0kg) 的力量 10 秒.   | No damage and cutting off<br>端子不鬆動, 不脫落.   |
| 4   | 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 10% compared with initial ones .The SPL should be in $\pm 10$ dB compared with initial one. |
| 5   | 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.  |

## F. 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 with -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> |   |

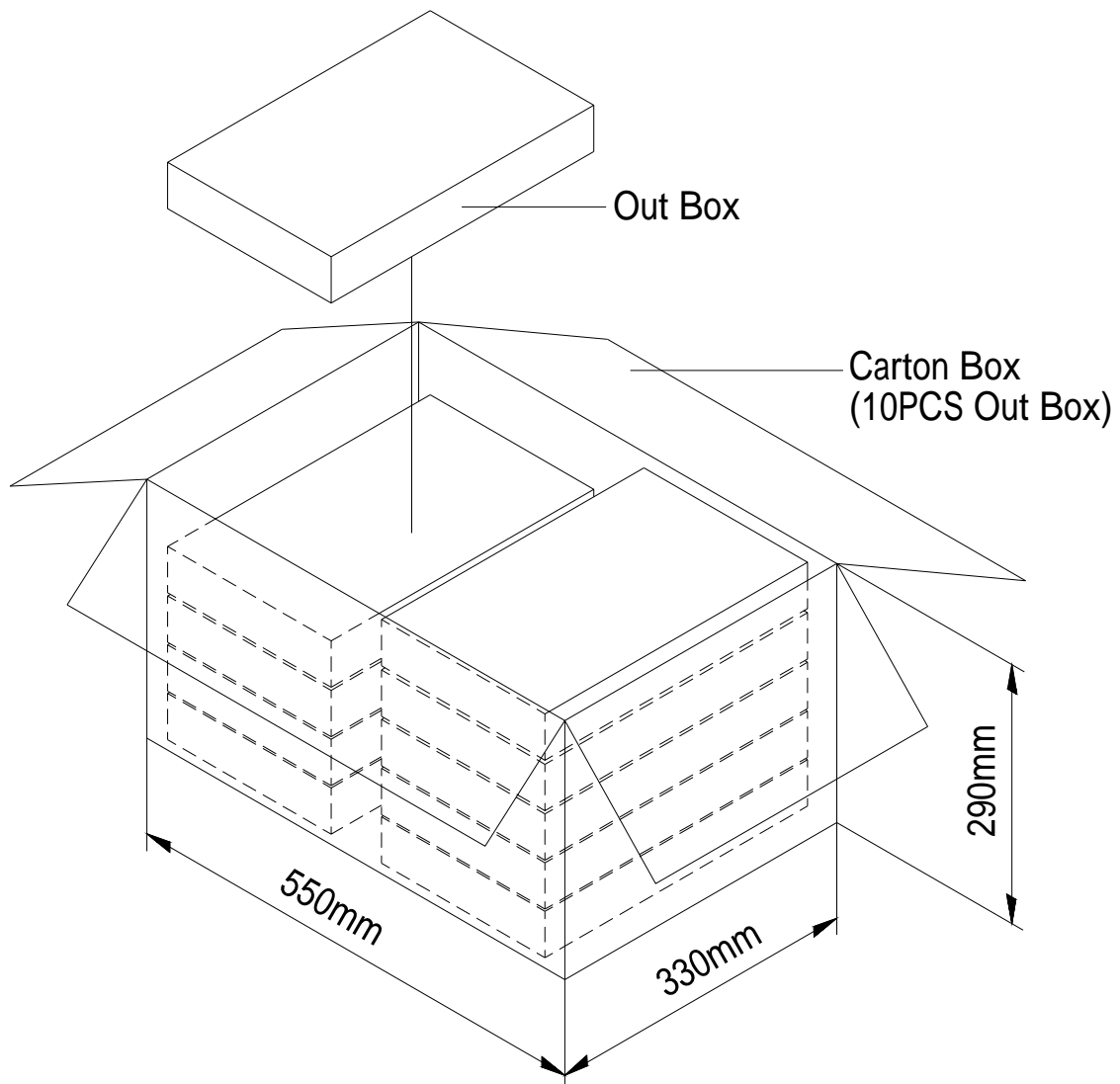
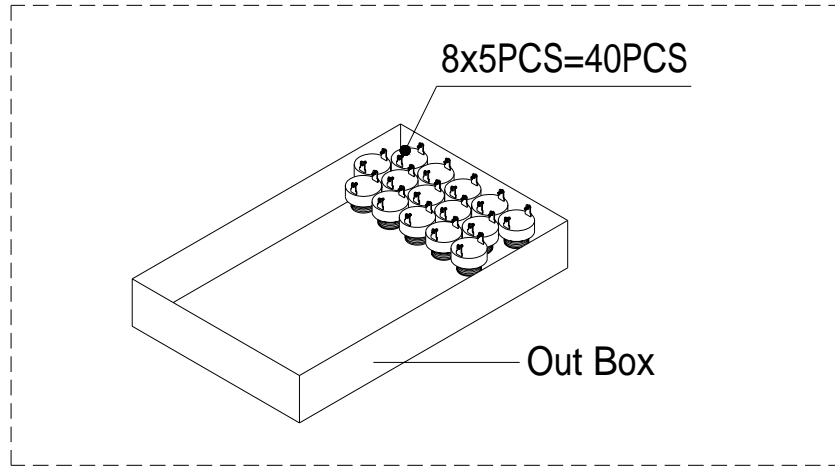
## G. RELIABILITY TEST 信賴性測試

| 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 $\pm 2$ )and rated voltage applied.<br>在室溫下(+25 $\pm 2$ ), 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 $\pm 10\%$ 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. |

### 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 $\pm$ 2 | b) Humidity : 60-70% | c) Pressure : 860-1060mbar |

# H. PACKING STANDARD 包裝規格



|            |                   |                 |
|------------|-------------------|-----------------|
| Out Box    | 310mmx248mmx49mm  | 1x40PCS=40PCS   |
| Carton Box | 550mmx330mmx290mm | 40PCSx10=400PCS |