

SPECIFICATION FOR APPROVAL

承 認 書

Description : Piezo Audio Indicator

Kingstate Part No. : KPEG960

Customer's Model No. : _____

Specification No. : PKD-7393

Number Of The Edition : 1.3

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



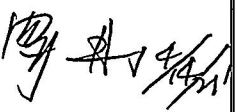

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|---|---|-------------------|
|  |  | 陽志明 2021.04.13 |

KINGSTATE ELECTRONICS CORPORATION

志豐電子股份有限公司

修訂記錄

| 圖號:PKD-7393 | | 料號:KPEG960 | |
|-------------|-----|------------|------------------------|
| 修訂日期 | 提出者 | 版次 | 修訂記錄內容 |
| 12/21/16' | 蔣娜娜 | 1.2 | 修正尺寸, 由 3.5mm 改為 4.2mm |
| 04/13/21' | 張建合 | 1.3 | 週期字樣由移印變更為噴印 |
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A. SCOPE 範疇

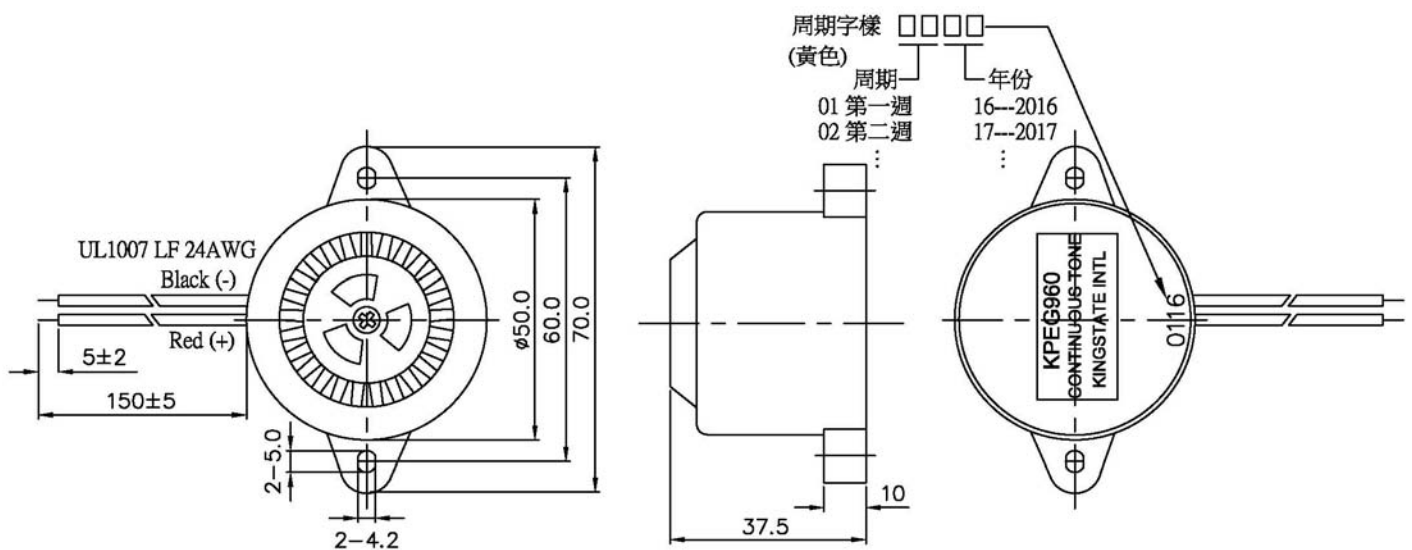
This specification applies piezo audio indicator, **KPEG960**

此規格書適用於壓電式蜂鳴器, **KPEG960**

B. SPECIFICATION 規格

| No. | Item | Unit | Specification | Condition |
|-----|--|------|----------------------------|------------------------------------|
| 1 | Operating Frequency 操作頻率 | KHz | 2.5 ± 0.5 | |
| 2 | Operating Volt. range 操作電壓範圍 | VDC | 3 ~ 16 | |
| 3 | Current consumption 消耗電流 | mA | MAX 58 | at 12VDC |
| 4 | Sound pressure level 輸出音壓 | dB | MIN 100 | at 30 cm/12VDC |
| 5 | Rated Voltage 額定電壓 | VDC | 12 | |
| 6 | Tone 聲音 | | Continuous 直音 | |
| 7 | Operating temp. 操作溫度 | °C | -30 ~ + 80 | |
| 8 | Storage temp. 儲存溫度 | °C | -40 ~ + 80 | |
| 9 | Dimension 尺寸 | mm | φ50.0 x H37.5 | See appearance drawing 請參照外觀尺寸圖 |
| 10 | Weight (MAX) 重量 | gram | 35.0 | |
| 11 | Material 材質 | | ABS UL-94 1/16" HB (BLACK) | |
| 12 | Terminal 端子 | | Wire type | See appearance drawing 請參照外觀尺寸圖 |
| 13 | Environmental Protection Regulation 環保法規 | | RoHS 2.0 | |

C. APPEARANCE DRAWING 外觀尺寸圖

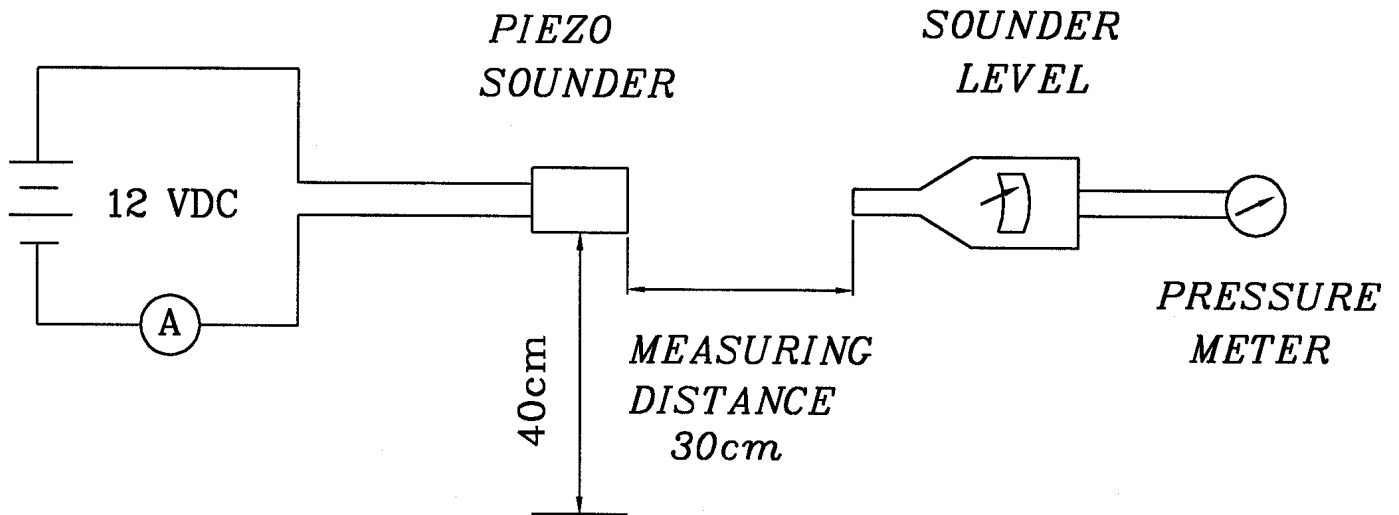


Tol: ± 0.5

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

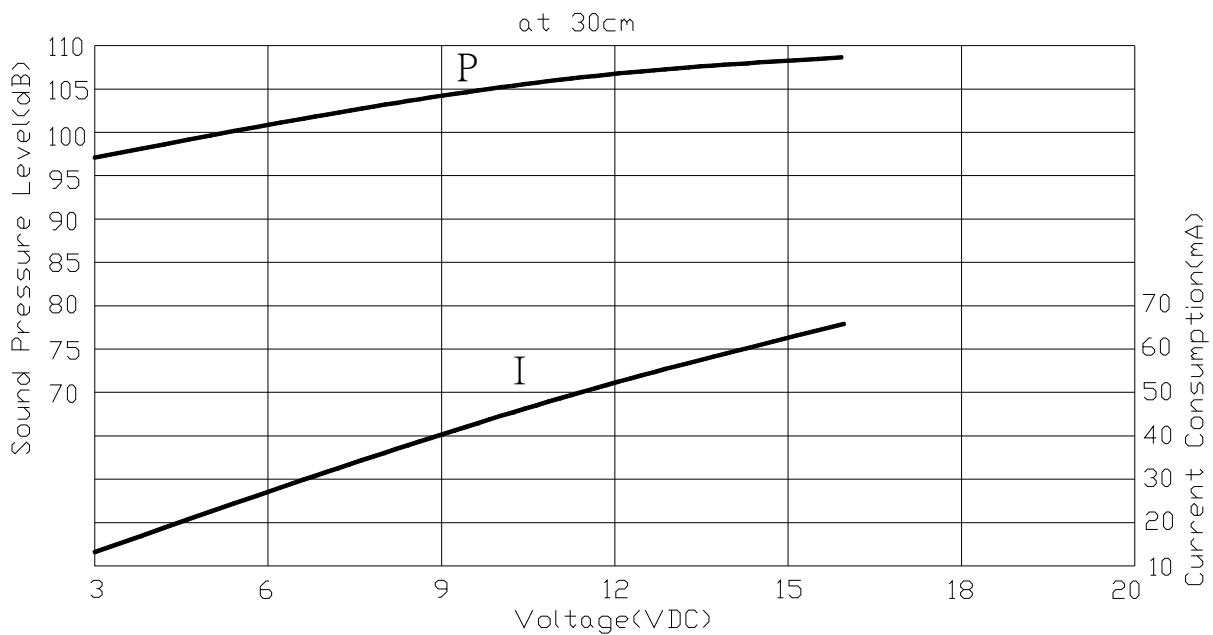
Mic : RION 噪音計 UC30 或同等品

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

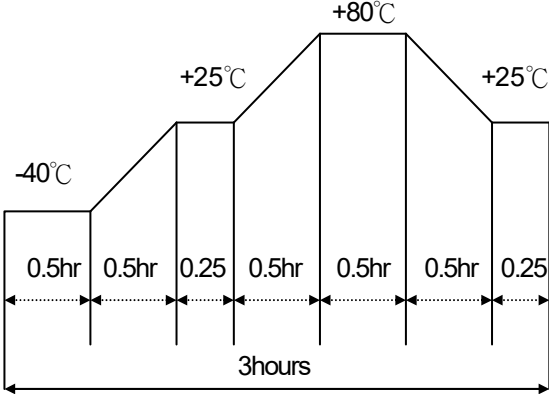
CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



F. MECHANICAL CHARACTERISTICS 機械特性

| No. | Item | Test Condition | Evaluation standard |
|-----|--|--|---|
| 1 | Solderability 焊錫附著性 (Connector excepted) 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 $+270\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds. 裸線部份浸入松香溶液5秒後,再浸入 $+270\pm 5^{\circ}\text{C}$ 熔融焊錫槽 3 ± 0.5 秒 | 90% min. stripped wires shall be wet with solder.(Except the edge of terminal) 浸入裸線部份附著焊錫 90%以上.(末端斷面不算) |
| 2 | Lead Wire Pull Strength 線材拉力 | The pull force shall be applied to double lead wire : Horizontal 3.0N(0.306kg) for 30 seconds. Vertical 2.0N(0.204kg) for 30 seconds. 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. 線材不鬆動,不脫落. |
| 3 | Vibration 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. 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 $\pm 10\%$ compared with initial ones .The SPL should be in $\pm 10\text{dB}$ compared with initial one. |
| 4 | Drop test 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). 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 高溫測試 | After being placed in a chamber at $+80^{\circ}\text{C}$ for 240 hours 置於 $+80^{\circ}\text{C}$ 環境中 240 小時 | Being placed for 4 hours at $+25^{\circ}\text{C}$, 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. 經測試後, 靜置於 $+25^{\circ}\text{C}$ (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 低溫測試 | After being placed in a chamber at -40°C for 240 hours 置於 -40°C 環境中 240 小時 | |
| 3 | Humidity test 相對濕度測試 | After being placed in a chamber at $+40^{\circ}\text{C}$ and $90\pm 5\%$ relative humidity for 240 hours 置於 $+40^{\circ}\text{C}$, 相對濕度 $90\pm 5\%$ 環境中 240 小時 | |
| 4 | Temp. cycle test 溫度循環試驗 | The part shall be subjected to 5 cycles. One cycle shall be consist of: 單體承受溫度循環測試5次,其循環內容如圖示:  | |

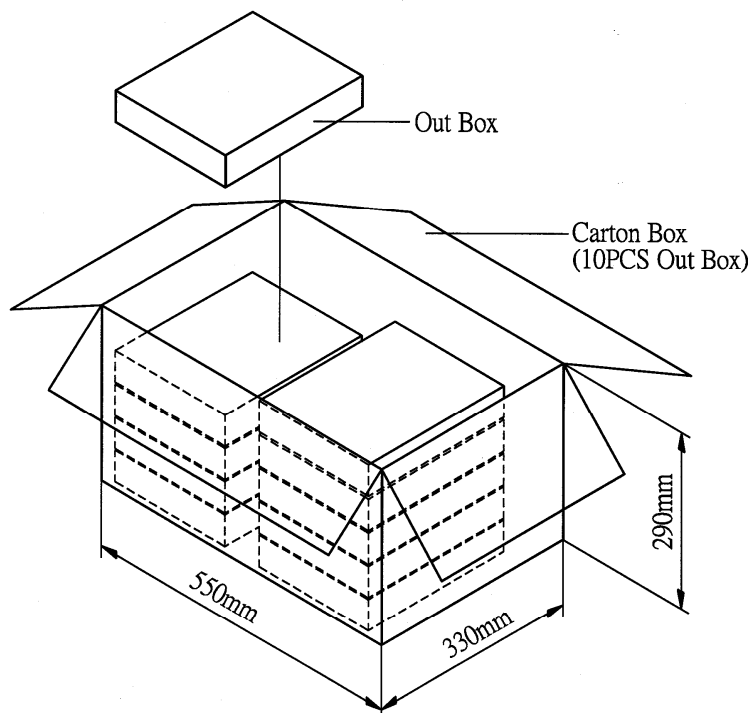
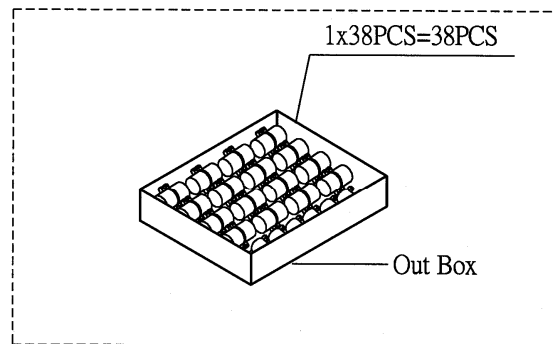
H. RELIABILITY TEST 信賴性測試

| No. | Item | Test condition | Evaluation standard |
|-----|-----------------------------|---|--|
| 1 | Operating life test 壽命測試 | <p>1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +65°C with rated voltage applied. 在+65°C環境下,以額定電壓連續操作48小時。</p> <p>2. Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 1 minutes off, a minimum of 5,000 times at room temp. (+25±2°C) and rated voltage applied. 在室溫下(+25±2°C),以額定電壓操作,通電1分鐘/斷電1分鐘,測試5,000次循環。</p> | <p>Being placed for 4 hours at +25°C, 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.</p> <p>經測試後,靜置於+25°C(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。</p> |

TEST CONDITION.

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

I. PACKING STANDARD 包裝規格



| | | |
|------------|-------------------|-----------------|
| Out Box | 310mmx248mmx49mm | 1x38PCS=38PCS |
| Carton Box | 550mmx330mmx290mm | 38PCSx10=380PCS |