

# SPECIFICATION FOR APPROVAL

## 承 認 書

Description : Piezo Audio Indicator

Kingstate Part No. : KPEG251

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

Specification No. : PKD-7371

Number Of The Edition : 1.2

CUSTOMER'S APPROVED SIGNATURE		



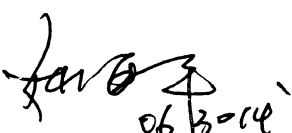
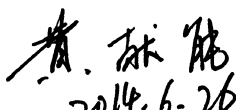
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Approved by	Checked by	Issued by
 06/30/14	 2014.6.26	李海 2014.6.26

## A. SCOPE 範疇

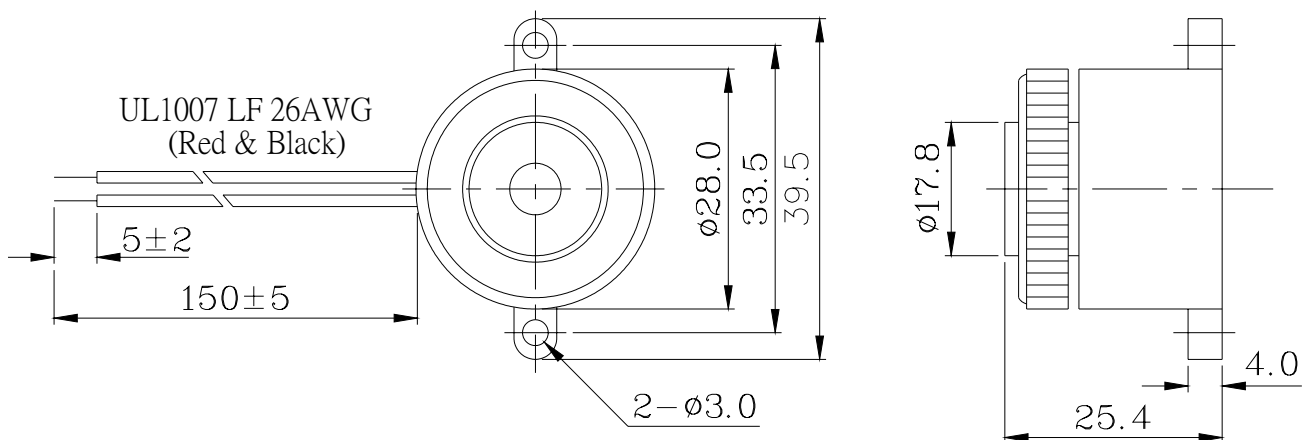
This specification applies piezo audio indicator, **KPEG251**

此規格書適用於壓電式蜂鳴器, **KPEG251**

## B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Frequency 操作頻率	KHz	3.5 ± 0.5	
2	Operating Volt. range 操作電壓範圍	VDC	4 ~ 28	
3	Current consumption 消耗電流	mA	MAX 5	at 12VDC
4	Sound pressure level 輸出音壓	dB	MIN 82	at 30 cm/12VDC
5	Rated Voltage 額定電壓	VDC	12	
6	Tone 聲音		Fast Pulse (3.0Hz±20%) 快斷續音	at 12VDC
7	Operating temp. 操作溫度	°C	-30 ~ + 85	
8	Storage temp. 儲存溫度	°C	-40 ~ + 95	
9	Dimension 尺寸	mm	φ 28.0 x H25.4	See appearance drawing 請參照外觀尺寸圖
10	Weight (MAX) 重量	gram	10.1	
11	Material 材質		ABS UL-94 1/16" HB HIGH HEAT (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

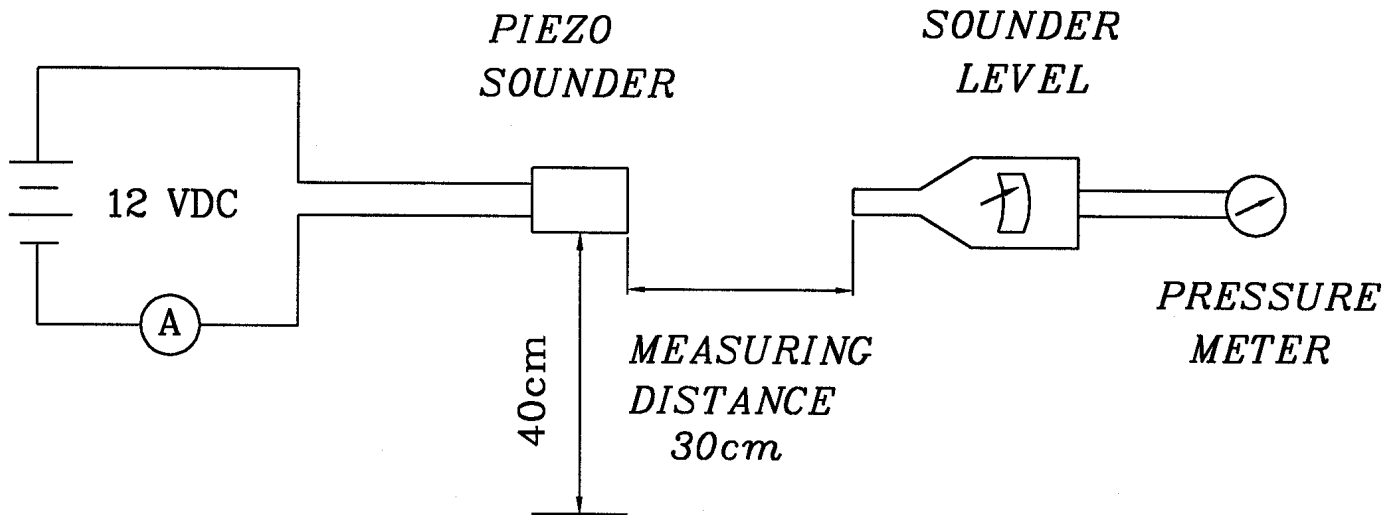


**Tol: ± 0.5**

**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

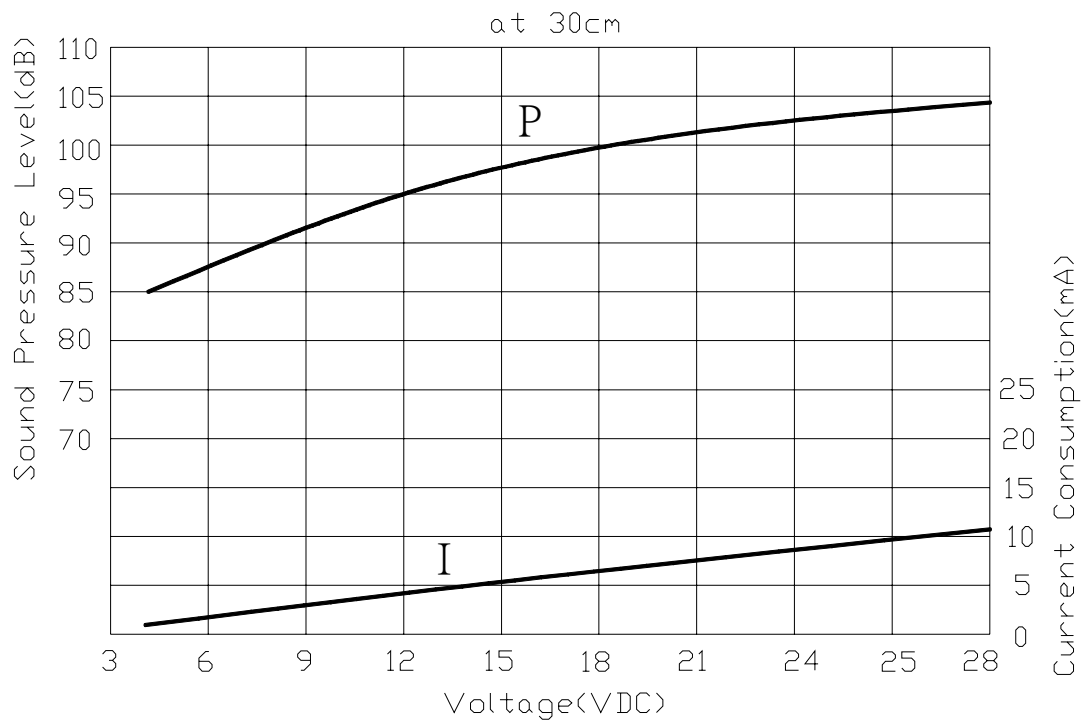
Mic : RION 噪音計 UC30 或同等品

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

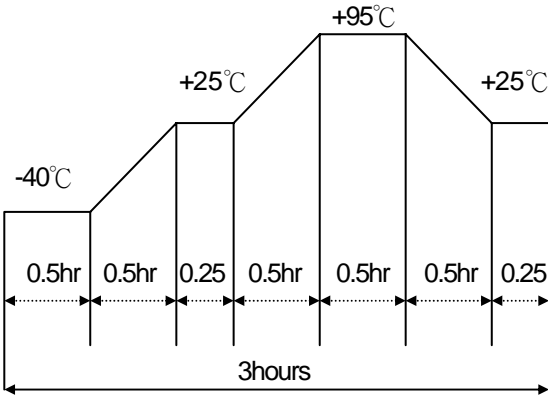
### CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



## F. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test Condition	Evaluation standard
1	Solderability 焊錫附着性 (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 $3\pm 0.5$ seconds. 裸線部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5^{\circ}\text{C}$ 溶融焊錫槽 $3\pm 0.5$ 秒。	90% min. stripped wires shall be wet with solder.(Except the edge of terminal) 浸入裸線部份附着焊錫 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 $+95^{\circ}\text{C}$ for 240 hours 置於 $+95^{\circ}\text{C}$ 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 $-40^{\circ}\text{C}$ for 240 hours 置於 $-40^{\circ}\text{C}$ 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 : 	

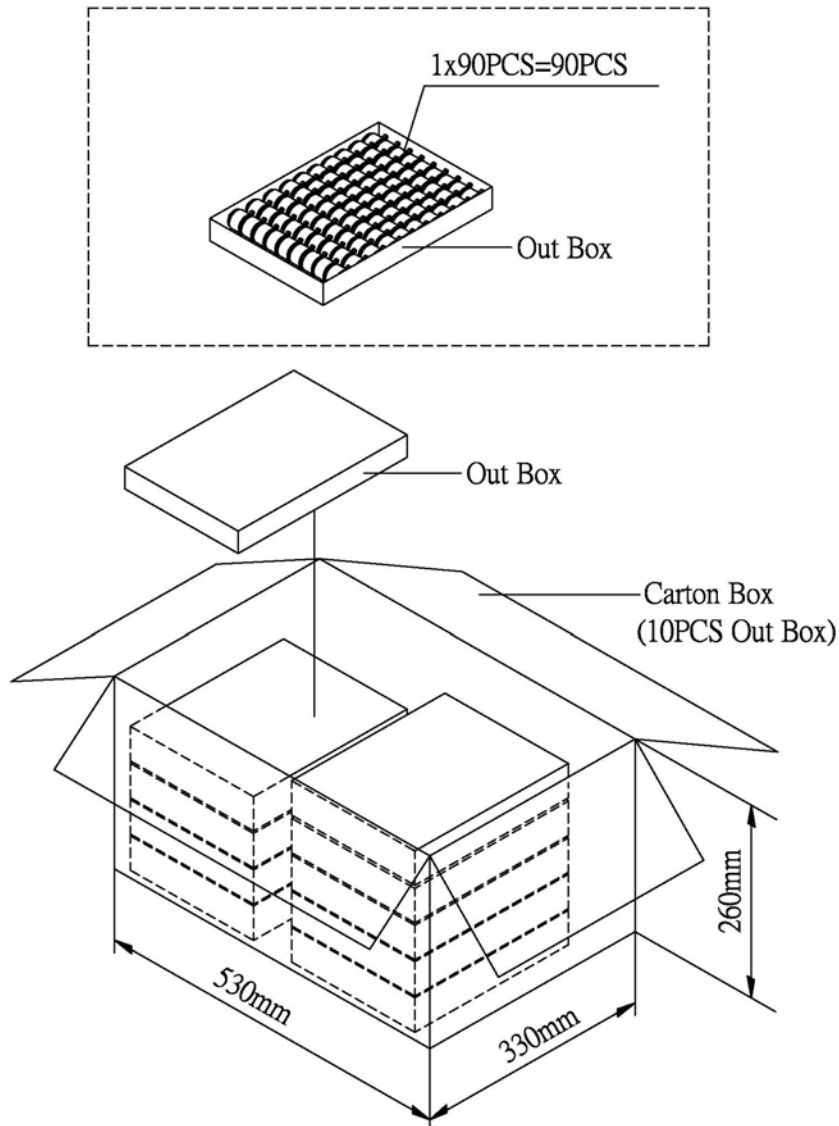
## H. RELIABILITY TEST 信賴性測試

No.	Item	Test condition	Evaluation standard
1	Operating life test 壽命測試	1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +70°C with rated voltage applied. 在+70°C環境下,以額定電壓連續操作48小時。 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 5000 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5000次循環。	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. 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。

### TEST CONDITION.

Standard Test Condition 一般測試條件	:	a) Temperature : +5 ~ +35°C	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
Judgement Test Condition 爭議時測試條件	:	a) 溫度 : +5 ~ +35°C	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
	:	a) Temperature : +25 ± 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
	:	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	1x90PCS=90PCS
Carton Box	530mmx330mmx260mm	90PCSx10=900PCS