

# SPECIFICATION FOR APPROVAL

## 承 認 書

Description : Piezo Audio Indicator

Kingstate Part No. : KPE-228

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

Specification No. : PKD-1234

Number Of The Edition : 1.6

CUSTOMER'S APPROVED SIGNATURE		

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Approved by	Checked by	Issued by
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## A.SCOPE 範疇

This specification applies piezo audio indicator, KPE-228  
 此規格書適用於壓電式蜂鳴器, KPE-228

## B. SPECIFICATION 規格

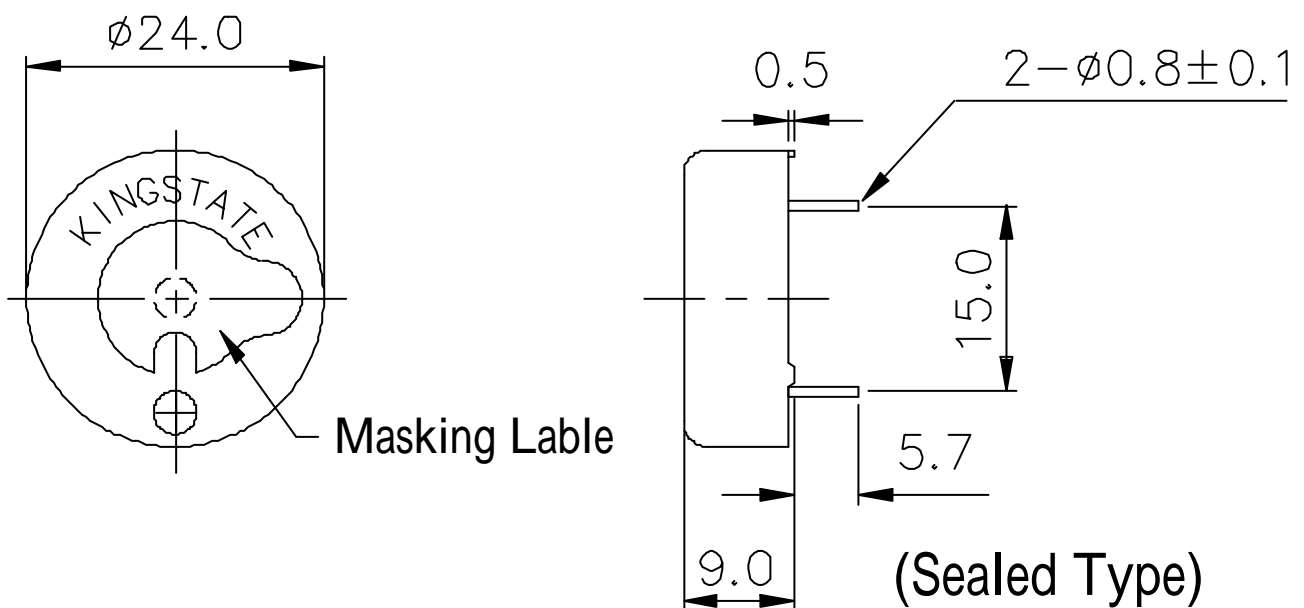
Test condition:

TEMP=25 ±2

Related humidity=65±5%

No.	Item	Unit	Specification	Condition
1	Resonant frequency 共振頻率	KHz	3.4 ± 0.5	
2	Operating Volt. range 操作電壓範圍	VDC	3 ~ 20	
3	Current consumption 消耗電流	mA	MAX 15	at 12VDC
4	Sound pressure level 輸出音壓	dB	MIN 80	at 30cm/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 ~ +85	
8	Storage temp. 儲存溫度	°C	-40 ~ +95	
9	Dimension 尺寸	mm	24.0 x H9.0	See appearance drawing 請參照外觀尺寸圖
10	Weight (MAX) 重量	gram	1.2	
11	Material 材質		ABS UL-94 1/16" HB HIGH HEAT (BLACK)	
12	Terminal 端子		Pin type	See appearance drawing 請參照外觀尺寸圖

## C. APPEARANCE DRAWING 外觀尺寸圖

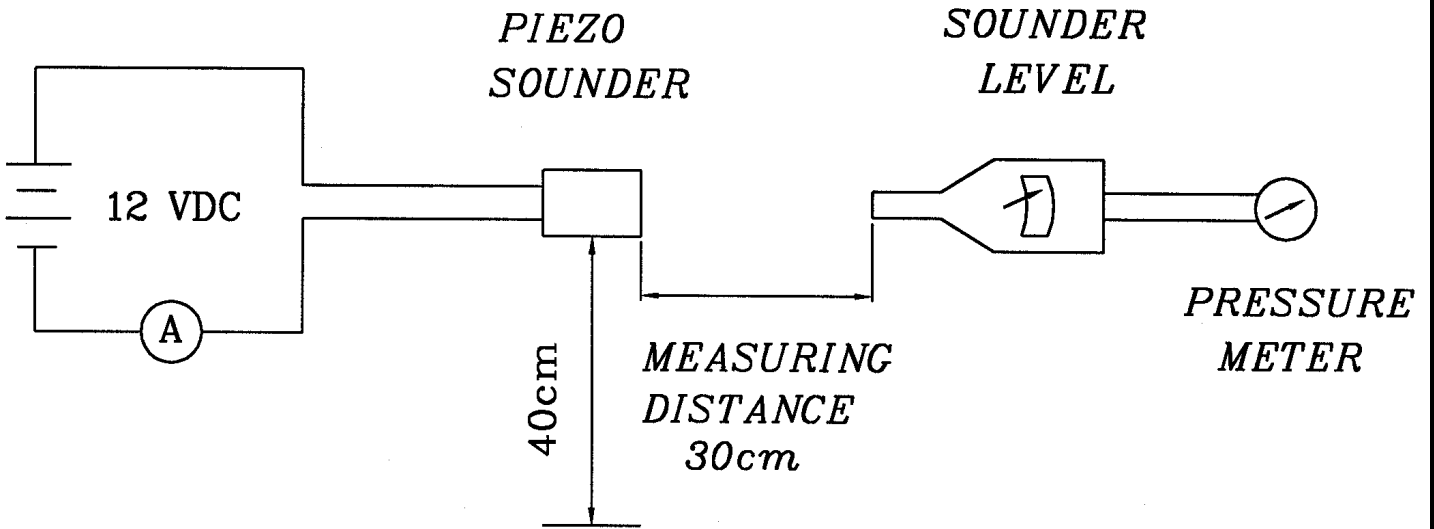


Unit : mm

Tol : ±0.5

## D. Measuring Method 測量方法

1.S.P.L. Measuring Circuit 音壓測試接線圖

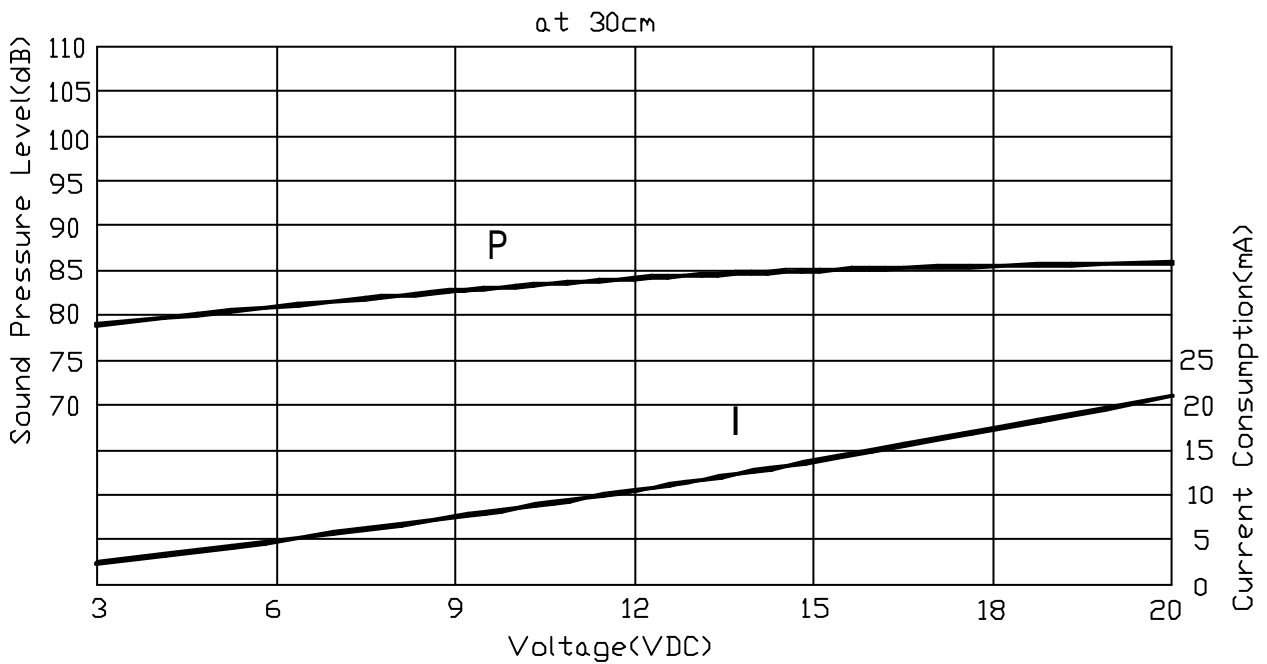


Mic : RION S.P.L meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

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

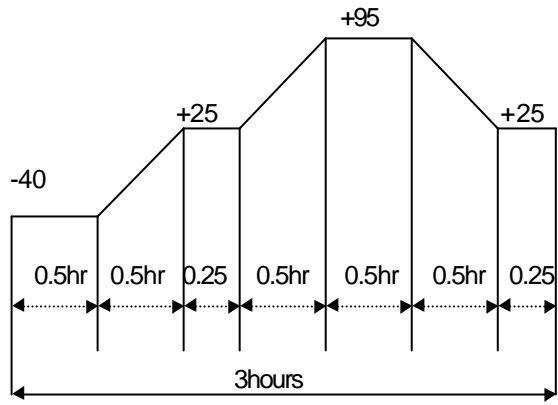
CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



## F. MECHANICAL CHARACTERISTICS 機械特性

No	Item	Test Condition	Evaluation standard
1	Solderability 焊錫附著性	Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $+230 \pm 5$ for $3 \pm 0.5$ seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+230 \pm 5$ 溶融焊錫槽中 $3 \pm 0.5$ 秒.	90% min. lead terminals shall be wet with solder.(Except the edge of terminal) 浸入端子部份附著焊錫 90%以上.(末端斷面不算)
2	Soldering Heat Resistance 焊錫耐熱性	Lead terminal are immersed up to 1.5mm from solder's body in solder bath of $+300 \pm 5$ for $3 \pm 0.5$ seconds or $+260 \pm 5$ for $10 \pm 1$ seconds. 距離端子根部 1.5mm 的位置,浸入 $+300 \pm 5$ 的焊錫槽 $3 \pm 0.5$ 秒,或 $+260 \pm 5$ 的焊錫槽 $10 \pm 1$ 秒.	No interference in operation. 操作上無任何不良.
3	Terminal Strength Pulling 端子強度	The force 10 seconds of 9.8N is applied to each terminal in axial direction. 各端子的軸方向施以 9.8N 的力量 10 秒.	No damage and cutting off. 端子不鬆動,不脫落.
4	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 perpendicular 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 10% compared with initial ones .The SPL should be in $\pm 10$ dB compared with initial one.
5	Dorp 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 $\pm 10$ 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 $+95$ for 240 hours 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. 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 低溫測試	After being placed in a chamber with $-40$ for 240 hours 置於 $-40$ 環境中 240 小時	
3	Humidity test 相對濕度測試	After being placed in a chamber at $+40$ and $90 \pm 5\%$ relative humidity for 240 hours 置於 $+40$ , 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: 	

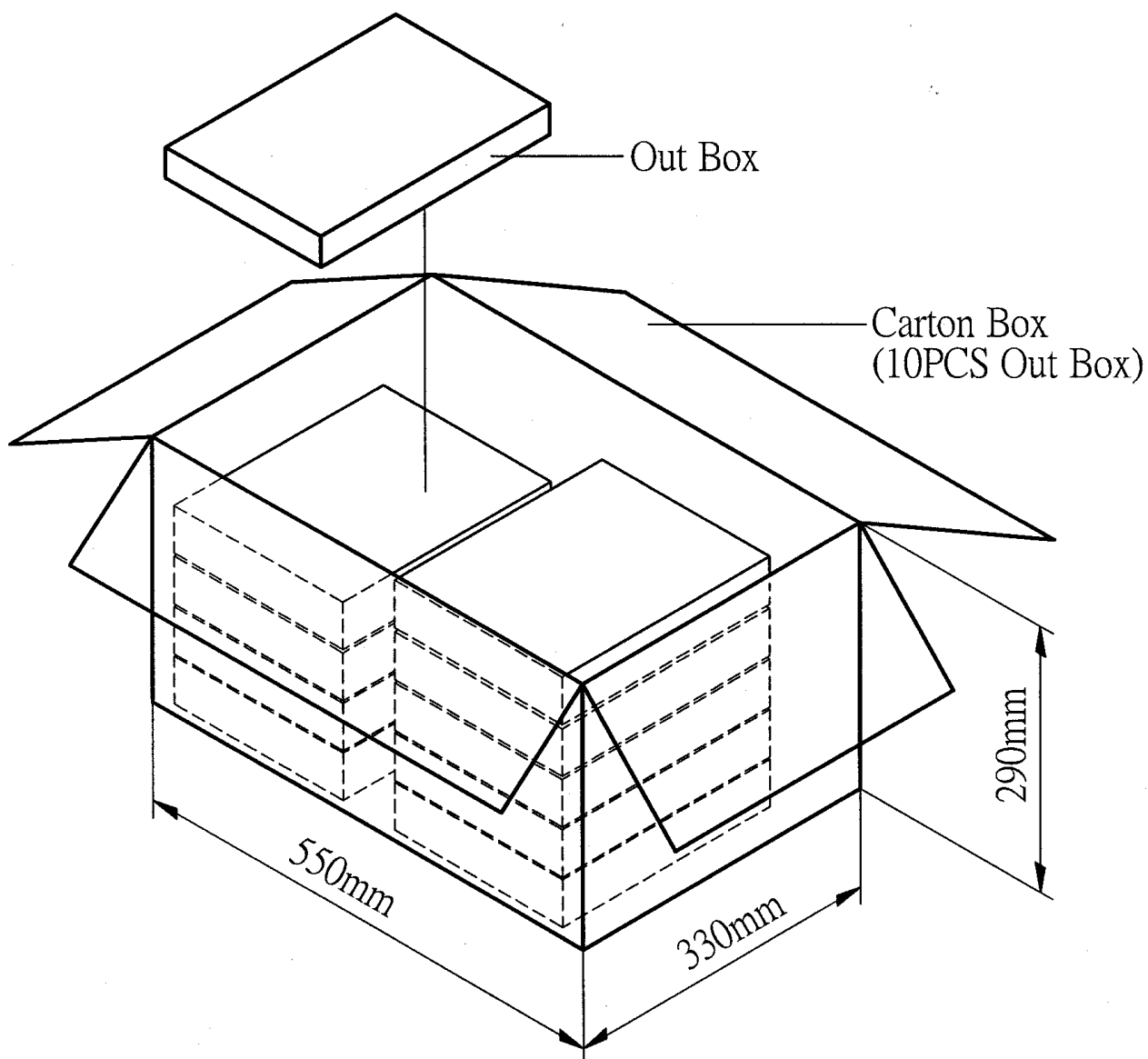
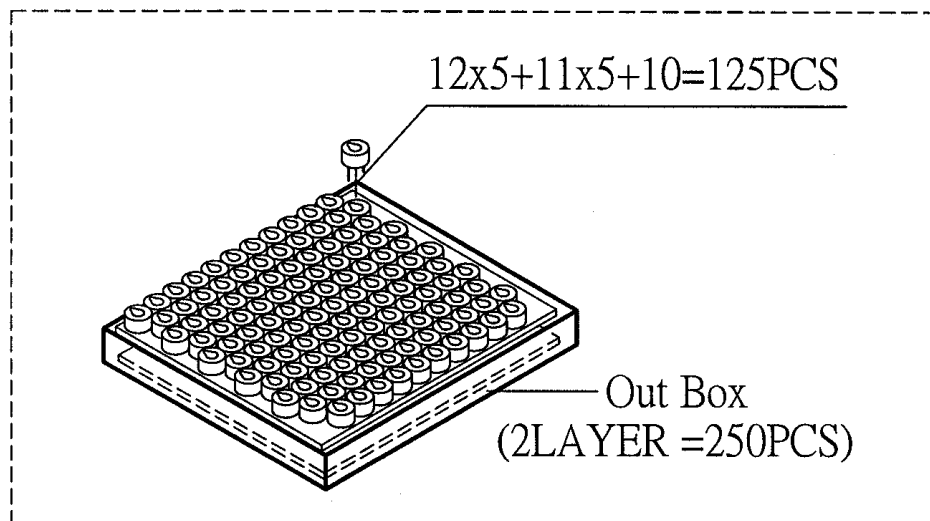
## H. RELIABILITY TEST 信賴性測試

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) 250 hours continuous operation at +85 with maximum rated voltage applied. 在+85 環境下,以最大額定電壓連續操作 250小時.</p> <p>2.Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 5 minutes off, a minimum of 10000 times at room temp.( +25±2 )and maximum rated voltage applied. 在室溫下(+25±2 ), 以最大額定電壓操作, 通電 1分鐘斷電 5分鐘,測試 10000 次循環.</p>	<p>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.</p> <p>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.</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
標準測試條件	:	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	2x125PCS=250PCS
Carton Box	550mmx330mmx290mm	250PCSx10=2,500PCS