

# SPECIFICATION FOR APPROVAL

## 承 認 書

Description : Piezo Audio Transducer

Kingstate Part No. : KPE-123

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

Specification No. : PKD-1014

Number Of The Edition : 1.6

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
<i>Jeff</i> 013102'		

## A. SCOPE 範疇

This specification applies piezo audio indicator, KPE-123  
 此規格書適用於壓電式蜂鳴器, KPE-123

## B. SPECIFICATION 規格

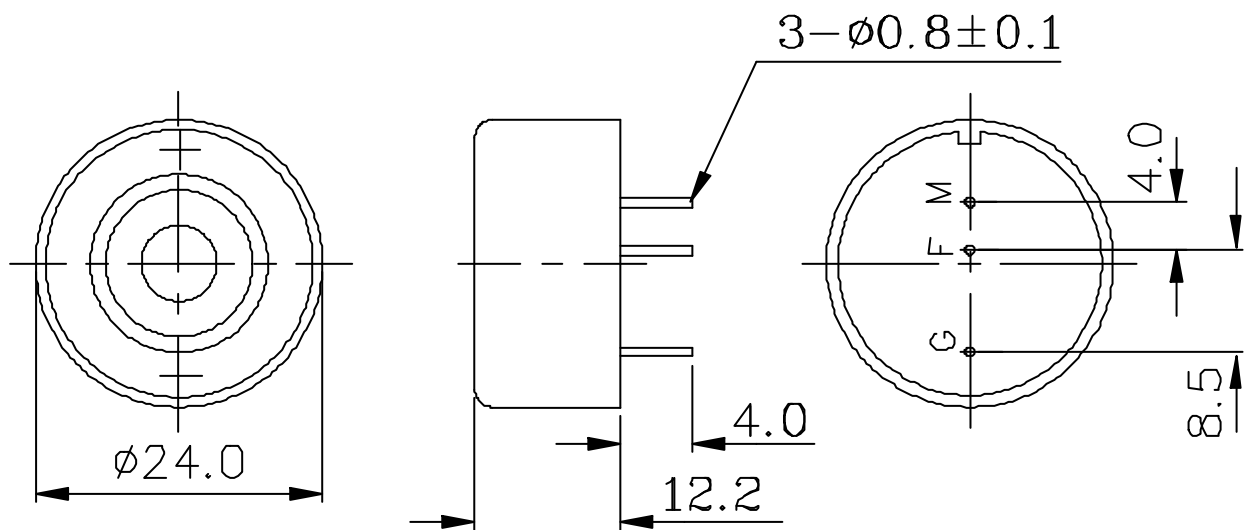
Test condition:

TEMP=25 ±2

Related humidity=65±5%

No.	Item	Unit	Specification	Condition
1	Operating Frequency 操作頻率	KHz	3.0±0.5	
2	Operating Volt. range 操作電壓範圍	VDC	3 ~ 28	
3	Operating Current 操作電流	mA	MAX 8	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		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	24.0x H12.2	See appearance drawing 請參照外觀尺寸圖
10	Weight (MAX) 重量	gram	3.4	
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

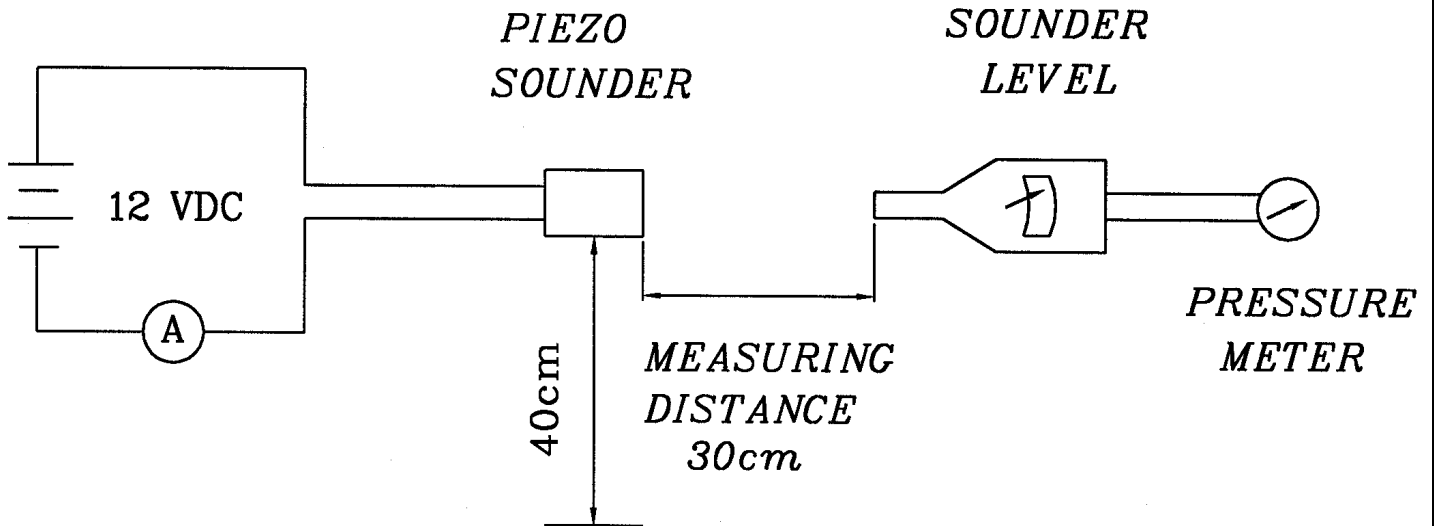


Unit : mm

Tol : ±0.5

## D. MEASURING METHOD 測量方法

### 1. S.P.L. Measuring Circuit 音壓測試接線圖

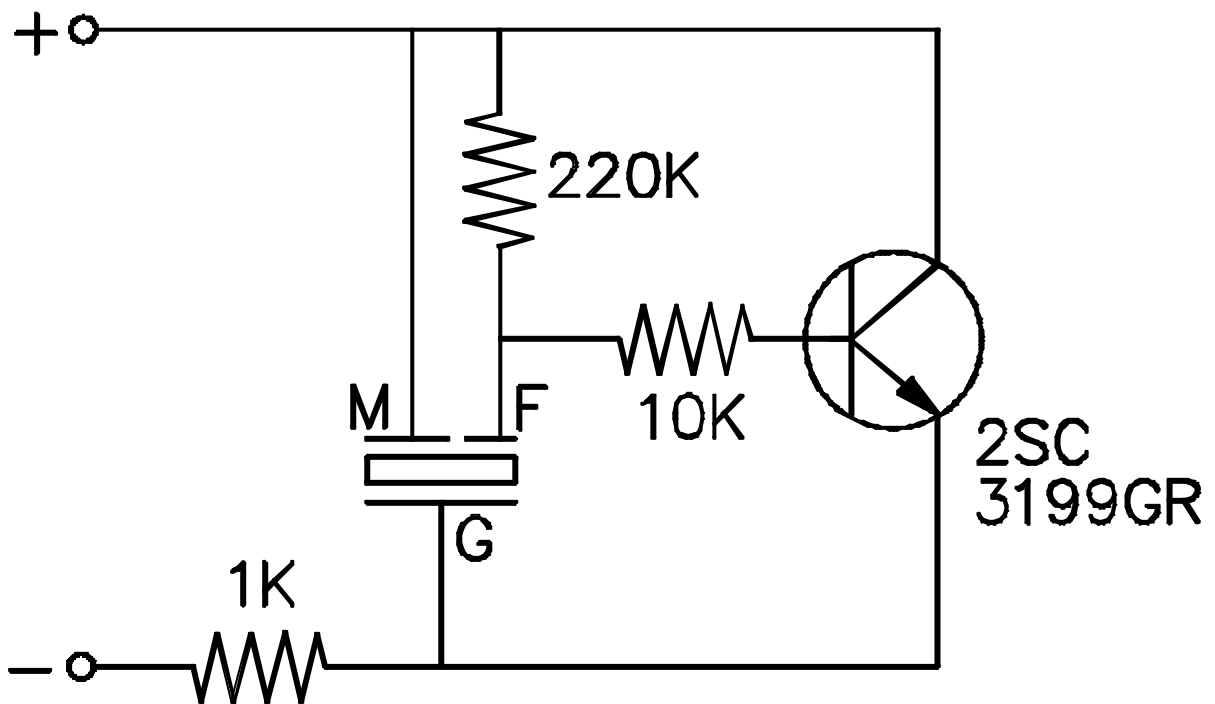


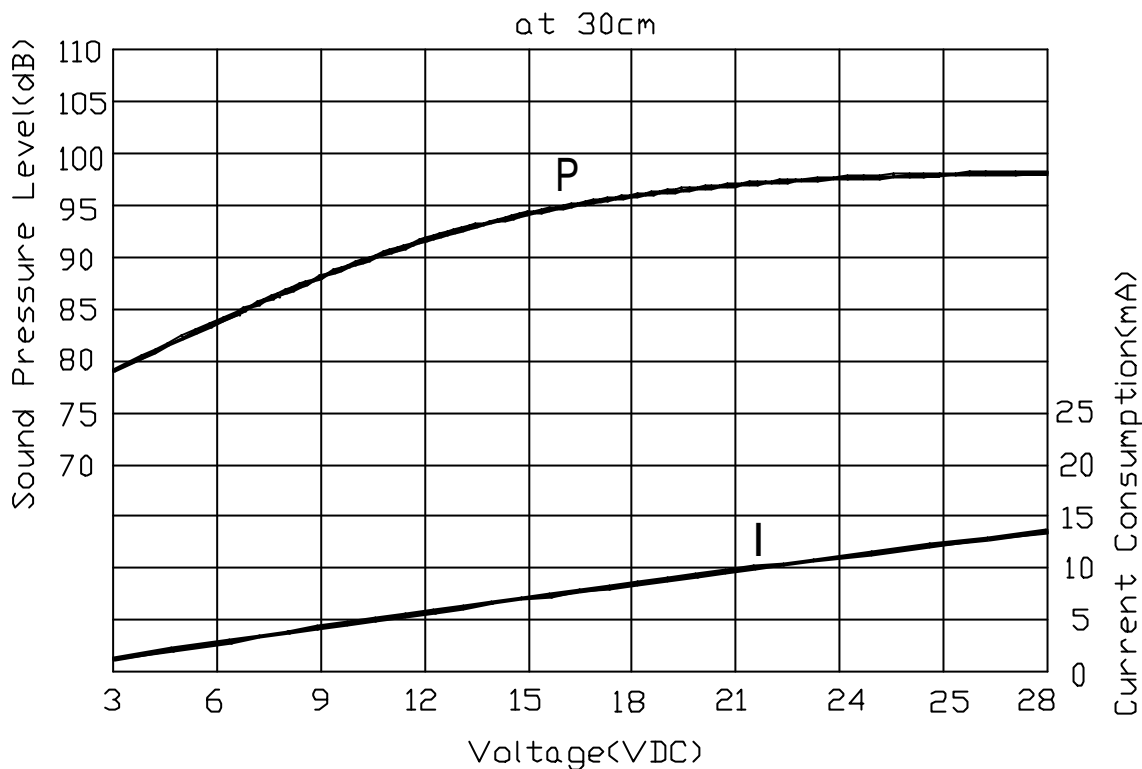
Mic : RION S.P.L. meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

2. The current consumption and the sound pressure level are measured by using the recommend driving circuit shown as below ( one example )

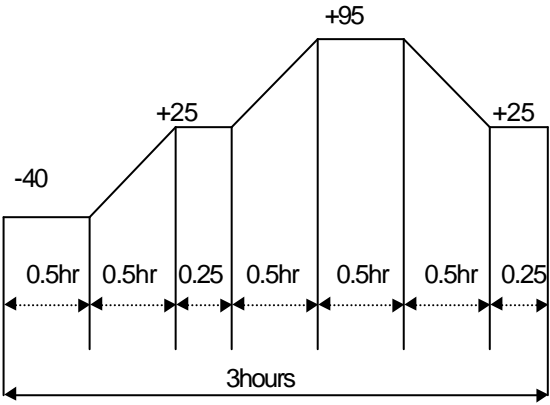
當前的測試數據是依靠此電氣迴路所量測



**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	Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of +230 $\pm$ 5 for 3 $\pm$ 0.5 seconds. 裸線部份浸入松香溶液 5 秒後,再浸入+230 $\pm$ 5 熔融焊錫槽中 3 $\pm$ 0.5 秒.	90% min. stripped wires shall be wet with solder.(Except the edge of terminal) 浸入裸線部份附著焊錫 90%以上.(末端斷面不算)
2	Soldering Heat Resistance 焊錫耐熱性	Stripped wires are immersed up to 1.5mm from insulation in solder bath of +300 $\pm$ 5 for 3 $\pm$ 0.5 seconds or +260 $\pm$ 5 for 10 $\pm$ 1 seconds, and then sounder shall be measured after being placed in natural condition for 4 hours. 距絕緣體 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 $\pm$ 10% compared with initial ones .The SPL should be in $\pm$ 10dB 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 $\pm$ 10dB 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 $\pm 10\text{dB}$ 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 $\pm 10\text{dB}$ 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	1. Continuous life test 高溫壽命測試(連續) 10 minutes 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 10分鐘. 2. Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 0.5 minutes off, a minimum of 960 times at room temp. (+25 $\pm$ 2 ) and maximum rated voltage applied. 在室溫下(+25 $\pm$ 2 ), 以最大額定電壓操作, 通電 1分鐘斷電 0.5分鐘, 測試 960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 $\pm 10\text{dB}$ 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 $\pm 10\text{dB}$ 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 標準測試條件	:	a) Temperature : +25 $\pm$ 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar

## I. PACKING STANDARD 包裝規格

Each minimum package unit of products shall be in a carton box and it shall be clearly marked with Part Number, quantity and outgoing inspection number. There shall be no mechanical damage on products during transportation and/or in storage.

外箱須標示最小包裝單位, 並註明產品型號 數量及檢驗批號., 必須是物品儲藏或運輸過程中可防止造成損傷的包裝.