

SPECIFICATION FOR APPROVAL

承認書

Description : Piezo Audio Indicator

Kingstate Part No. : KPEG278

Customer's Model No. : _____

Specification No. : PKD-8000

Number Of The Edition : 1.3

CUSTOMER'S APPROVED SIGNATURE

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



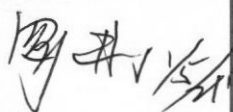
KINGSTATE

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](http://www.kingstate.com.tw)

Approved by	Checked by	Issued by
	 2021.01.05	陽志明 2020.01.05

KINGSTATE ELECTRONICS CORPORATION

志豐電子股份有限公司

修訂記錄

圖號: PKD-8000			料號: KPEG278
修訂日期	提出者	版次	修訂記錄內容
2009/06/08	姚海平	1.2	依 ER012-2009-5-7-792 消耗電流變更為 MAX18.
2021/01/05	張建合	1.3	增加週期

A.SCOPE 範疇

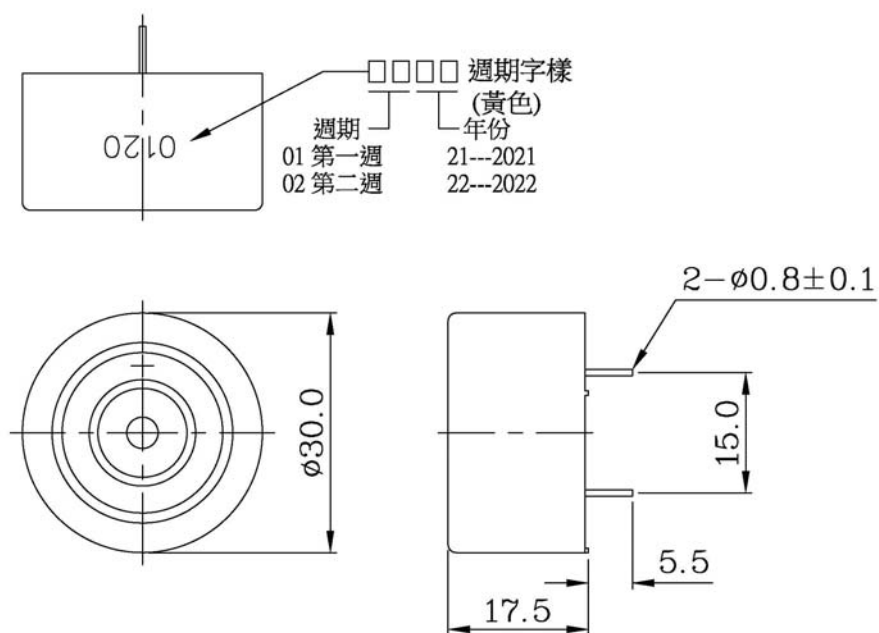
This specification applies piezo audio indicator, **KPEG278**

此規格書適用於壓電式蜂鳴器, **KPEG278**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Resonant frequency 共振頻率	KHz	1.8 ± 0.5	
2	Operating Volt. range 操作電壓範圍	VDC	3 ~ 28	
3	Current consumption 消耗電流	mA	MAX 18	at 12VDC
4	Sound pressure level 輸出音壓	dB	MIN 77	at 30cm/12VDC
5	Rated Voltage 額定電壓	VDC	12	
6	Tone 聲音		Continuous 直音	at 12VDC
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	$\phi 30.0 \times H17.5$	See appearance drawing 請參照外觀尺寸圖
10	Weight 重量	gram	5.6	
11	Material 材質		ABS UL-94 1/16" HB (BLACK)	
12	Terminal 端子		Pin type (鍍全錫/Plating Sn)	See appearance drawing 請參照外觀尺寸圖
13	Environmental Protection Regulation 環保法規		ROHS2.0	

C. APPEARANCE DRAWING 外觀尺寸圖

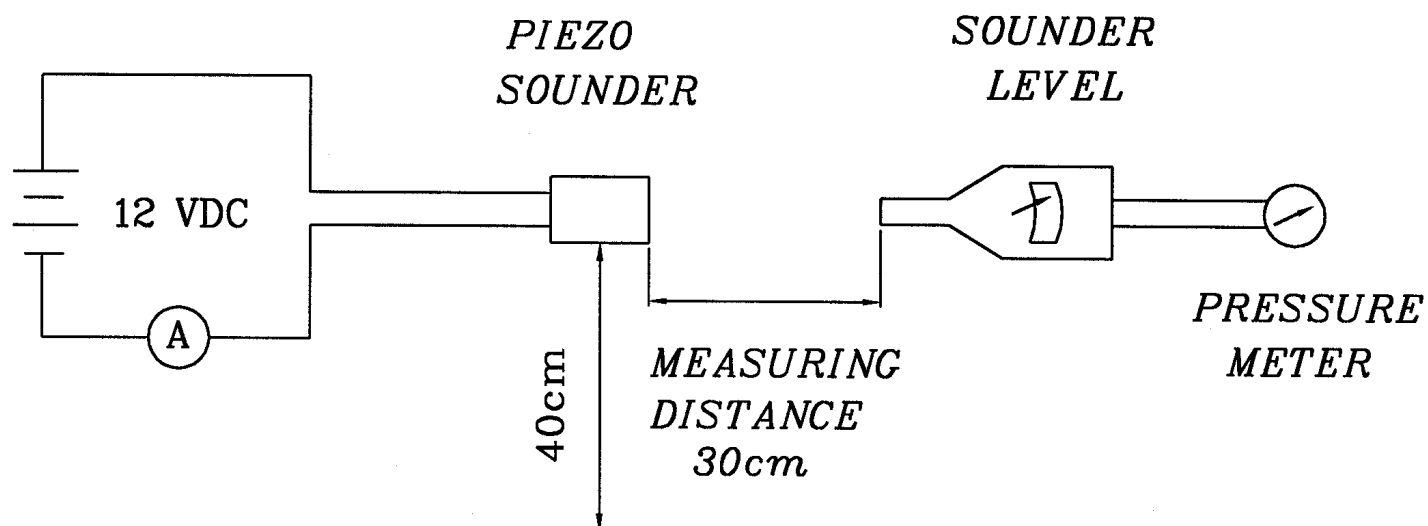


Unit : mm

Tol : ± 0.5

D. Measuring Method 測量方法

1. S.P.L. Measuring Circuit 音壓測試接線圖

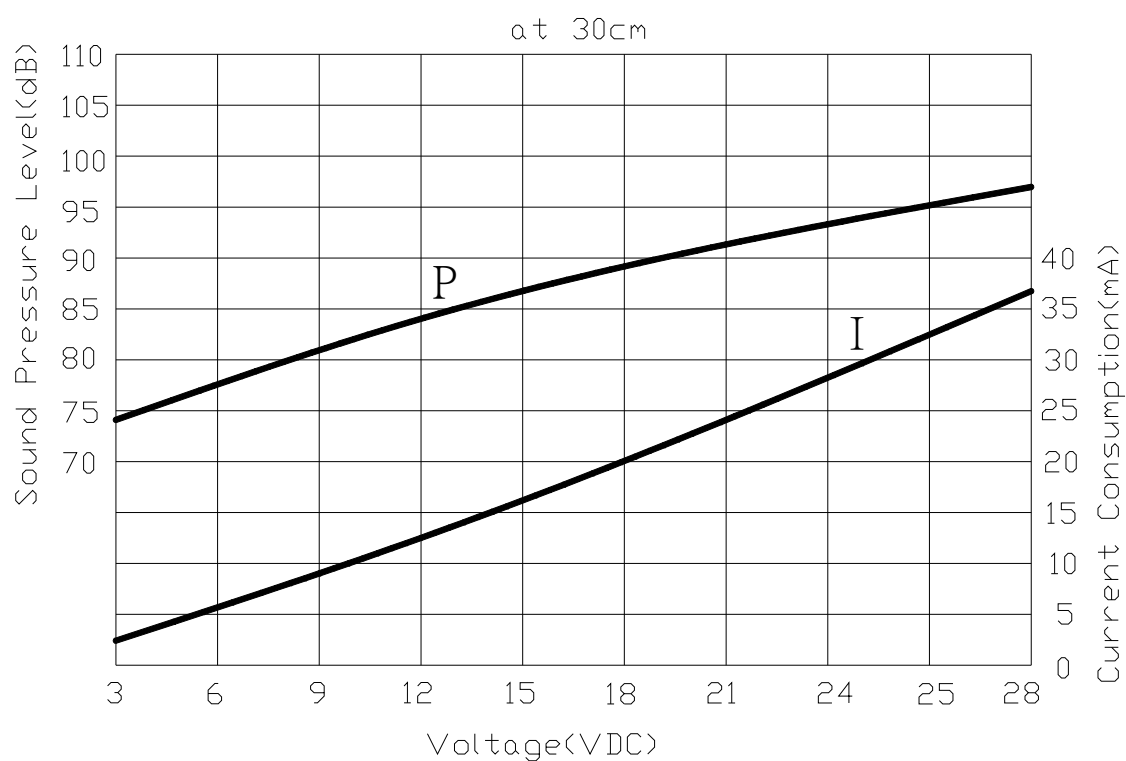


Mic : RION S.P.L meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

E. VOLTAGE: SOUND PRESSURE LEVEL/VOLTAGE CURRENT CONSUMPTION

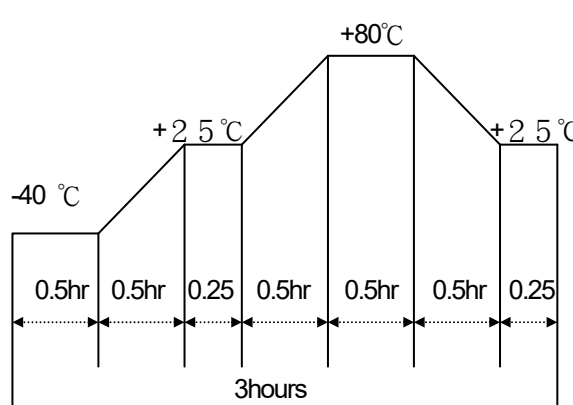
CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



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 $+230 \pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+230 \pm 5^{\circ}\text{C}$ 熔融焊錫槽中 3 ± 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 $+300 \pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds or $+260 \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds. 距離端子根部 1.5mm 的位置,浸入 $+300 \pm 5^{\circ}\text{C}$ 的焊錫槽 3 ± 0.5 秒,或 $+260 \pm 5^{\circ}\text{C}$ 的焊錫槽 10 ± 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 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.
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 $\pm 10\text{dB}$ 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 with -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	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. 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	:	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

