

SPECIFICATION FOR APPROVAL

承 認 書

Description : Piezo Audio Transducer

Kingstate Part No. : KPEG502

Customer's Model No. : _____

Specification No. : PKD-7149

Number Of The Edition : 1.3

CUSTOMER'S APPROVED SIGNATURE		



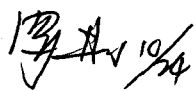

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KINGSTATE ELECTRONICS CORPORATION

志豐電子股份有限公司

修訂記錄

圖號: PKD-7149			料號: KPEG502
修訂日期	提出者	版次	修訂記錄內容
2005/10/10	羅彤	1.2	1.增加客規品符號; 2.依 ECN200509013 增加 A,B 蓋拉力實驗,及壽命測試條件.3.機械特性及壽測照 KPEG505G 一樣
2019. 10. 23	張建合	1. 3	增加週期

A. SCOPE 範疇

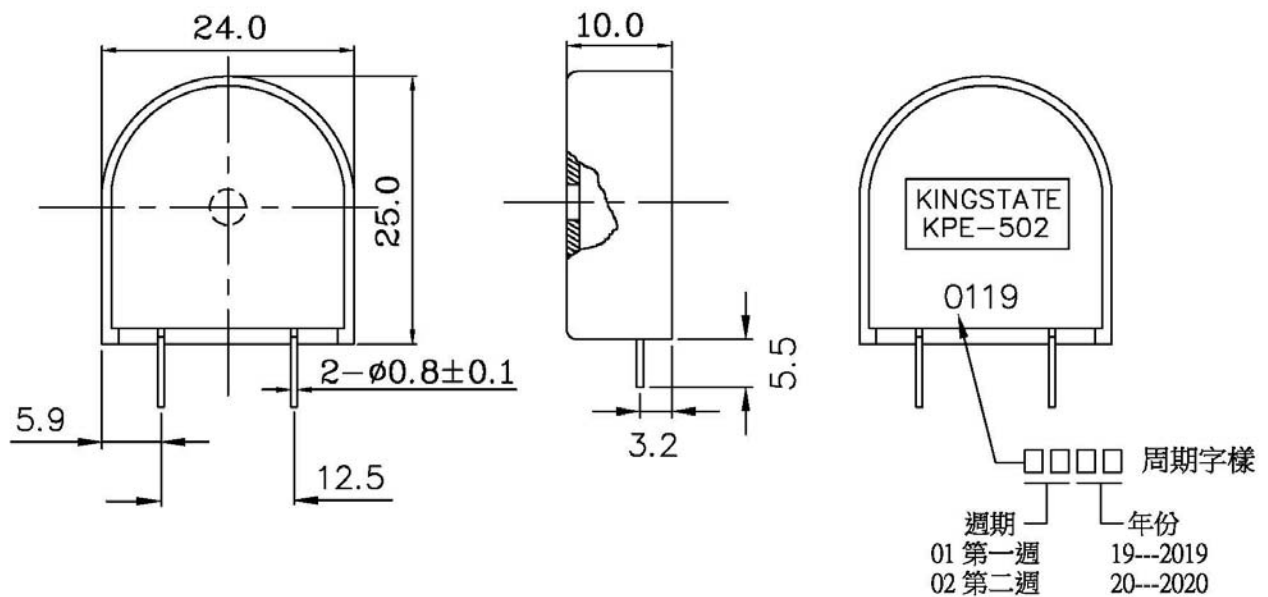
This specification applies piezo audio transducer, **KPEG502**

此規格書適用於壓電式蜂鳴器, **KPEG502**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Volt. 操作電壓	Vp-p	MAX 30	
2	Current consumption 消耗電流	mA	MAX 10	at 10Vp-p, square wave, 3.3KHz.
3	Sound pressure level 輸出音壓	dB	MIN 93	at 10cm/10Vp-p, square wave, 3.3KHz.
4	Electrostatic capacity 靜電容量	pF	17,000 ± 30%	at 1KHz/1V
5	Operating temp. 操作溫度	°C	-30 ~ +115	
6	Storage temp. 儲存溫度	°C	-40 ~ +125	
7	Dimension 尺寸	mm	L25.0 x W24.0 x H10.0	See appearance drawing 請參照外觀尺寸圖
8	Weight (MAX) 重量	gram	3.7	
9	Material 材質		PC 10%GLASS (BLACK)	
10	Terminal 端子		Pin type (鍍化金/Plating Au)	See appearance drawing 請參照外觀尺寸圖
11	Environmental Protection Regulation 環保法規		RoHS2.0	

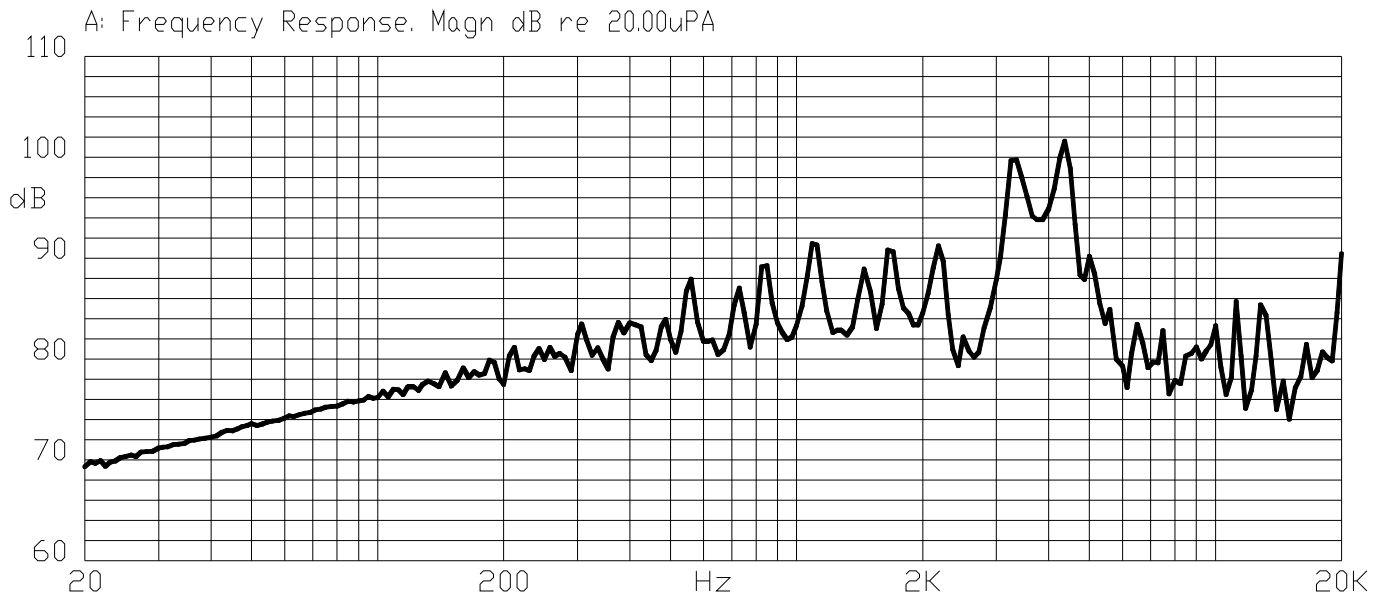
C. APPEARANCE DRAWING 外觀尺寸圖



Tol : ± 0.5

Unit: mm

D. TYPICAL FREQUENCY RESPONSE CURVE 頻率響應曲線

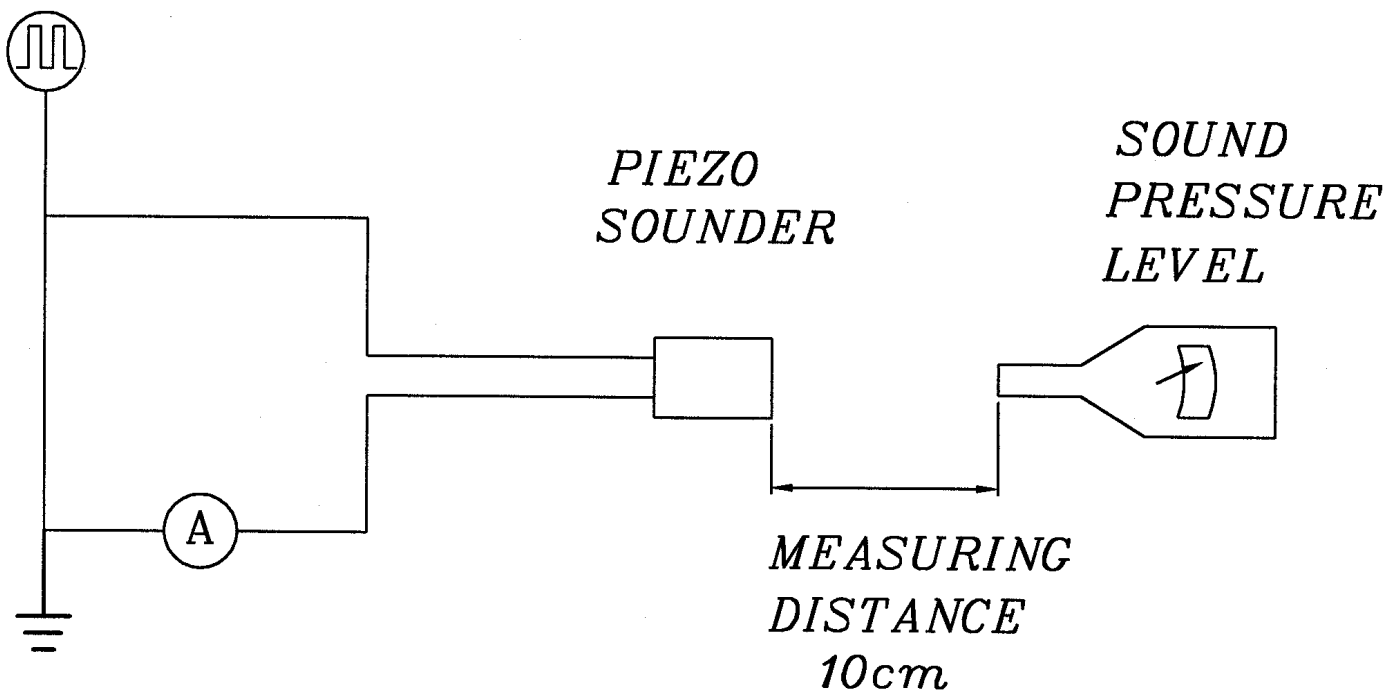


E. MEASURING METHOD 測量方法

S.P.L. Measuring Circuit 音壓測試接線圖

Input Signal: 10Vp-p, 3.3kHz, Square Wave

輸入信號: 10Vp-p, 3.3kHz, 方波



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

Mic : RION 噪音計 UC30 或同等品

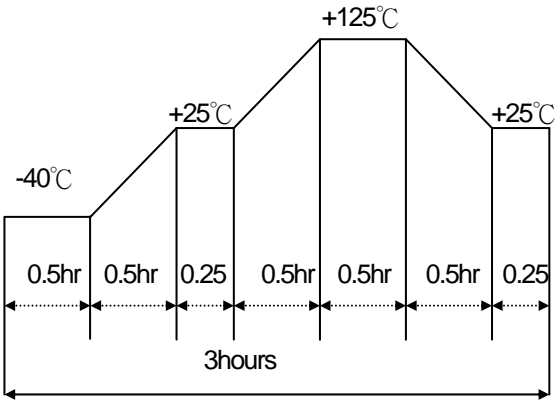
S.G : Hewlett Packard 33120A Function Generator or equivalent

S.G : Hewlett Packard 33120A 函數信號產生器或同等品

F. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test Condition	Evaluation standard
1	Solder ability 焊錫附著性	Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of $+230\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds. 裸線部份浸入松香溶液 5 秒後,再浸入 $+230\pm 5^{\circ}\text{C}$ 熔融焊錫槽中 3 ± 0.5 秒.	90% min. 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 $+300\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds or $+260\pm 5^{\circ}\text{C}$ for 10 ± 1 seconds, and then solder shall be measured after being placed in natural condition for 4 hours. 距絕緣體 1.5mm 的位置,浸入 $+300\pm 5^{\circ}\text{C}$ 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 300g is applied to each terminal in axial direction. 各端子的軸方向施以 300g 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	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.
6	Inside lead wire pull test 內線強度	The force 10 seconds of 400g is applied to each terminal in axial direction. 各線材的軸方向施以 400g 的力量 10 秒.	No damage and cutting off. 線材不鬆動,不脫落.
7	Strength Pulling A,B 蓋拉力實驗	The force 1 minutes of 5kg at room temp.($+25\pm 5^{\circ}\text{C}$) is applied to A,B case 在室溫($+25\pm 5^{\circ}\text{C}$)條件下,A,B 蓋須承受 5kg 力量 1 分鐘.	No damage and cutting off. A,B 蓋不變形,不脫落.

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 $+125^{\circ}\text{C}$ for 240 hours 置於 $+125^{\circ}\text{C}$ 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: 	

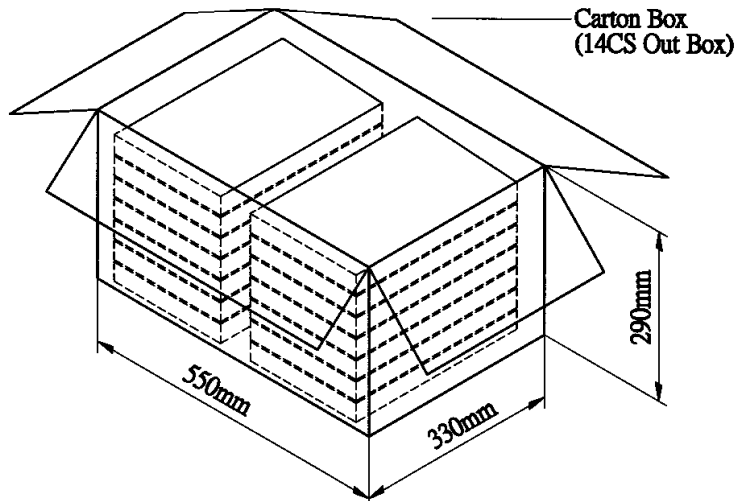
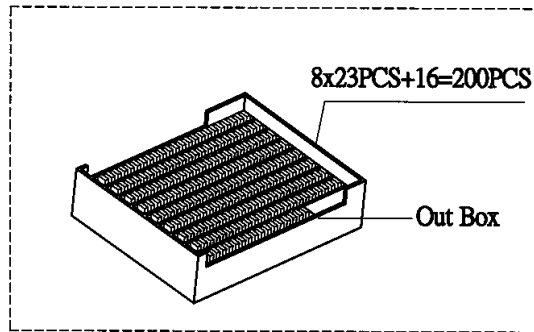
H. RELIABILITY TEST 信賴性測試

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) 2 hours continuous operation at +105°C with 15V applied. 在+105°C環境下,以 15V 電壓連續操作 2 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°C) and maximum rated voltage applied. 在室溫下(+25 ±2°C), 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°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

PACKING STANDARD 包裝規格



Out Box	310mmx248mmx40mm	1x200PCS=200PCS
Carton Box	550mmx330mmx290mm	200PCSx14=2,800PCS