

# SPECIFICATION FOR APPROVAL

## 承 認 書

Description : Piezo Audio Transducer  
Kingstate Part No. : KPEG140W05028AZ  
Customer's Model No. : \_\_\_\_\_  
Specification No. : POD-5604  
Number Of The Edition : 1.2

CUSTOMER'S APPROVED SIGNATURE		



**KINGSTATE**



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Approved by	Checked by	Issued by
 9/11/19' 洪	 2019.09.11	SKYChen 09/11/19'

## A. SCOPE 範疇

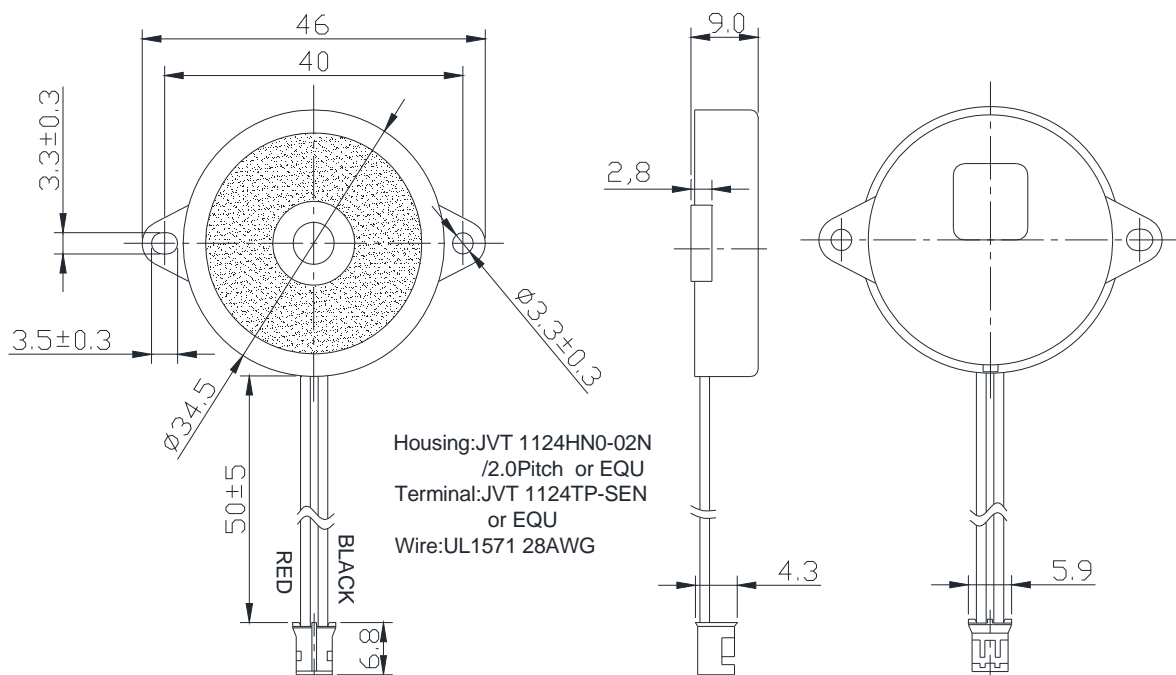
This specification applies piezo audio transducer, **KPEG140W05028AZ**

此規格書適用於壓電式蜂鳴器, **KPEG140W05028AZ**

## B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Volt. 操作電壓	Vp-p	5~ 45	
2	Current consumption 消耗電流	mA	MAX 60	At 40Vp-p,square wave,3.3KHz.
3	Sound pressure level 輸出音壓	dB	MIN 105	at 10cm/23Vp-p,square wave,3.3KHz.
4	Electrostatic capacity 靜電容量	pF	50,000 ± 30%	at 120Hz/1V
5	Operating temp. 操作溫度	°C	-30 ~ +70	
6	Storage temp. 儲存溫度	°C	-30 ~ +70	
7	Dimension 尺寸	mm	φ34.5 x H9.0	See appearance drawing 請參照外觀尺寸圖
8	Weight (MAX) 重量	gram	4.8	
9	Material 材質		ABS(Black)	
10	Terminal 端子		Wire type	See appearance drawing 請參照外觀尺寸圖
11	Environmental Protection Regulation 環保法規		RoHS2.0	Piezo electronic device is exempted from RoHS2.0. Lead contain restriction. 電子陶瓷產品不受 RoHS2.0 條款規範

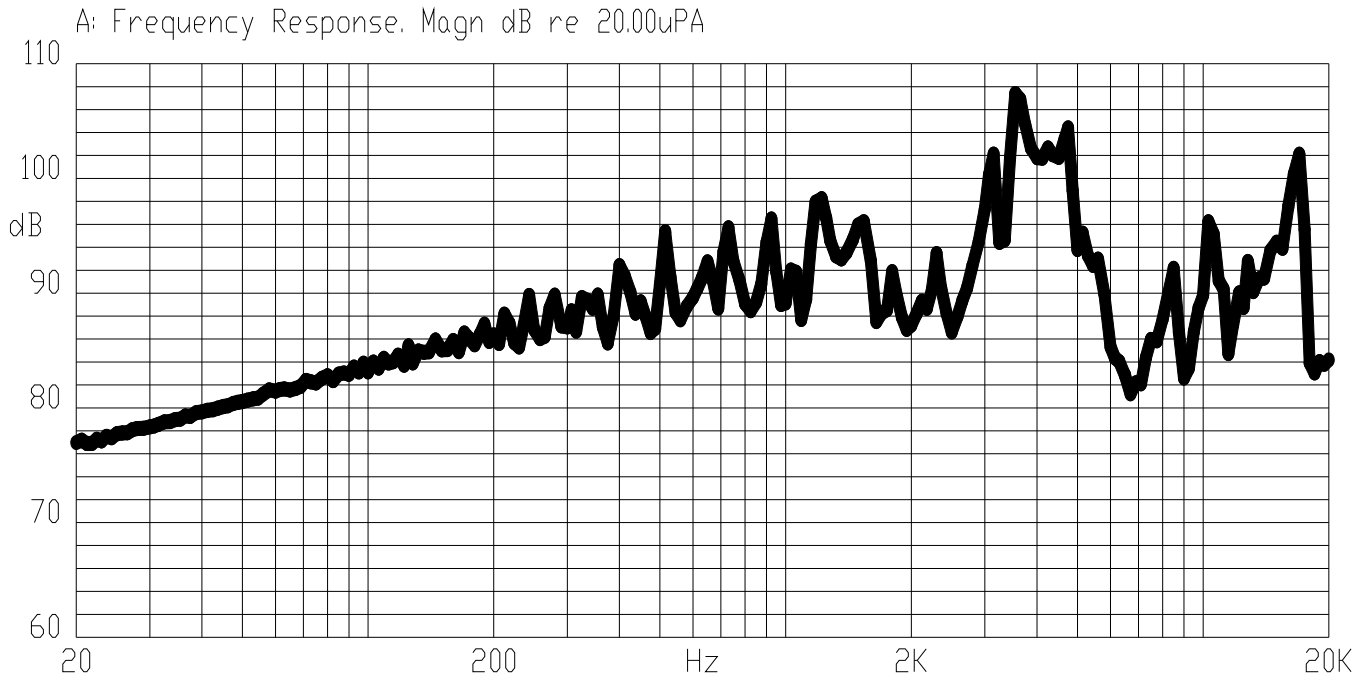
## C. APPEARANCE DRAWING 外觀尺寸圖



Tol : ± 0.5

Unit: mm

**D. TYPICAL FREQUENCY RESPONSE CURVE 頻率響應曲線**

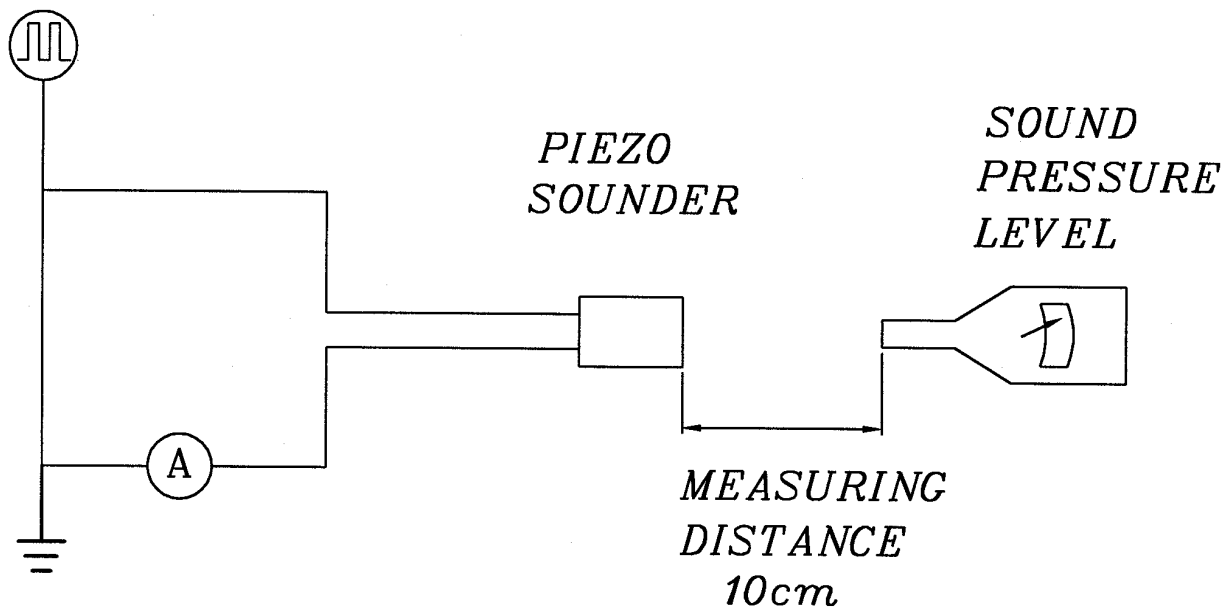


**E. MEASURING METHOD 測量方法**

S.P.L. Measuring Circuit 音壓測試接線圖

Input Signal: 23Vp-p, 3.3kHz, Square Wave

輸入信號: 23Vp-p, 3.3kHz, 方波



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

Mic : RION 噪音計 UC30 或同等品

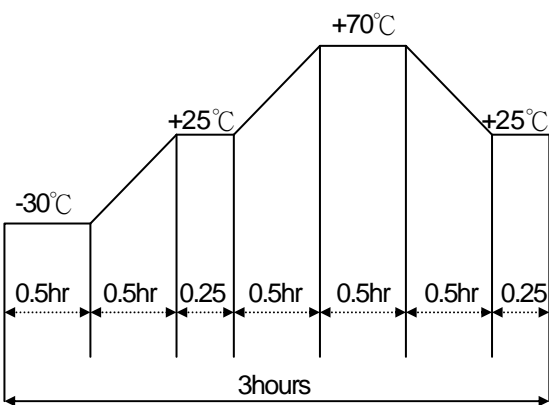
S.G : Hewlett Packard 33120A Function Generator or equivalent

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	Solderability 焊錫附著性 (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) 浸入裸線部份附著焊錫 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 $+70^{\circ}\text{C}$ for 240 hours 置於 $+70^{\circ}\text{C}$ 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 $-30^{\circ}\text{C}$ for 240 hours 置於 $-30^{\circ}\text{C}$ 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	<p>1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +55°C with rated voltage applied. 在+55°C環境下,以額定電壓連續操作48小時</p> <p>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。</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>

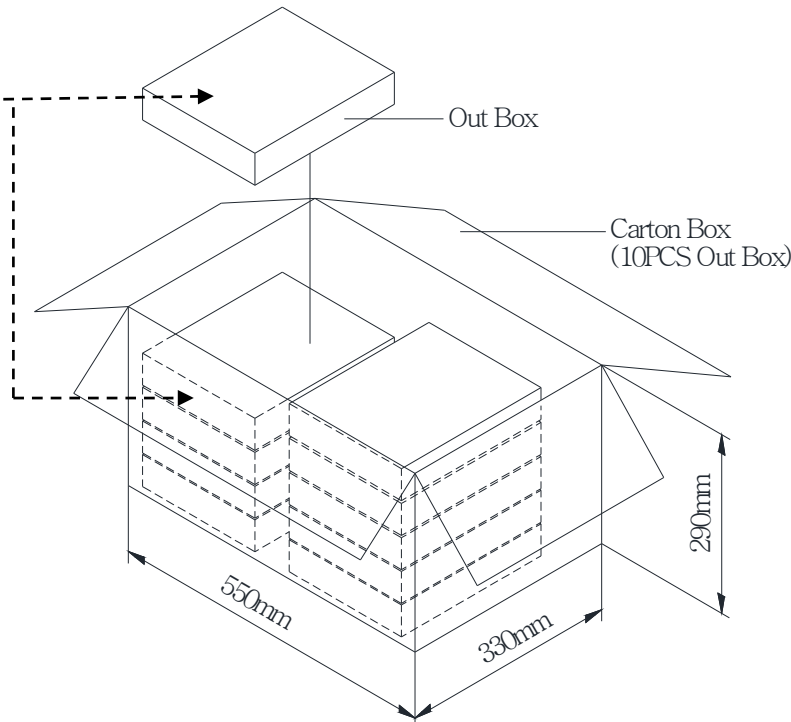
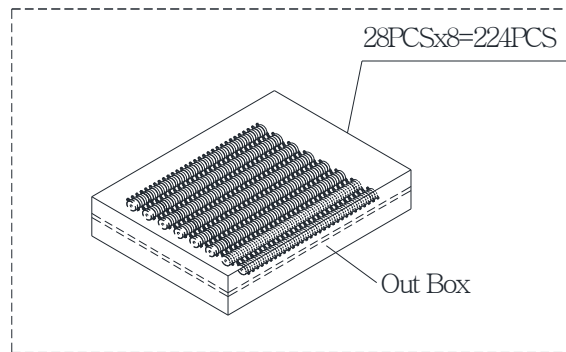
### TEST CONDITION.

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

## I. PACKING STANDARD 包裝規格

Lot No.	XXXXXXXXXX
Part No.	XXXXXXXXXX
Quantity	XXXX PCS
Date:	DD MM YY
	
	

\* The label stucked on inner boxes and the outer of carton.



Out Box	310mmx248mmx49mm	1x224PCS=224PCS
Carton Box	550mmx330mmx290mm	224PCSx10=2240PCS