

SPECIFICATION FOR APPROVAL

承 認 書

Description : **Piezo Audio Transducer**

Kingstate Part No. : **KPEG153**

Customer's Model No. : _____

Specification No. : **PKD-7091**

Number Of The Edition : **1.4**

CUSTOMER'S APPROVED SIGNATURE		

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A. SCOPE 範疇

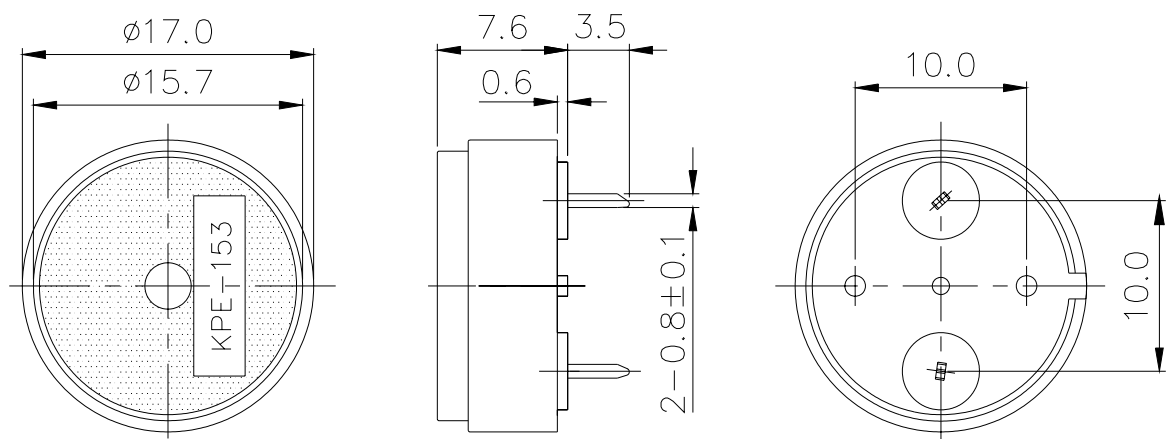
This specification applies piezo audio transducer, **KPEG153**

此規格書適用於壓電式蜂鳴器, **KPEG153**

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 7	at 10Vp-p,square wave,4.0KHz.
3	Sound pressure level 輸出音壓	dB	MIN 82	at 10cm/10Vp-p,square wave,4.0KHz.
4	Electrostatic capacity 靜電容量	pF	14,000 ± 30%	at 1KHz/1V
5	Operating temp. 操作溫度		-30 ~ +105	
6	Storage temp. 儲存溫度		-40 ~ +105	
7	Dimension 尺寸	mm	17.0 x H 7.6	See appearance drawing 請參照外觀尺寸圖
8	Weight (MAX) 重量	gram	3.4	
9	Material 材質		PBT+15%GF (Black)	
10	Terminal 端子		Pin type (Plating Au)	See appearance drawing 請參照外觀尺寸圖
11	Environmental Protection Regulation 環保法規		RoHS	

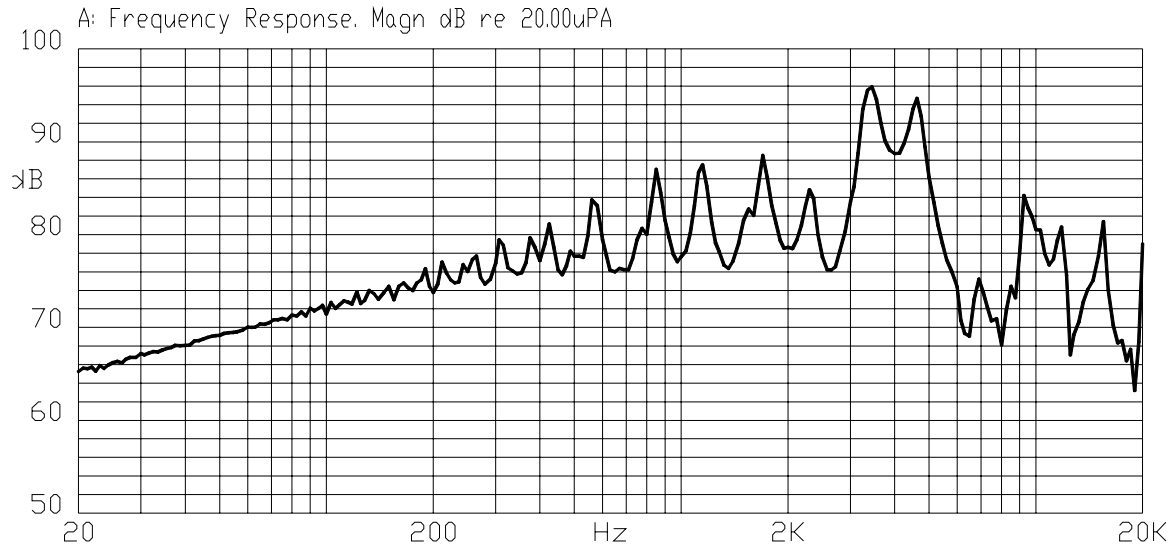
C. APPEARANCE DRAWING 外觀尺寸圖



Tol : ± 0.5

Unit: mm

D. TYPICAL FREQUENCY RESPONSE CURVE 頻率響應曲線

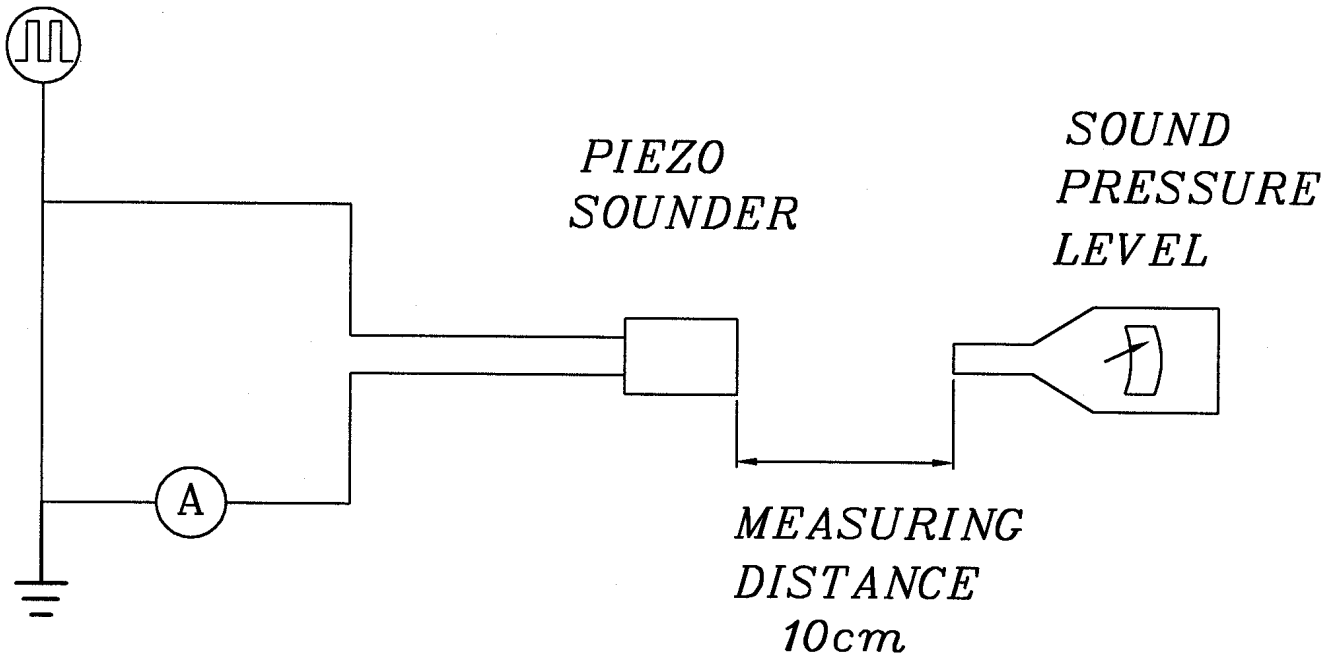


E. MEASURING METHOD 測量方法

S.P.L. Measuring Circuit 音壓測試接線圖

Input Signal: 10Vp-p, 4.0kHz, Square Wave

輸入信號: 10Vp-p, 4.0kHz, 方波



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

Mic : RION 噪音計 UC30 或同等品

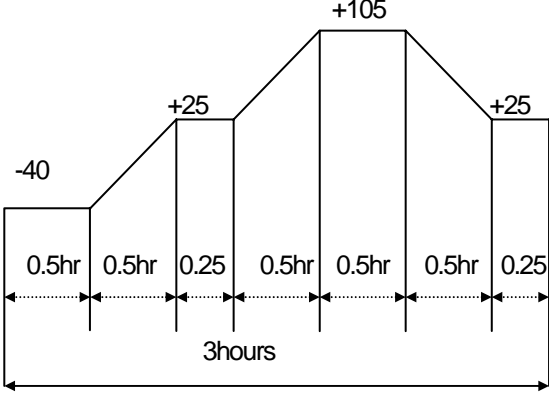
S.G : Hewlett Packard 33120A Function Generator or equivalent

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	Lead terminals are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm 5$ for 3 ± 1 seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5$ 溶錫槽中 3 ± 1 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 $+260\pm 5$ for 3 ± 1 seconds. 距離端子根部 1.5mm 的位置,浸入 $+260\pm 5$ 的焊錫槽 3 ± 1 秒.	No interference in operation 操作無任何不良
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. 振動加週波數 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 ± 10 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 ± 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 $+105$ for 240 hours 置於 $+105$ 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 ± 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 ± 10 dB 內.
2	Low temp. test 低溫測試	After being placed in a chamber at -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: 	

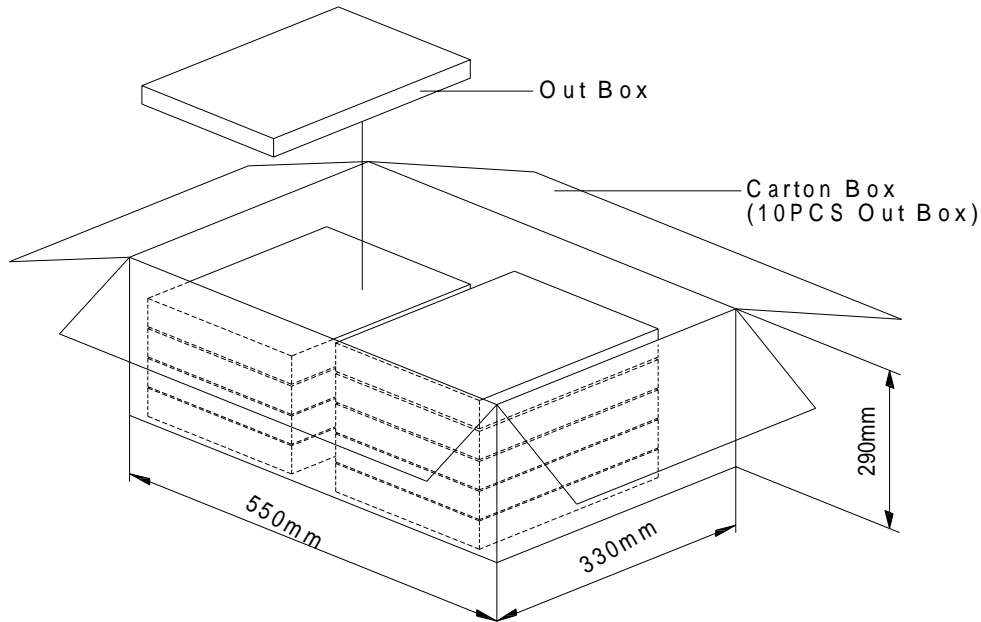
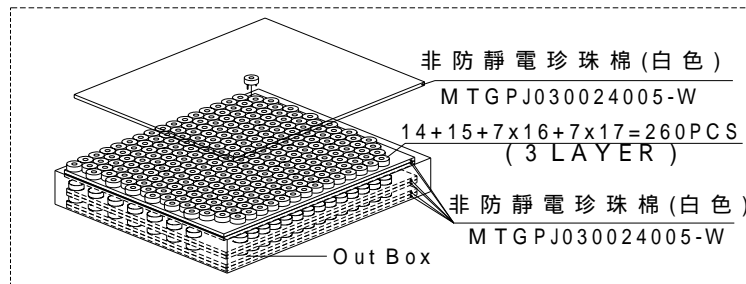
H. RELIABILITY TEST 信賴性測試

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) 48 hours continuous operation at +90 with rated voltage applied. 在+90 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) and rated voltage applied 在室溫下(+25±2), 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 , 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 (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 一般測試條件	:	a) Temperature : +5 ~ +35	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
Judgement Test Condition 爭議時測試條件	:	a) 溫度 : +5 ~ +35	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
	:	a) Temperature : +25 ± 2	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
	:	a) 溫度 : +25 ± 2	b) 濕度 : 60-70%	c) 氣壓 : 860-1060mbar

I. PACKING STANDARD 包裝規格



Out Box	310 mm x 248 mm x 49 mm	260PCS x 3 = 780PCS
Carton Box	550 mm x 330 mm x 290 mm	780PCS x 10 = 7800PCS