

SPECIFICATION FOR APPROVAL

承 認 書

Description : Piezo Audio Transducer

Kingstate Part No. : KPTG1812S10V3K

Customer's Model No. : _____

Specification No. : DOD-U730

Number Of The Edition : 1.2

CUSTOMER'S APPROVED SIGNATURE		



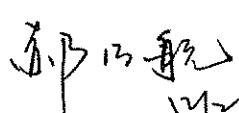

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Approved by	Checked by	Issued by
 12/1/22	 12/2	HUANGJIE 2022/12/02

A. SCOPE 範疇

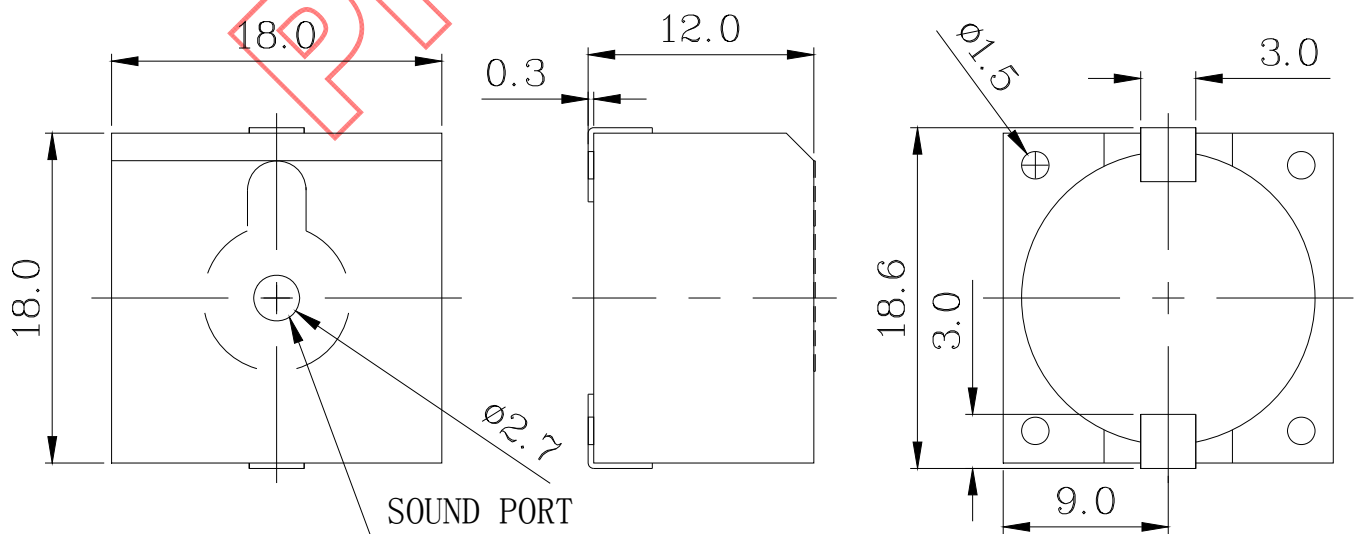
This specification applies piezo audio transducer, **KPTG1812S10V3K**

此規格書適用於壓電式蜂鳴器, **KPTG1812S10V3K**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Volt. Range 最大操作電壓	Vp-p	1~30	
2	Current consumption 消耗電流	mA	MAX 7.0	at 10Vp-p, square wave, 3.0KHz.
3	Sound pressure level 輸出音壓	dB	MIN 86	at 10cm/10Vp-p, square wave, 3.0KHz
4	Electrostatic capacity 靜電容量	pF	20,000 ± 30%	at 100Hz/1V
5	Operating temp. 操作溫度	°C	-30 ~ +70	
6	Storage temp. 儲存溫度	°C	-40 ~ +80	
7	Dimension 尺寸	mm	L18.0 x W18.0 x H12.0	See appearance drawing 請參照外觀尺寸圖
8	Weight (MAX) 重量	gram	4.0	
9	Material 材質		LCP (White)	
10	Terminal 端子		SMD type (鍍全錫/Plating Sn)	See appearance drawing 請參照外觀尺寸圖
11	Environmental Protection Regulation 環保法規		RoHS2.0	
12	Storage life 保存期限	month	6	6 months preservation at room temp.(25±3°C), Humidity40% 在室溫下25±3°C,濕度40%以下可保存6個月.

C. APPEARANCE DRAWING 外觀尺寸圖

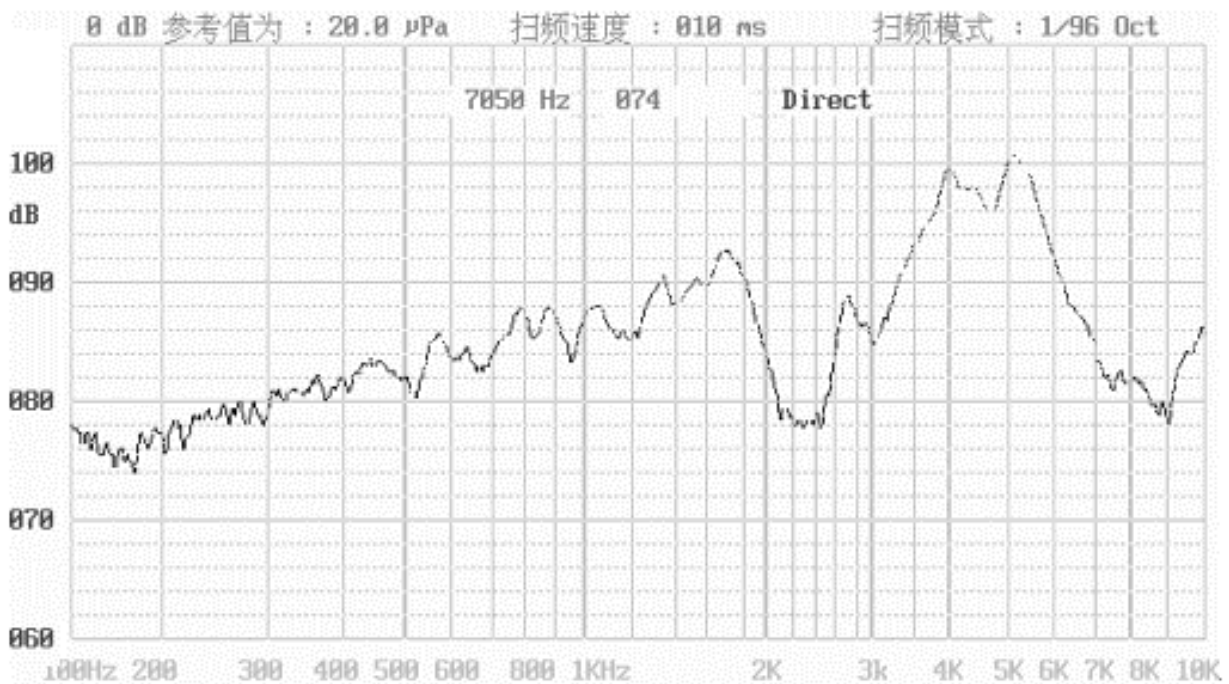


Tol: ± 0.5

Unit: mm

D. TYPICAL FREQUENCY RESPONSE CURVE 頻率響應曲線

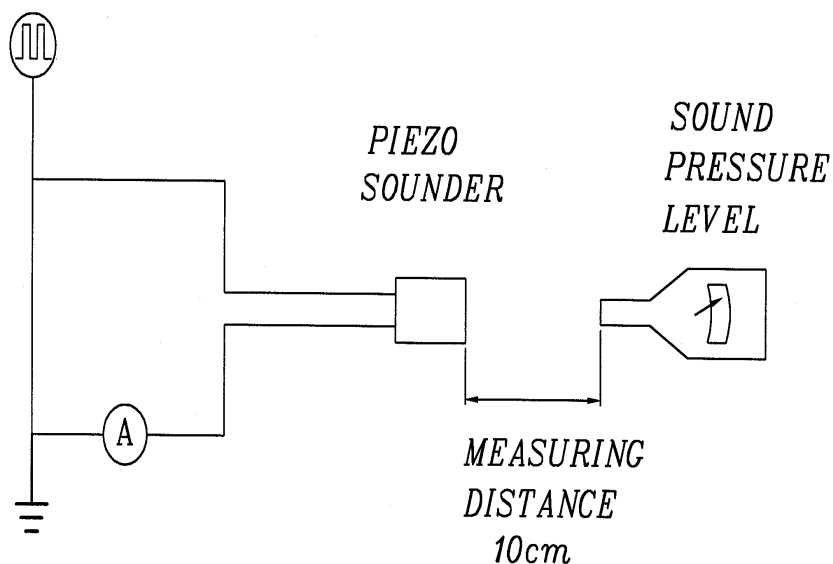
For Reference Only 僅供參考



E. MEASURING METHOD 測量方法

S.P.L. Measuring Circuit 音壓測試接線圖

Input Signal: 10Vp-p, 3.0KHz, Square Wave 輸入信號: 10Vp-p, 3.0KHz, 方波



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

Mic : RION 噪音計 UC30 或同等品

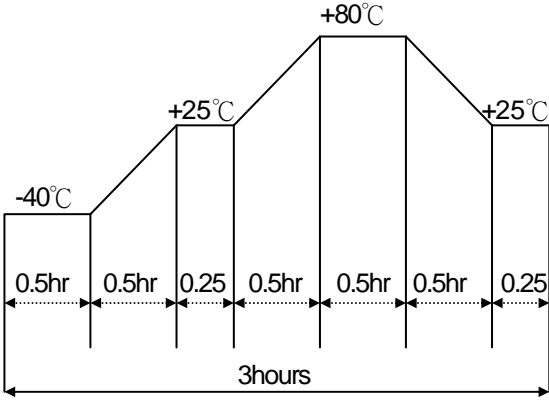
S.G : Hewlett Packard 33120A Function Generator or equivalent

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	Solderability 焊錫附著性	Lead terminals are immersed in solder bath of $+350\pm 5^{\circ}\text{C}$ for 3 ± 1 second. 端子置於錫膏內,錫膏溫度: $+350\pm 5^{\circ}\text{C}$. 焊接時間: 3 ± 1 秒.	95% surface of lead pads must be covered with fresh solder 錫膏須覆蓋端子上方 95%
2	Soldering Heat Resistance 焊錫耐熱性	The product is followed the reflow temperature curve to test its reflow thermo stability. 產品依照迴焊溫度曲線測試迴焊耐熱性.	No interference in operation. 操作上無任何不良.
3	Terminal Mechanical Strength 端子強度	Lead pads shall be soldered on the pc board, and the force $9.8\text{N}(1.0\text{kg})$ shall be applied behind the part for 10 seconds. 將端子焊在 PC 板上後, 對單體施以 $9.8\text{N}(1.0\text{kg})$ 拉力 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.

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 96 hours 置於 $+80^{\circ}\text{C}$ 環境中 96 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 96 hours 置於 -40°C 環境中 96 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 96 hours 置於 $+40^{\circ}\text{C}$, 相對濕度 $90\pm 5\%$ 環境中 96 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: 	

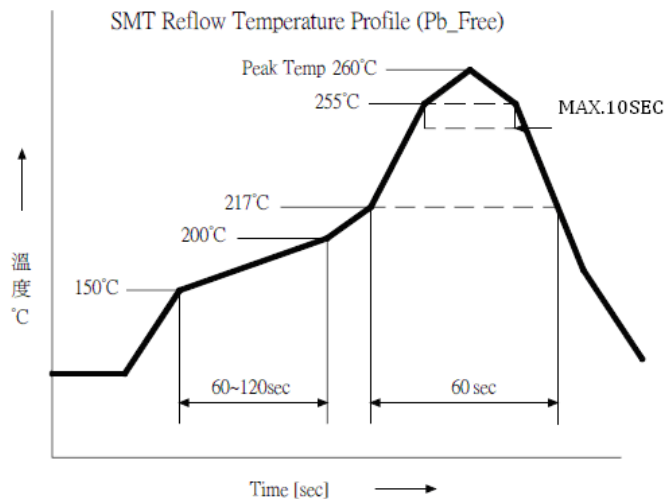
H. RELIABILITY TEST 信賴性測試

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 +55°C with rated voltage applied. 在+55°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, 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.

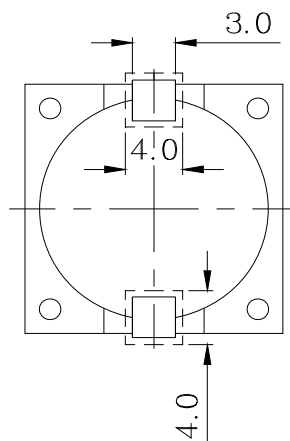
Standard Test Condition	:	a) Temperature : +5 ~ +35°C	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
一般測試條件	:	a) 溫度 : +5 ~ +35°C	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
Judgement Test Condition	:	a) Temperature : +25 ±2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件	:	a) 溫度 : +25 ±2°C	b) 濕度 : 60-70%	c) 氣壓 : 860-1060mbar

I. Recommended Temperature Profile For Reflow Oven 建議迴焊爐溫度曲線

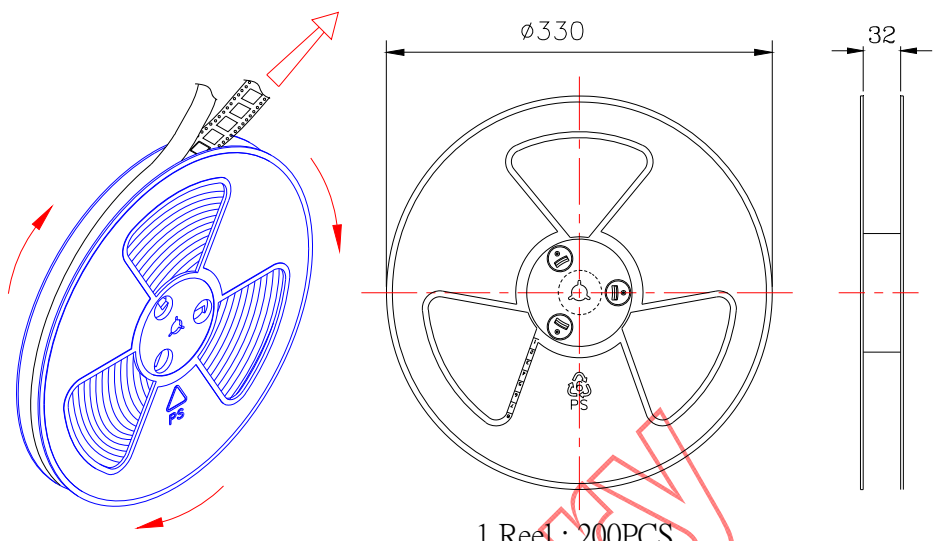


*Reflow can't over 1 time. 迴流焊次數不超過 1 次

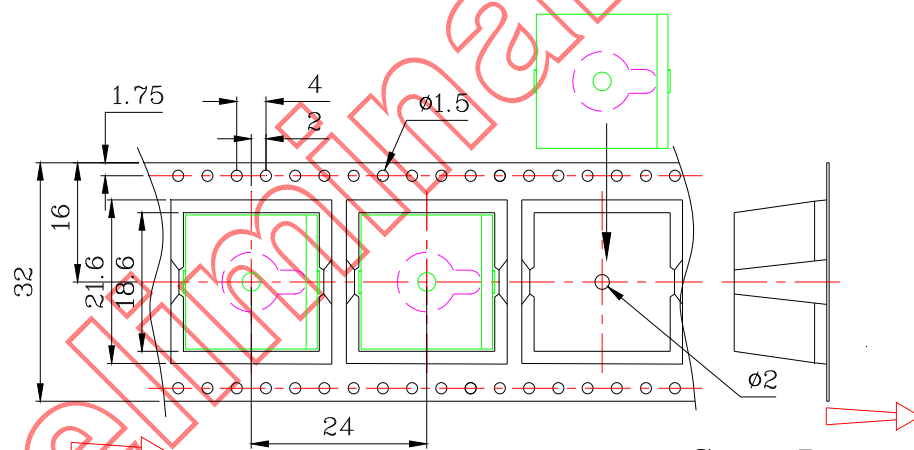
J. Recommended land pattern 建議基板設計尺寸圖



K. PACKING STANDARD 包裝規格

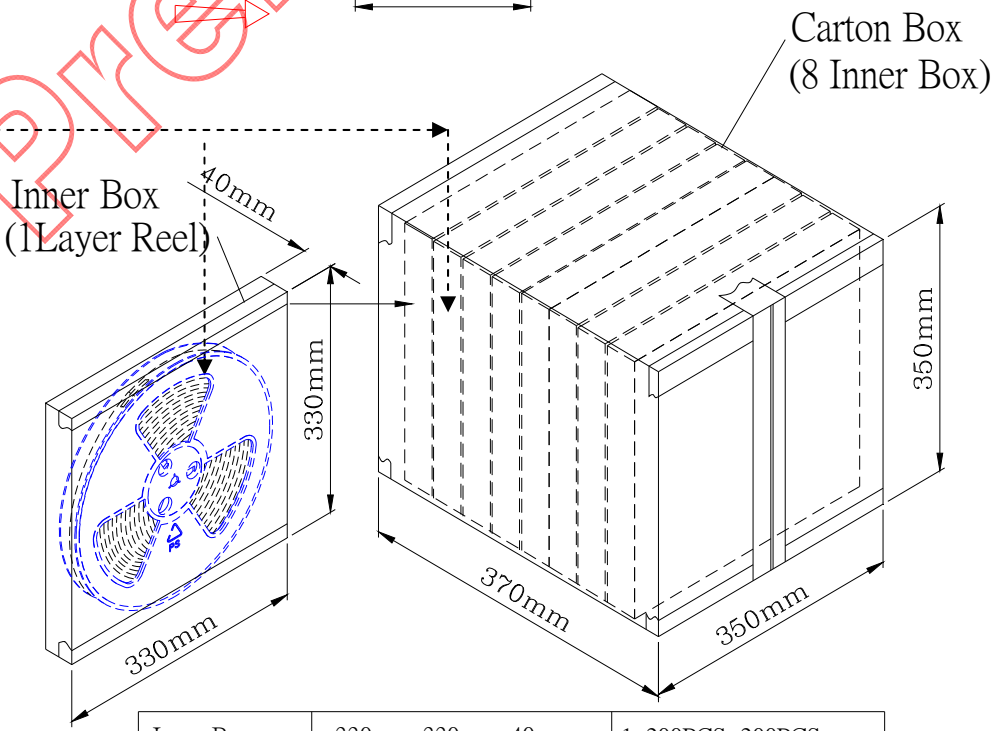


1 Reel : 200PCS



Lot No.	XXXXXXXXXX
Part No.	XXXXXXXXXX
Quantity	XXXX Pcs
Date:	
WWYY	

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



Inner Box	330mmx330mmx40mm	1x200PCS=200PCS
Carton Box	350mmx350mmx370mm	8x200PCS=1600PCS