

SPECIFICATION FOR APPROVAL

承 認 書

Description : Piezo Audio Transducer

Kingstate Part No. : KMTG1102-A1

Customer's Model No. : _____

Specification No. : POD-7273

Number Of The Edition : 1.6

CUSTOMER'S APPROVED SIGNATURE

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Approved by	Checked by	Issued by
 2013.10.18	 10/18	ChenLi 10/18/13

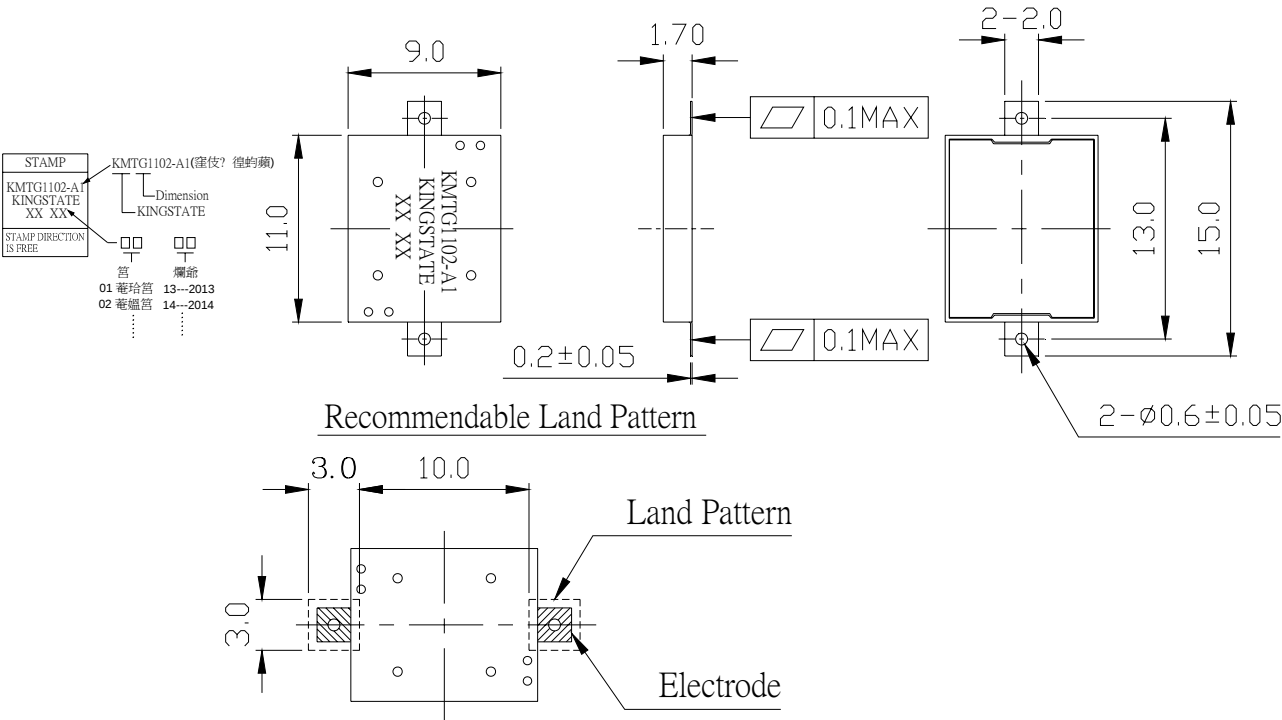
A. SCOPE 範疇

This specification applies piezo audio transducer, **KMTG1102-A1**
此規格書適用於壓電式蜂鳴器, **KMTG1102-A1**

B. SPECIFICATION 規格

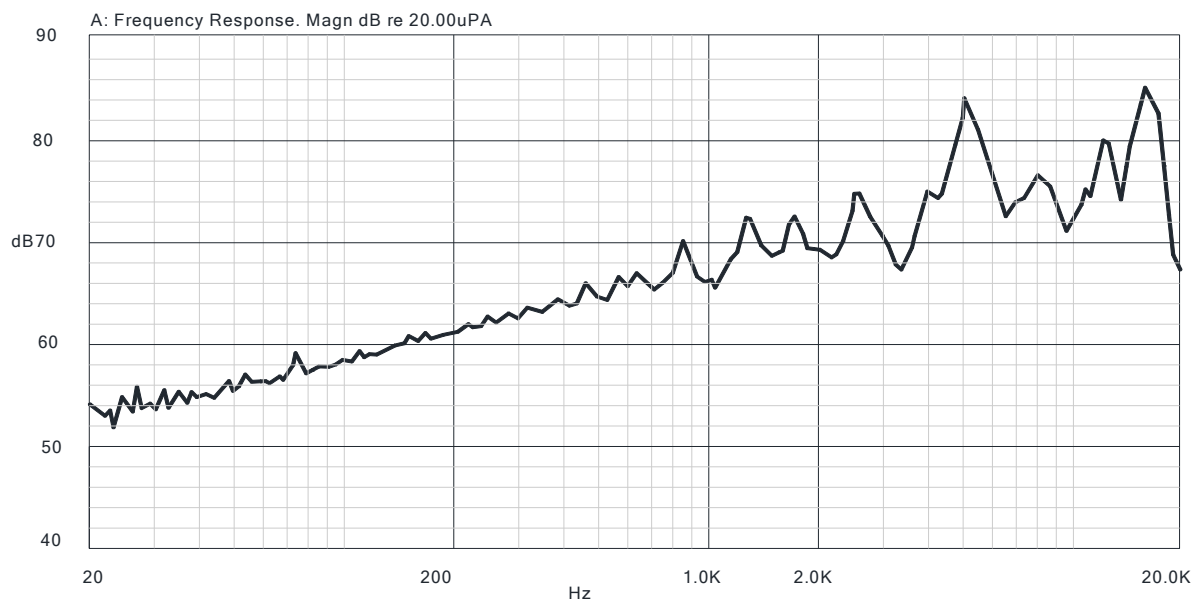
No.	Item	Unit	Specification	Condition
1	Operating Volt. Range 最大操作電壓	Vp-p	MAX 25	
2	Current consumption 消耗電流	mA	MAX 4.5	at 5Vp-p,square wave,4.1KHz.
3	Sound pressure level 輸出音壓	dB	MIN 73	at 10cm/5Vp-p,square wave,4.1KHz
4	Electrostatic capacity 靜電容量	pF	12,000 ± 30%	at 1KHz/1V
5	Operating temp. 操作溫度	℃	-40 ~ +80	
6	Storage temp. 儲存溫度	℃	-40 ~ +80	
7	Dimension 尺寸	mm	L11.0 x W9.0 x H1.7	See appearance drawing 請參照外觀尺寸圖
8	Weight (MAX) 重量	gram	0.30	
9	Material 材質		LCP (White)	
10	Terminal 端子		SMD type	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: ± 0.3
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: at 10cm/5Vp-p,4.1kHz, Square Wave

輸入信號: at 10cm/ 5Vp-p,4.1kHz, 方波



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

Mic : RION 噪音計 UC30 或同等品

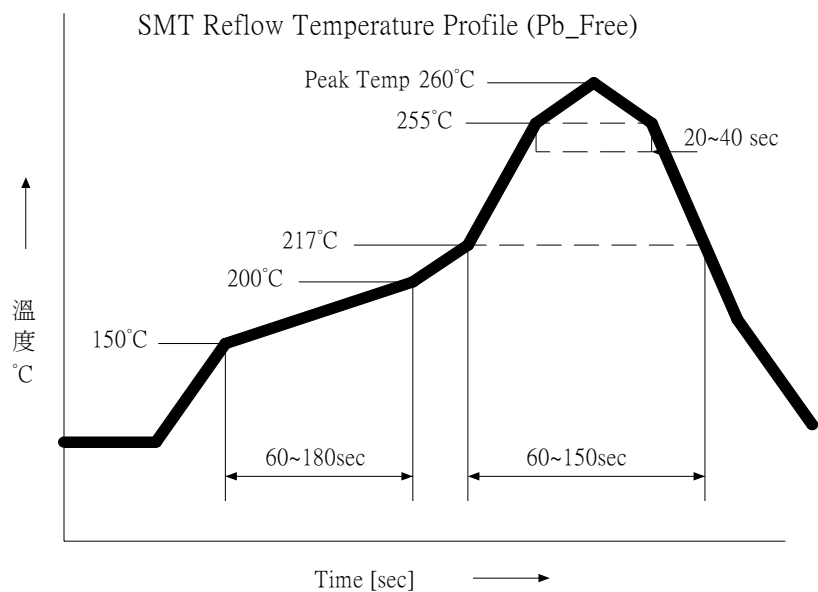
S.G : Hewlett Packard 33120A Function Generator or equivalent

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 rosin for 5 seconds and then immersed in solder bath of $+350 \pm 5^{\circ}\text{C}$ for 3 ± 1 second. 端子浸松香液中 5 秒後置於錫膏內,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	1)IR reflow 遠紅外線熱風迴焊爐 Pre-heating conditions shall be $+150$ to $+200^{\circ}\text{C}$ for 60 to 180 seconds. Ascending time up to $+255^{\circ}\text{C}$ shall be longer than 55 seconds. Heating conditions shall be within 20~40 seconds at $+255^{\circ}\text{C}$ min. But peak temperature shall be lower than $+260^{\circ}\text{C}$, then being place in natural condition for 1 hour, sounder shall be measured 預熱條件為加熱到 $+150$ to $+200^{\circ}\text{C}$ 為 60 到 180 秒. 加熱到 255°C 時間須長於 55 秒. 焊接條件為 20~40 秒最低 $+255^{\circ}\text{C}$, 最高不可超過 $+260^{\circ}\text{C}$. 結束後須靜置於室溫中 1 小時後進行檢測 2)Soldering Iron 烙鐵 Soldering iron of $+350 \pm 5^{\circ}\text{C}$ shall be placed 0.5mm above from electrode of sounder. Melting solder through soldering iron shall be applied to electrode for 3 ± 1 seconds, then being place in natural condition for 4 hours, sounder shall be measured. $+350 \pm 5^{\circ}\text{C}$ 的烙鐵置於電極上方 0.5mm 處, 以烙鐵將焊錫熔於電極上 3 ± 1 秒,然後置於室溫中 4 小時後進行檢測.	No interference in operation. 操作上無任何不良.
3	Terminal Mechanical Strength 端子強度	The force 10 seconds of 9.8N is applied to each terminal is axial direction. 對每一端子以軸方向, 施 9.8N 拉力 10 秒.	No damage and cutting off 端子不鬆動, 不脫落
4	Vibration 振動測試	The part shall be subjected to a vibration cycle of 10Hz to 55Hz in a period of 1 minute. Total peak amplitude shall be 1.55mm. The vibration test shall consist of 2 hours per axis in each three axes (X, Y, Z), Total 6 hours. 振幅 1.55mm, 頻率 10Hz-55Hz, 時間 1 分鐘. X,Y,Z 3 個方向各 2 小時, 共 6 小時.	After the test the part shall meet specifications without any damage in appearance and performance except SPL. The SPL shall be in $\pm 10\text{dB}$ compared with initial one. 經測試後,單體除音壓外,外觀及電氣特性須符合規格.輸出音壓變化量須在 $\pm 10\text{dB}$ 內.
5	Temperature tolerance of Conductive Silver Paste 導電銀漿耐 溫性	Conductive Silver Paste curing at 150°C and then it can bear temperature less than 260°C . 導電銀漿在 150°C 下固化後最高可承受 260°C	No interference in operation. 操作上無任何不良.
6	Survivability of Reflow process 迴流焊次數	Buzzer cannot through reflow process more than 2 times and please reference Temperature profile as figure 'G. Recommended Temperature Profile For Reflow Oven' is recommended. 依照“建議迴焊爐溫度曲線”圖,最多可承受兩次迴流焊	No interference in operation. 操作上無任何不良.

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



Note: 260°C is Less than 20 sec
備注: 260°C不可超過 20 秒

H. 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°C for 240 hours 置於+80°C環境中 240 小時	Being placed for 4 hours at +25°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°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°C and 90 $\pm$ 5% relative humidity for 240 hours 置於+40°C, 相對濕度 90 $\pm$ 5% 環境中 240 小時	
3	Temp. Cycle 溫度循環測試	The part shall be subjected to 5 cycles. 單體承受溫度循環測試 5 次. 其循環內容如圖示. Unit : minute	

I. RELIABILITY TEST 信賴性測試

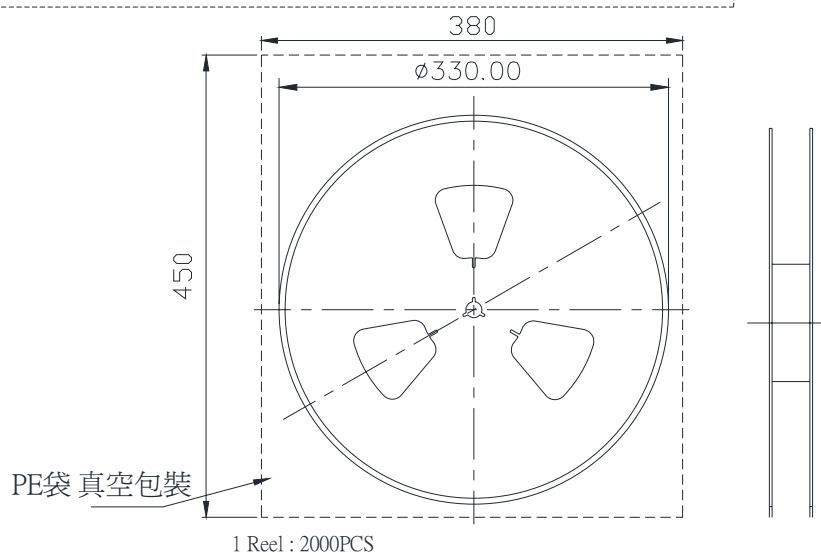
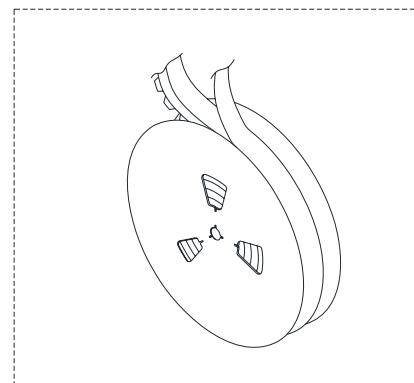
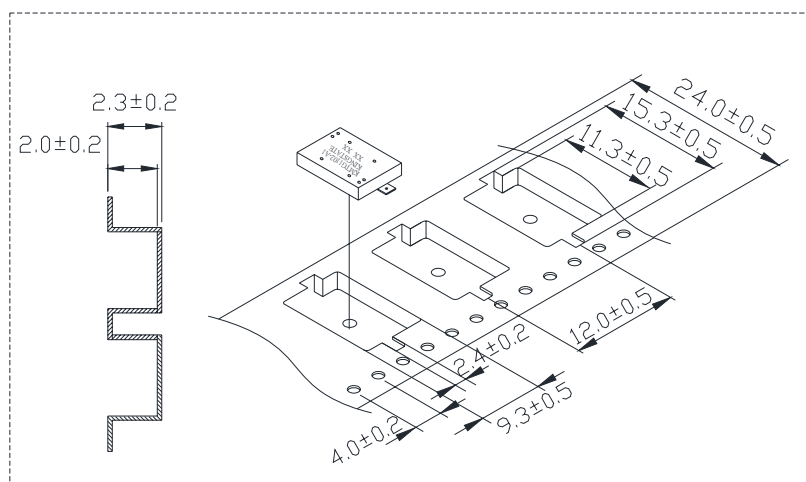
No.	Item	Test condition	Evaluation standard
1	Operating life test 壽命測試	1. Continuous life test 高溫壽命測試(連續) 48 hours continuous operation at +65°C with rated voltage applied. 在+65°C環境下,以額定電壓連續操作 48 小時. 2. Intermittent life test 室溫壽命測試(間歇) A duty cycle of 1 minute on, 1 minutes off, a minimum of 5000 times 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.

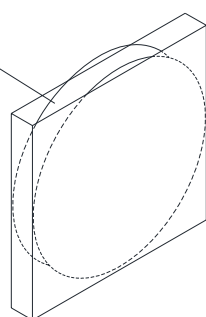
Standard Test Condition	:	a) Temperature : +5 ~ +35°C	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
一般測試條件	:	a) 溫度 : +5 ~ +35°C	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
Judgement Test Condition	:	a) Temperature : +25 ±2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件	:	a) 溫度 : +25 ±2°C	b) 濕度 :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

J. PACKING STANDARD 包裝規格

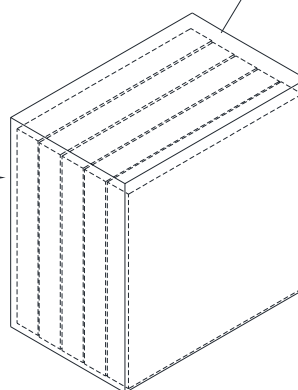
KSD C / NO.	↑↑ ☂ 🍷 ✂ <table><tr><td>Type</td><td></td></tr><tr><td>Specification</td><td></td></tr><tr><td>Quantity</td><td></td></tr><tr><td>Number</td><td></td></tr><tr><td>Weight</td><td></td></tr></table> VOLUME:CM	Type		Specification		Quantity		Number		Weight		KSD C / NO.	↑↑ ☂ 🍷 ✂ <table><tr><td>Type</td><td></td></tr><tr><td>Specification</td><td></td></tr><tr><td>Quantity</td><td></td></tr><tr><td>Number</td><td></td></tr><tr><td>Weight</td><td></td></tr></table> VOLUME:CM	Type		Specification		Quantity		Number		Weight	
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Inner Box
(1 Layer Reel)



Carton Box
(5 Inner Box)



1. 內外箱成品料號KMTG1102-A1
2. ① 綠色環保標籤貼於內外箱上

Inner Box	340mmx340mmx40mm	1x2000PCS=2000PCS
Carton Box	350mmx175mmx355mm	5x2000PCS=10000PCS