

SPECIFICATION FOR APPROVAL

承 認 書

Description : **Piezo Audio Transducer**

Kingstate Part No. : **KPEG191**

Customer's Model No. : _____

Specification No. : **DOD-5544**

Number Of The Edition : **1.2**

CUSTOMER'S APPROVED SIGNATURE		



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Approved by	Checked by	Issued by
		Andrew 2015/08/10

A. SCOPE 範疇

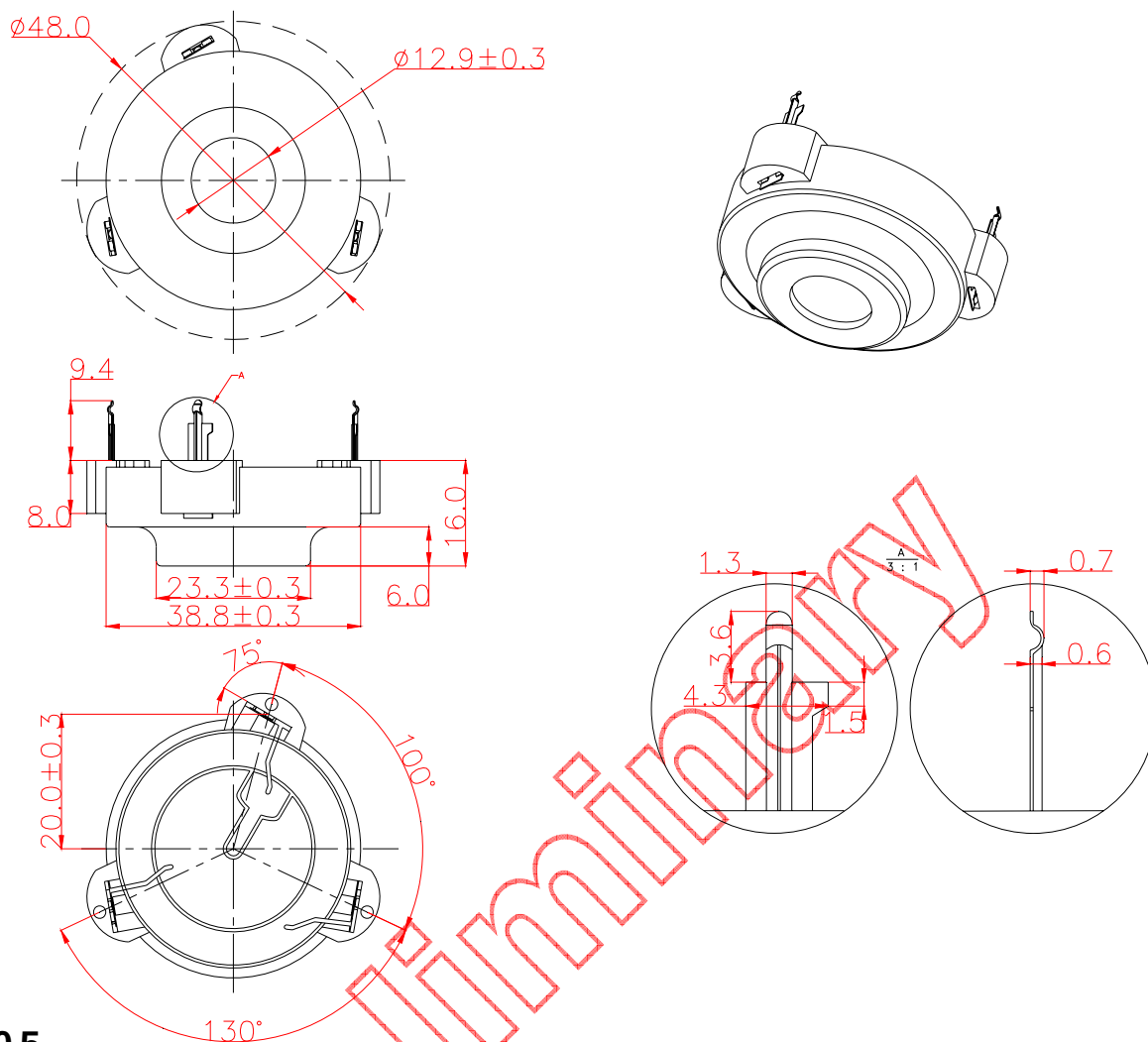
This specification applies piezo audio indicator, **KPEG191**

此規格書適用於壓電式蜂鳴器, **KPEG191**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Operating Frequency 操作頻率	KHz	3.2 ± 0.5	
2	Operating Volt. range 操作電壓範圍	VDC	6 ~ 16	
3	Operating Current 操作電流	mA	MAX 20	at 9VDC
4	Sound pressure level 輸出音壓	dB	MIN 95	at 30cm/9VDC
5	Rated Voltage 額定電壓	VDC	9	
6	Tone 聲音		Continuous 直音	
7	Operating temp. 操作溫度	°C	-20 ~ +70	
8	Storage temp. 儲存溫度	°C	-30 ~ +70	
9	Dimension 尺寸	mm	φ 38.8x H16.0	See appearance drawing 請參照外觀尺寸圖
10	Weight (MAX) 重量	gram	9.1	
11	Material 材質		ABS(Black)	
12	Terminal 端子		Pin type (鍍全錫/Plating Sn)	See appearance drawing 請參照外觀尺寸圖
13	Environmental Protection Regulation 環保法規		RoHS	
14	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.

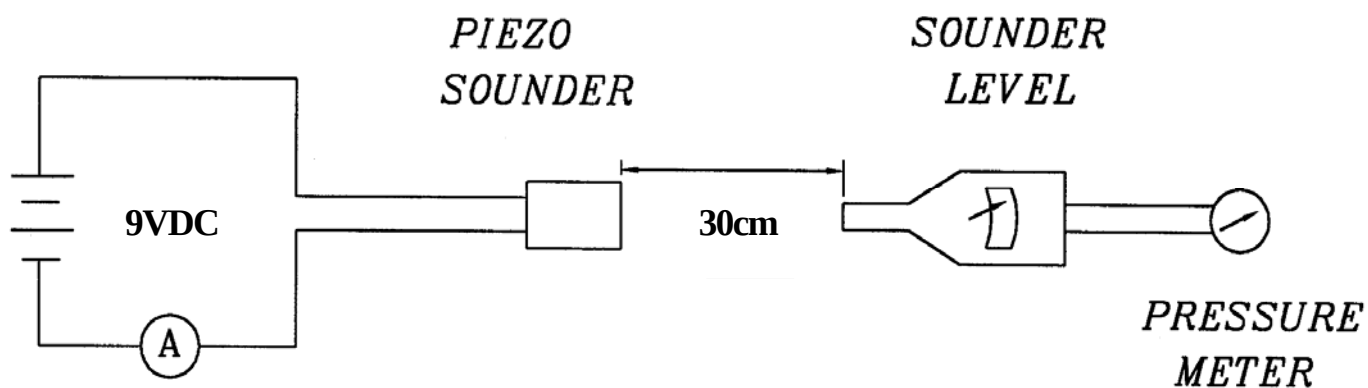
C. APPEARANCE DRAWING 外觀尺寸圖



Tol : ± 0.5
Unit : mm

D. MEASURING METHOD 測量方法

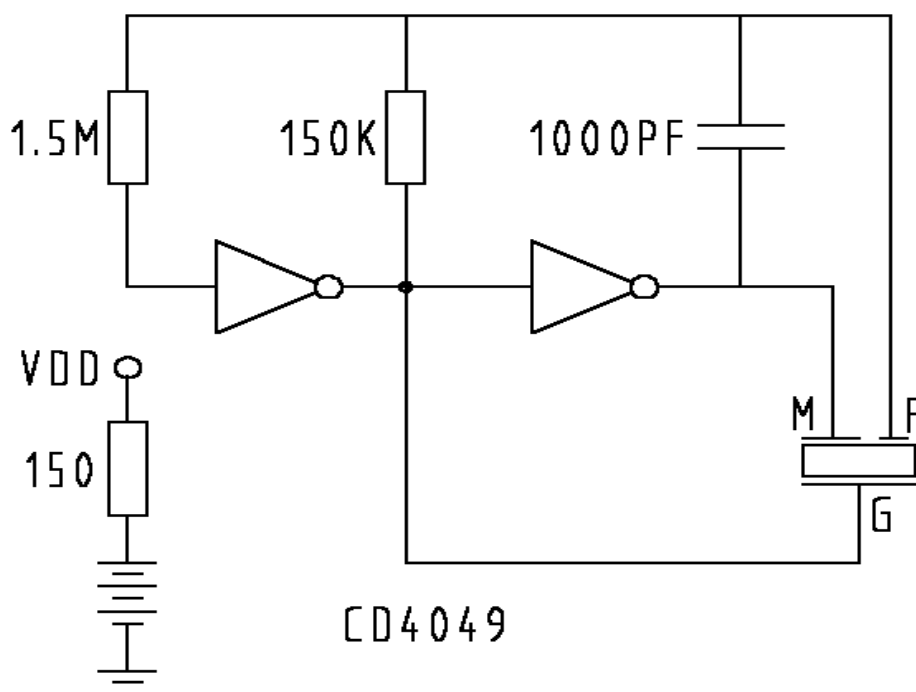
1. S.P.L. Measuring Circuit 音壓測試接線圖



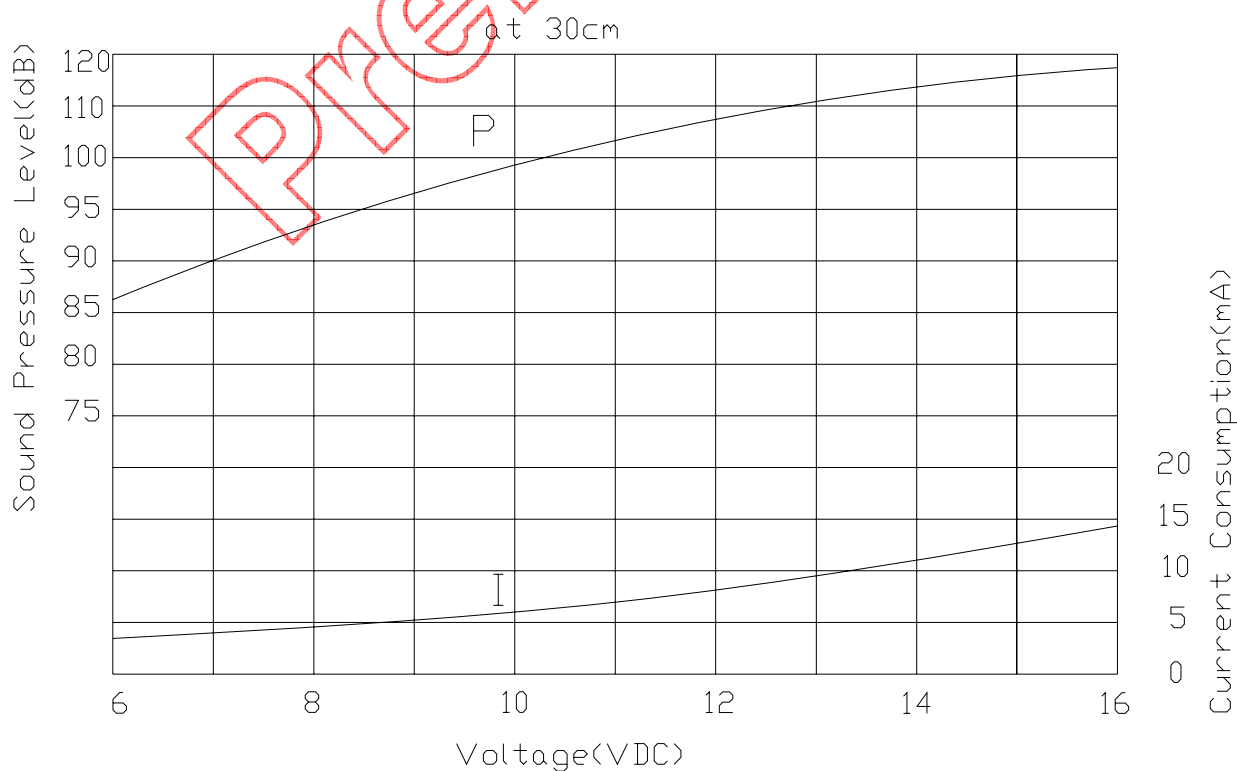
Mic : RION S.P.L. meter UC30 or equivalent
Mic : RION 噪音計 UC30 或同等品

2. The current consumption and the sound pressure level are measured by using the recommend driving circuit shown as below (one example)

當前的測試數據是依靠此電氣迴路所量測



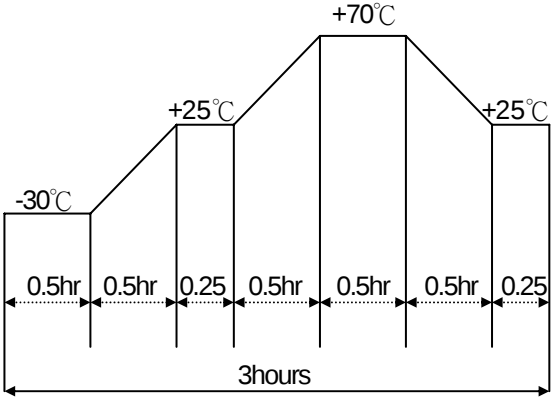
E. VOLTAGE: SOUND PRESSURE LEVEL / VOLTAGE: CURRENT CONSUMPTION CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性



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 $+270\pm5^{\circ}\text{C}$ for 3 ± 1 seconds. 端子部份浸入松香溶液 5 秒後,再浸入 $+270\pm5^{\circ}\text{C}$ 熔融焊錫槽中 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 sounder's body in solder bath of $+260\pm5^{\circ}\text{C}$ for 3 ± 1 seconds. 距離端子根部 1.5mm 的位置,浸入 $+260\pm5^{\circ}\text{C}$ 的焊錫槽 3 ± 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 9.8N(1.0kg) is applied to each terminal in axial direction. 各端子的軸方向施以 9.8N(1.0kg) 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 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 $+70^{\circ}\text{C}$ for 96 hours 置於 $+70^{\circ}\text{C}$ 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 -30°C for 96 hours 置於 -30°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, 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.

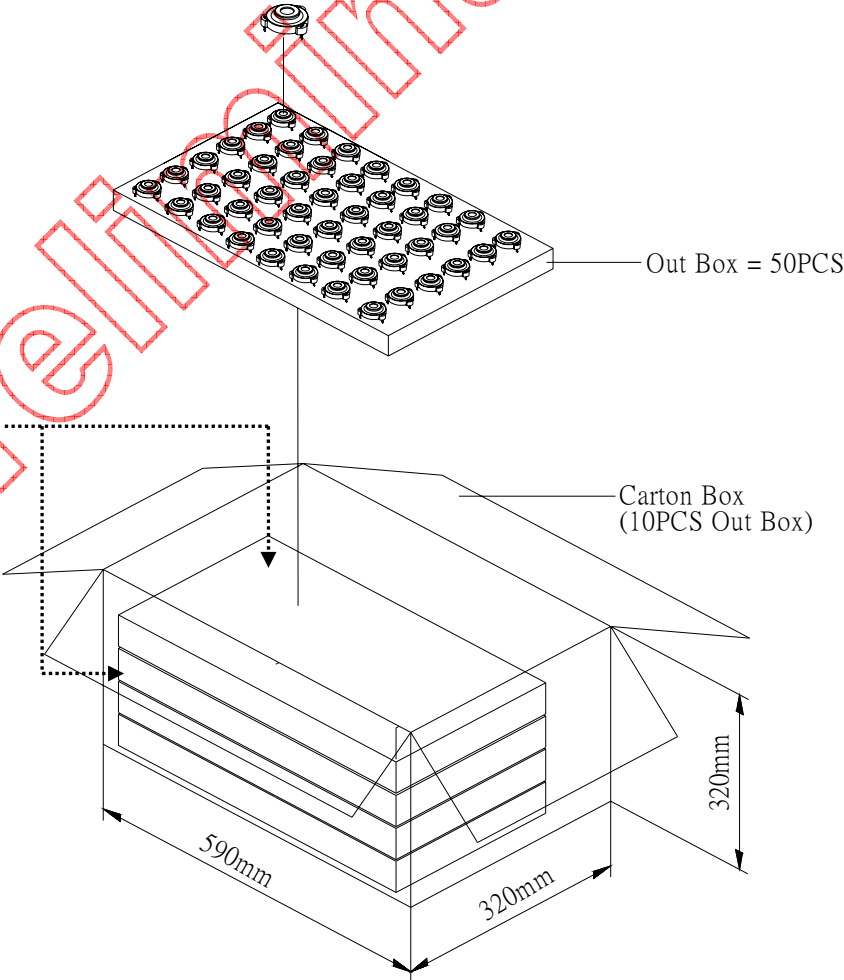
TEST CONDITION.

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
Judgment 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 sticked on inner boxes and the outer of carton.



Out Box	—	1x50PCS=50PCS
Carton Box	590mmx320mmx320mm	50PCSx10=500PCS