

# SPECIFICATION FOR APPROVAL

## 承認書

Description : **Piezo Transducer**

Kingstate Part No. : **KPEG137A25PB1**

Customer's Model No. : \_\_\_\_\_

Specification No. : **DOD-3307**

Number Of The Edition : **1.5**

CUSTOMER'S APPROVED SIGNATURE		



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<i>Jeel 10/25/21</i>	<i>Waki 10.25</i>	<i>Mars 10.25</i>

# SPEC SHEET REVISION RECORD

## 成品承認書修訂記錄

DRAWING NO.: DOD-3307 圖 號: DOD-3307		P/N: KPEG137A25PB1 料 號: KPEG137A25PB1	
REVISE DATE 修訂日期	APPLICANT 提出者	Version 版次	Revise 修訂記錄內容
2020/10/27	Mars	1.1	修訂 KPEG137A25PB1 規格
2020/12/01	Mars	1.2	1.新增週期年份 2.新增專利號
2021/01/28	Mars	1.3	1.更改 pin 的材質及長度 2.更改包裝數量
2021/08/16	Mars	1.4	1.新增操作電壓範圍 2.新增腔體尺寸細部標示
2021/10/25	Mars	1.5	1.新增建議電路及 Indicator 量測數據 2.專利申請號更改為正式專利號

Preliminary

## A. SCOPE 範疇

This specification applies pizeo buzzer, KPEG137A25PB1

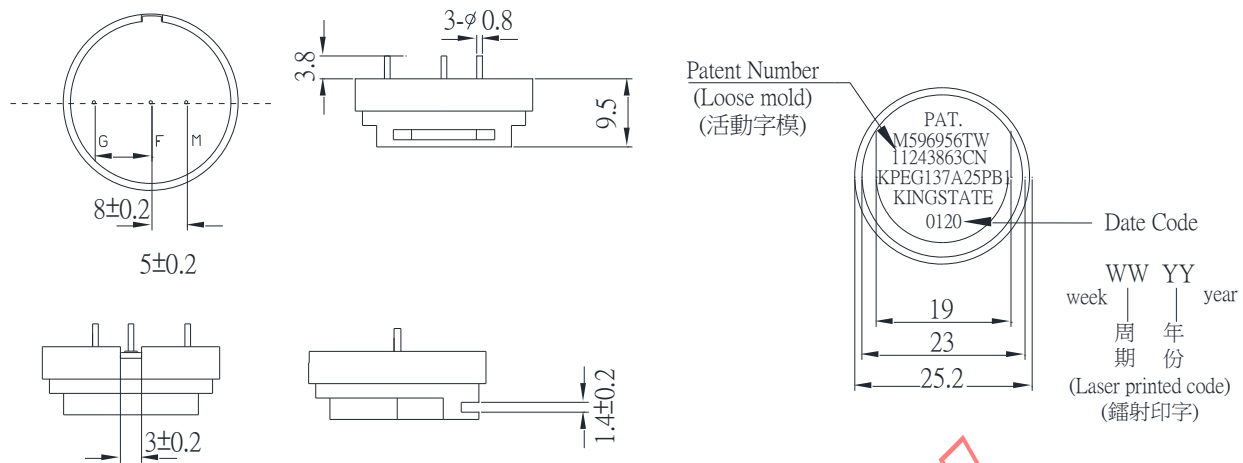
此規格書適用於壓電式蜂鳴器, KPEG137A25PB1

## B. SPECIFICATION 規格

	Item	Unit	Specification	Condition
1.	Operating Frequency 操作頻率	KHz	3.0±0.5	
2.	Operating Volt. 操作電壓範圍	VDC	3-28	
3.	Rated Voltage 額定電壓	VDC	24	
4.	Current consumption 消耗電流	mA	Max 27	Measure by FLUKE 87V at
5.	Sound pressure level 輸出音壓	dB	Min 85	3KHz at 30 cm/24VDC
6.	Tone 聲音		Continuous 直音	
7.	Electrostatic capacity 靜電容量	pF	40,000±30%	At 120Hz 1V
8.	Operating temp. 操作溫度	°C	-30 ~ +85	
9.	Storage temp./Humidity 儲存溫度/濕度	°C / RH%	-40~+85 / 20-75RH%	
10.	Dimension 尺寸	mm	Φ25.0Xh9.5	See appearance drawing 請參照外觀尺寸圖
11.	Weight (MAX) 重量	gram	2.5	
12.	Material 材質		PBT+30%GLASS	
13.	Terminal 端子		Pin type (鍍錫/Plating Sn)	
14.	Environmental Protection Regulation 環保法規		RoHS 2.0	

Number of the patent: 11243863 (CN) 、M596956(TW)

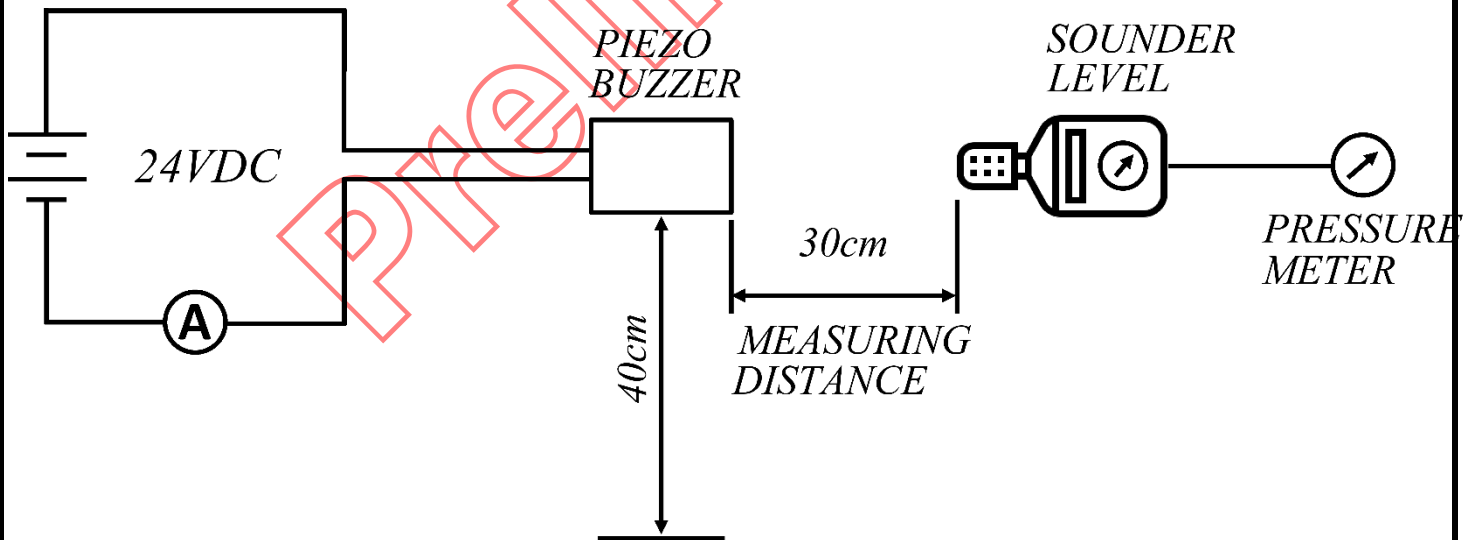
### C. APPEARANCE DRAWING 外觀尺寸圖



Tol :  $\pm 0.3$   
Unit : mm

### D. MEASURING METHOD 測量方法

1. S.P.L. Measuring Circuit 音壓測試接線圖

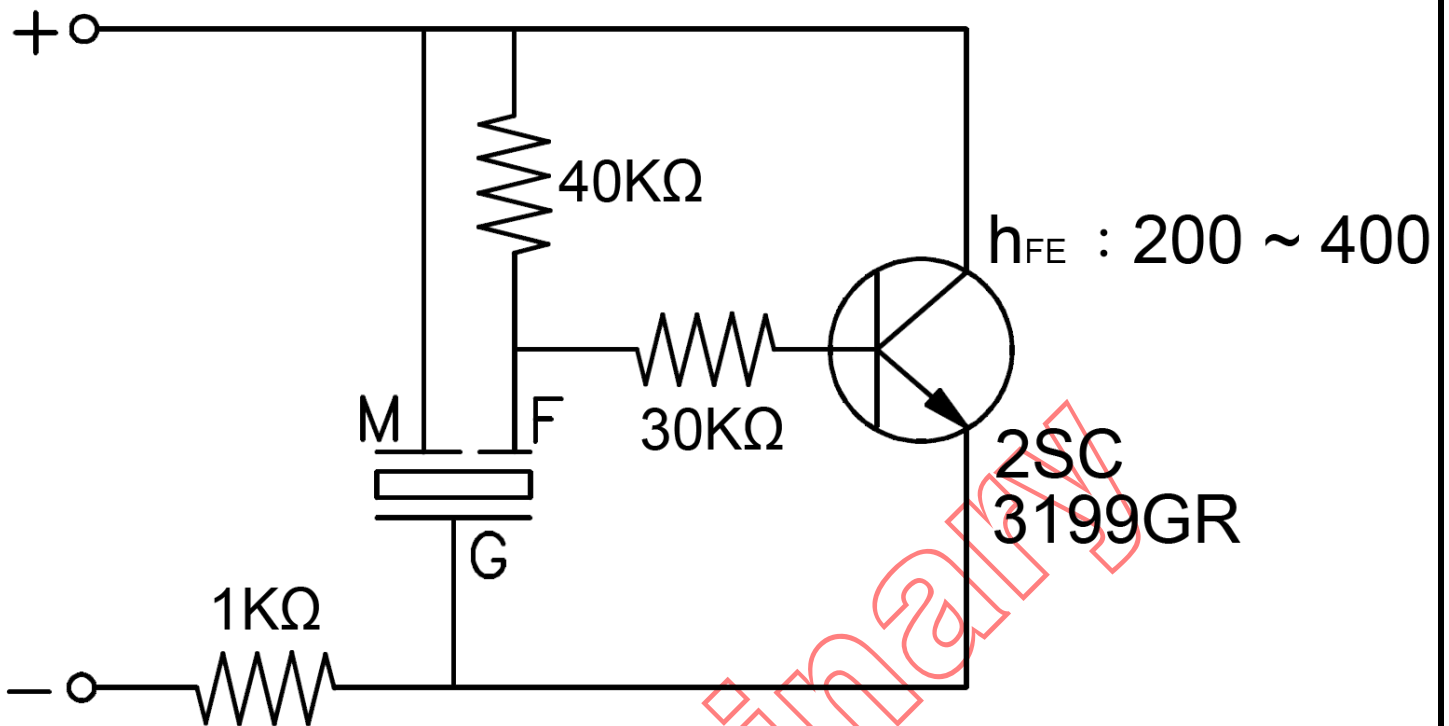


Mic : RION S.P.L. meter UC30 or equivalent

Mic : RION 噪音計 UC30 或同等品

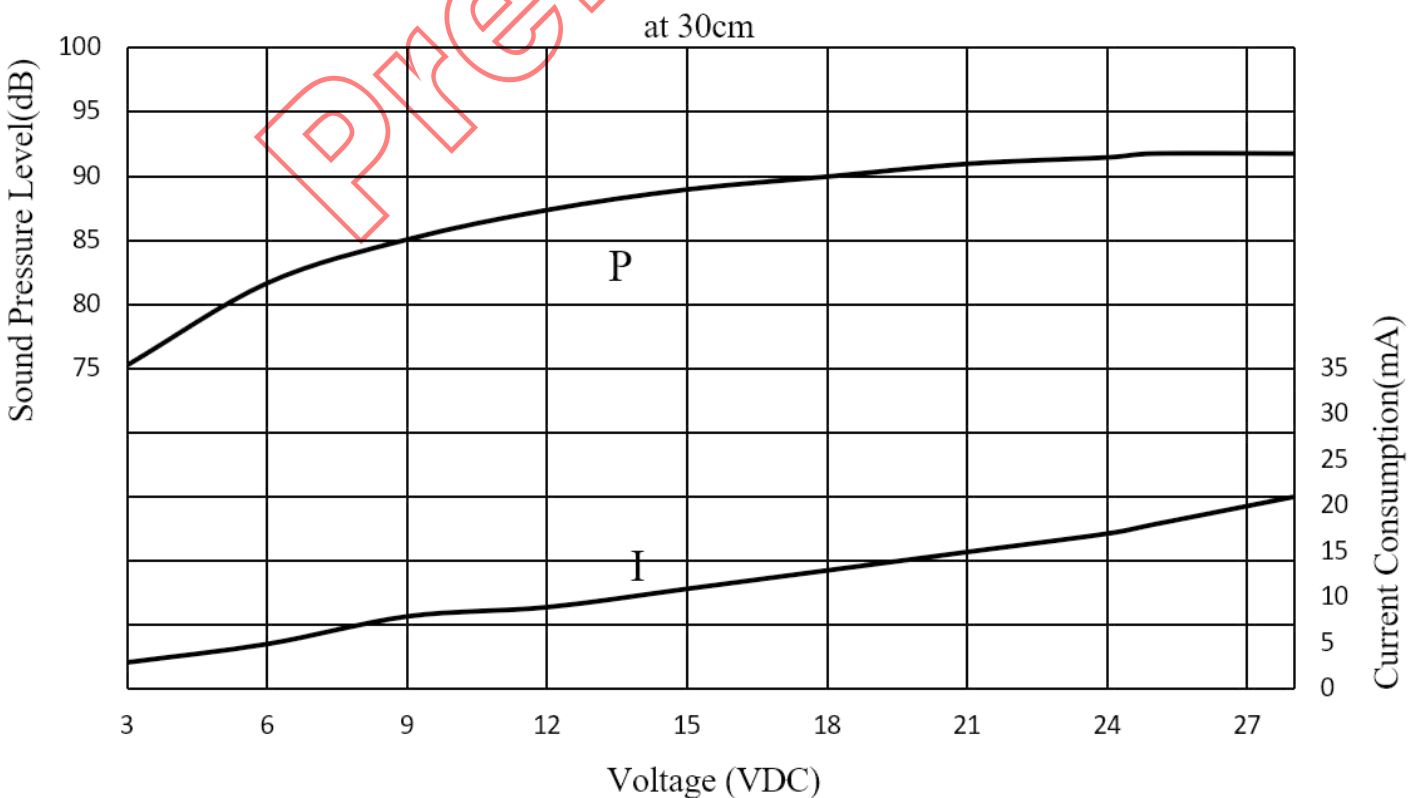
2. The current consumption and the sound pressure level are measured by using the recommend driving circuit shown as below (one example)

當前的測試數據是依靠此電器圍路所量測



**E. VOLTAGE: SOUND PRESSURE LEVEL / VOLTAGE: CONSUMPTION**

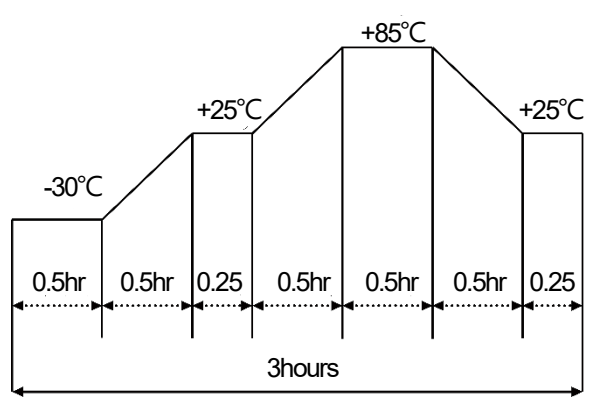
**CHARACTERISTICS 電壓與音壓/電壓與耗電流之特性**



## F. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test Condition	Evaluation standard
1	Solderability 焊錫附著性	Lead terminal are immersed in rosin for 5seconds and then immersed in Solder bath of +260±5°C for 3±0.5 second 端子部分浸入松香溶液 5 秒後,再浸入+260±5°C容融焊槽中 3±0.5 秒	90% min.lead terminals shall be wet with solder 浸入端子部分附著焊錫 90°C以上.
2	Soldering Heat Resistance 焊錫耐熱性	Lead terminal are immersed in soldering bath of +260±5°C for 2±0.5 Second. 端子部分浸入以+260±5°C焊錫槽中 2±0.5 秒.	No interference in operation 操作上無任何不良
3	Terminal Mechanical Strength 端子強度	Apply the terminal with 1KG strength for 1 minute 對端子施以 1 公斤拉力 1 分鐘	No damage and cutting off 端子不鬆動, 不脫落.
4	Vibration 振動試驗	The part shall be subjected to a vibration cycle of 10Hz to 55Hz to 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm(9.3G). The vibration test shall consist of 2 hours per axis in each three axes(X,Y,Z), Total 6 hours. 振幅 1.52 mm, 頻率 10Hz-55Hz-10Hz, 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. SPL should be in ±10dBA compared with initial one.
5	Drop test 落下測試	The part 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.	經測試後, 單體除音壓外, 外觀及電氣特性須符合規格, 輸出音壓變化量在±10dBA 以內。

## 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 +85°C for 96 hours. 置於+85°C環境中 96 小時	After the test the part shall meet specifications without any degradation in appearance and performance except SPL. after 4 hours at +25°C, The SPL shall be in ±10dBA compared with initial one. 經測試後, 靜置於+25°C (室溫) 環境中 4 小時後, 單體除音壓外, 外觀及電氣特性須符合規格, 輸出音壓變化量在±10dBA 以內。
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	Thermal shock 熱衝擊試驗	The part shall be subjected to 10 cycles. One cycle shall consist of, 對單體施以熱衝擊試驗 10 次迴圈	
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:  The diagram shows a temperature profile over 3 hours. It starts at -30°C for 0.5 hours, then ramps up to +25°C in 0.5 hours. At +25°C, there is a dwell of 0.25 hours. It then ramps up to +85°C in 0.5 hours, dwells at +85°C for 0.5 hours, ramps down to +25°C in 0.5 hours, and dwells at +25°C for 0.25 hours. The total cycle time is 3 hours.	

## H. RELIABILITY TEST 信賴性測試

No.	Item	Test condition	Evaluation standard
1	Operating life test 壽命試驗	<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>After the test the part shall meet specifications without any degradation in appearance and performance except SPL. after 4 hours at +25°C,The SPL should be in ±10dBA compared with initial one.</p> <p>經測試後,靜置於+25°C(室溫)環境中 4 小時後,單體除音壓外,外觀及電氣特性須符合規格,輸出音壓變化量在±10dBA 以內。</p>

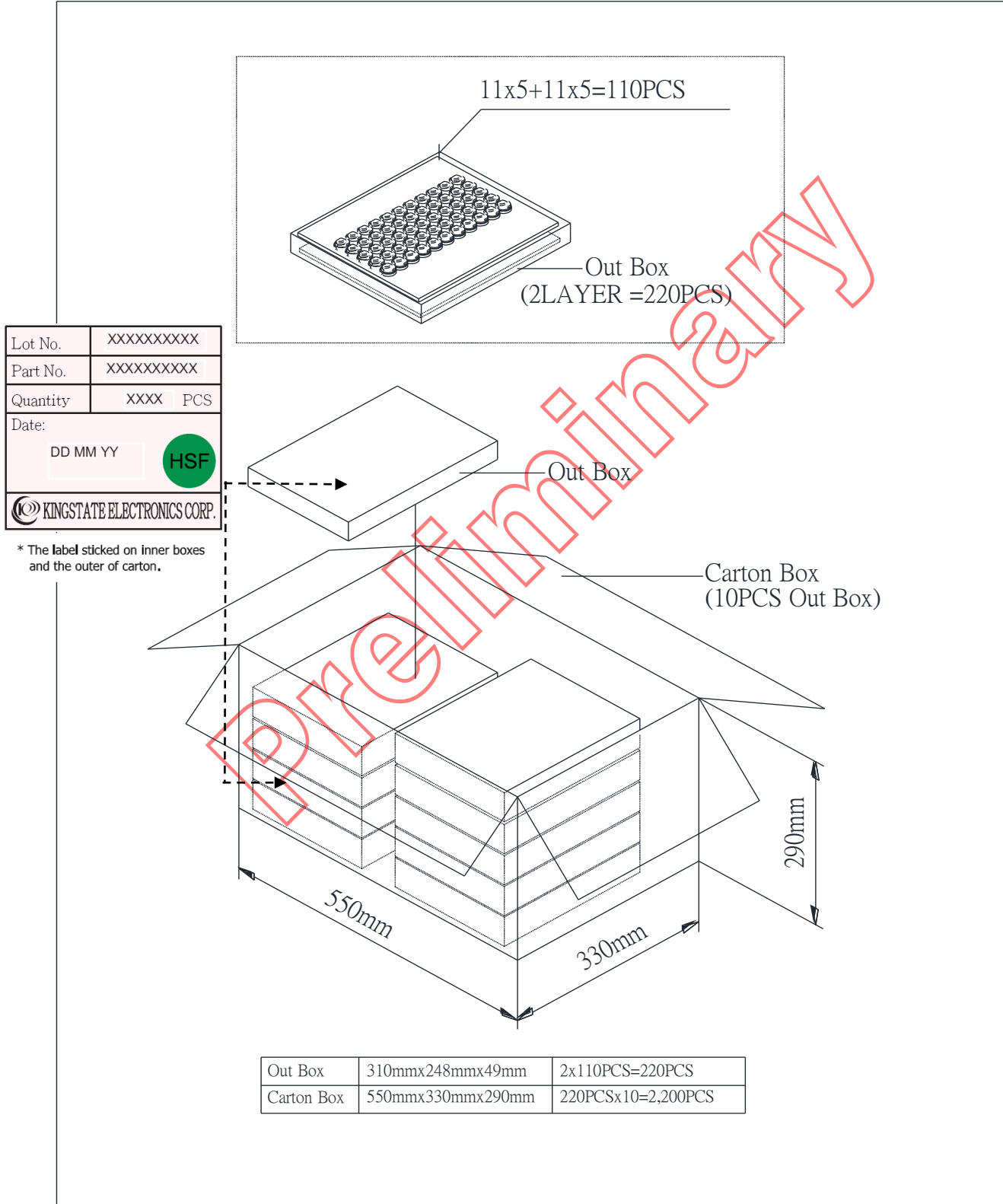
### TEST CONDITION.

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

Each minimum package unit of products shall be in a carton box and it shall be clearly marked with Part Number, quantity and outgoing inspection number. There shall be no mechanical damage on products during transportation and/or in storage.

外箱須標示最小包裝單位，並註明產品型號、數量及檢驗批號，必須是物品儲藏或運輸過程中可防止造成損傷的包裝。



Out Box	310mmx248mmx49mm	2x110PCS=220PCS
Carton Box	550mmx330mmx290mm	220PCSx10=2,200PCS