

# SPECIFICATION FOR APPROVAL

## 承認書

Description : Piezoelectric Diaphragm  
Kingstate Part No. : KBIG3531F08030Z  
Customer's Model No. : \_\_\_\_\_  
Specification No. : DRD-5067  
Number Of The Edition : 1.6

CUSTOMER'S APPROVED SIGNATURE		



志豐電子股份有限公司 KINGSTATE ELECTRONICS CORP.

Address: 10F, No. 69-11, Sec. 2, Chung Cheng E. Rd., Tamshui County, Taipei Hsien, Taiwan, R.O.C.

International sales dept.: TEL : 886-2-2809-5651 FAX:886-2-2809-7151

Domestic sales dept.: TEL : 886-2-2809-0668 FAX:886-2-28096748

http : //www.kingstate.com.tw

Approved by	Checked by	Issued by

## A. SCOPE 範疇

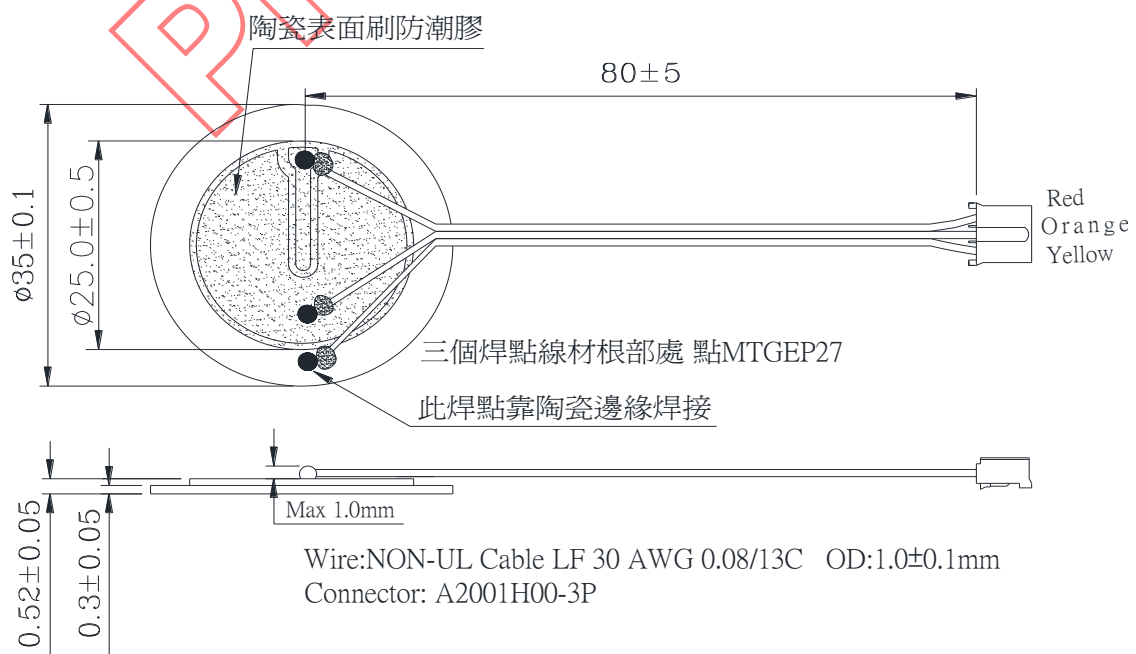
This specification applies piezoelectric diaphragm, **KBIG3531F08030Z**

此規格書適用於壓電式蜂鳴片, **KBIG3531F08030Z**

## B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Max. input voltage 最大輸入電壓	Vp-p	MAX 30	
2	Resonant frequency 共振頻率	KHz	3.1±0.3	The resonant frequency is suitable only for piezo element without wire. 共振頻率僅適用於蜂鳴片不加線材時之量測
3	Resonant impedance 共振阻抗	ohm	MAX 500	The resonant resistance is suitable only for piezo element without wire. 共振阻抗僅適用於蜂鳴片不加線材時之量測
4	Electrostatic capacity 靜電容量	pF	35,000 ± 30%	at 120Hz/1V
5	Operating temp. 操作溫度	°C	- 20 ~ + 60	
6	Storage temp. 儲存溫度	°C	-20 ~ +70	
7	Dimension 尺寸	mm	φ35.0 x H 0.52	
8	Weight (MAX) 重量	gram	3.6	
9	Material 材質		stainless	
10	Terminal 端子		Wire type	See appearance drawing 請參照外觀尺寸圖
11	DC Resistance 直流電阻	MΩ	MIN 20	FLUKE 45 RATE: FAST MEASUREMENT TIME: 1 Sec (only for ≤20mm must be test)
12	Environmental Protection Regulation 環保法規		HSF	In conformity to RoHS RoHS 指令對應品

## C. APPEARANCE DRAWING 外觀尺寸圖



Unit : mm Tol : ±0.5

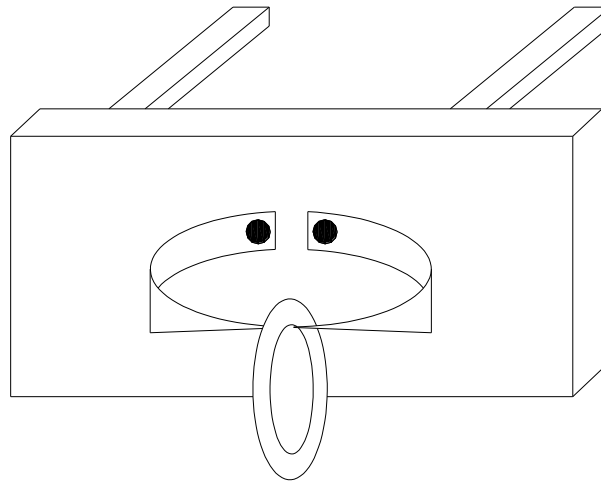
## D. MEASURING METHOD 測量方法

### 1. Resonant frequency / Resonant impedance 共振頻率/共振阻抗.

Piezoelectric diaphragm shall be clamped at a node point as shown in following figure to be free from any mechanical stress, and measured its resonant frequency and resonant impedance by using vector impedance analyzer or equivalent.

When the input frequency is swept within 100 Hz to 7 KHz, the resonant frequency is defined the frequency where the impedance shows minimum value, and this impedance shall be the resonant impedance

將壓電式振動片之節點夾住,如下圖,在無任何機械壓力狀況下,以交流阻抗分析儀測量其共振頻率及共振阻抗。以掃頻的方式輸入 100Hz ~ 7kHz 頻率,共振頻率為阻抗最低的那一點,且此阻抗即共振阻抗。



### 2. Static capacitance 靜電容量

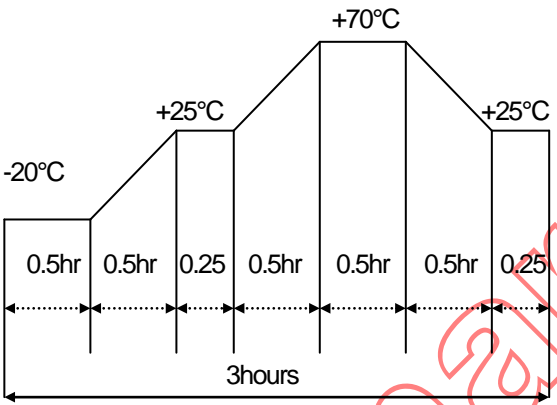
An electrostatic capacity capacitance shall be measured at 120 Hz by using L.C.R. meter, ex.HP4194A(H.P.), or equivalent. The part shall be clamped in the same way as the measurement of resonant frequency/ resonant impedance mentioned in the above.

以 HP4194A 測量在 120 Hz 時振動片的靜電容量。夾住振動片方式與上述測共振頻率及共振阻抗的夾法相同。

## E. MECHANICAL CHARACTERISTICS 機械特性

No.	Item	Test Condition	Evaluation standard
1	Lead Wire Pull Strength 線材拉力	The pull force shall be applied to double lead wire : Horizontal 3.0N for 30 seconds. 雙線材水平方向施以 3.0N 的力量,30 秒。	No damage and cutting off. 線材不鬆動,不脫落。
2	Vibration 振動試驗	Diaphragm 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 resonant frequency should be in $\pm 10\%$ , electrostatic capacity should be $\pm 20\%$ , which is compared with initial ones.
3	Shock 衝擊試驗	Diaphragm shall be measured after being applied shock( $980m/s^2$ ) for each three mutually perpendicular directions to each of 3 times by half sine wave. 以加速度 $980m/s^2$ , 1/2 正弦波衝擊施於 X.Y.Z 3 個方向,各 3 回。	The resonant impedance should be 2000ohm max 與試驗前相較, 試驗後的共振頻率變化量須在 $\pm 10\%$ 內, 靜電容量須在 $\pm 20\%$ 內, 共振阻抗為 2000ohm 以下

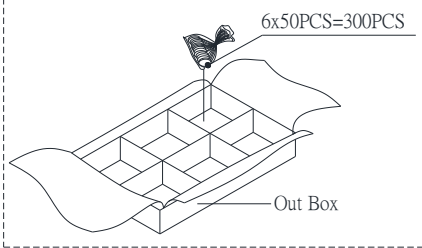
## F. ENVIRONMENT TEST 環境測試

No	Item	Test Condition	Evaluation standard
1	High temp. test 高溫測試	After being placed in a chamber at +70°C for 240 hours 置於+70°C環境中 240 小時	Being placed for 4 hours at +25°C, diaphragm shall be measured The value of resonant frequency should be in $\pm 10\%$ , electrostatic capacity should be $\pm 20\%$ , which is compared with initial ones . The resonant impedance should be 2000 ohm max 經測試後，靜置於+25°C（室溫）環境中 4 小時後，與試驗前相較，試驗後的共振頻率變化量須在 $\pm 10\%$ 內，靜電容量須在 $\pm 20\%$ 內，共振阻抗為 2000ohm 以下
2	Low temp. test 低溫測試	After being placed in a chamber with -20°C for 240 hours 置於-20°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	
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： 	

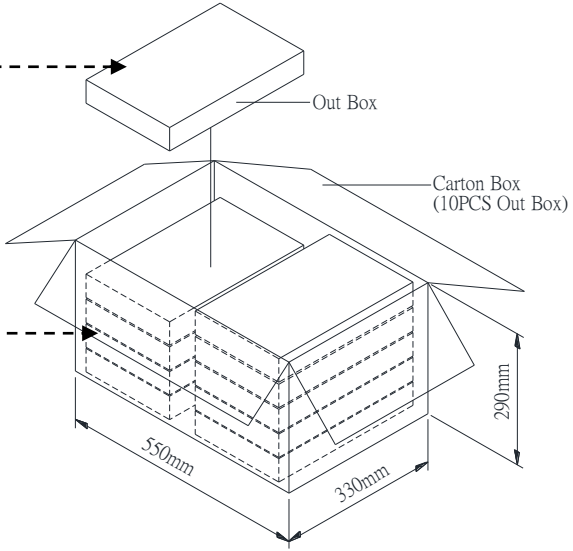
### TEST CONDITION.

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 $\pm$ 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件	:	a) 溫度 : +25 $\pm$ 2°C	b) 濕度 : 60-70%	c) 氣壓 : 860-1060mbar



## G. PACKING STANDARD 包裝規格



6x50PCS=300PCS  
Out Box



Out Box  
Carton Box (10PCS Out Box)  
550mm  
330mm  
290mm

Lot No.	XXXXXXXXXX
Part No.	XXXXXXXXXXXXXX
Quantity	XXX Pcs
Date:	MM YY 
 KINGSTATE ELECTRONICS CORP.	

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

Out Box	310mmx248mmx49mm	6x50PCS=300PCS
Carton Box	550mmx330mmx290mm	300PCSx10=3,000PCS