

SPECIFICATION FOR APPROVAL

承 認 書

Description : Piezoelectric Diaphragm

Kingstate Part No. : KBIG3532F09030AZ

Customer's Model No. : _____

Specification No. : DOD-6491

Number Of The Edition : 2.3

CUSTOMER'S APPROVED SIGNATURE		



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

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Approved by	Checked by	Issued by
 2015.4.23	 4/23	XueQin 2015/04/14

A. SCOPE 範疇

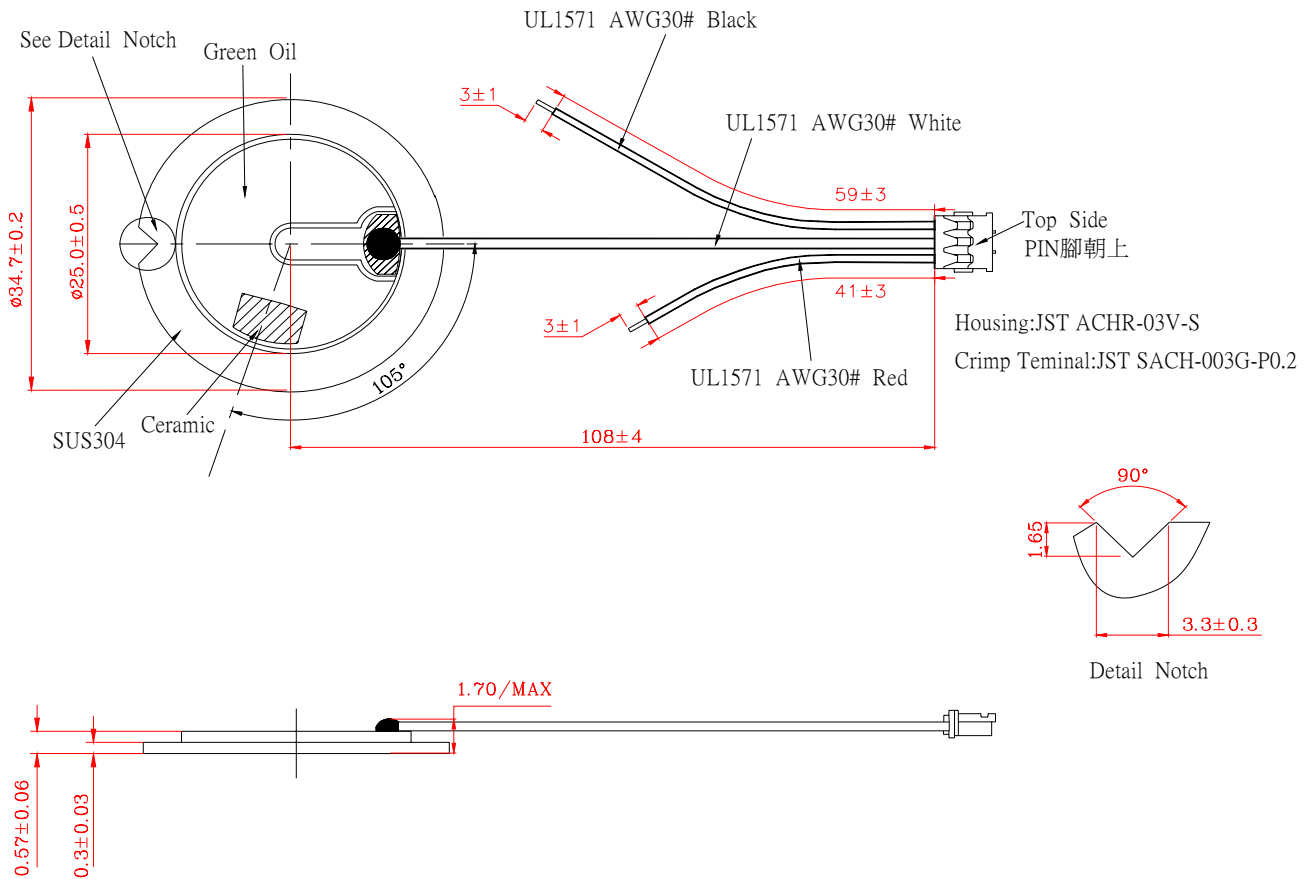
This specification applies piezoelectric diaphragm, **KBIG3532F09030AZ**

此規格書適用於壓電式蜂鳴片, **KBIG3532F09030AZ**

B. SPECIFICATION 規格

No.	Item	Unit	Specification	Condition
1	Max. input voltage 最大輸入電壓	Vp-p	MAX 40	square wave 方波
2	Resonant frequency 共振頻率	KHz	3.18 ± 0.2	
3	Resonant impedance 共振阻抗	ohm	Min.50 ~ Max.300	
5	Electrostatic capacity CM 靜電容量	pF	19,000~40,000	at 1KHz/1V
6	Electrostatic capacity CF 靜電容量	pF	2,200~4,300	at 1KHz/1V
7	Operating temp. 操作溫度	°C	- 20 ~ + 70	
8	Storage temp. 儲存溫度	°C	-30 ~ +80	
9	Dimension 尺寸	mm	φ 34.7 x H0.57	
10	Weight (MAX) 重量	gram	3.5	
11	Material 材質		Stainless	
12	Terminal 端子		Wire type	See appearance drawing 請參照外觀尺寸圖
13	DC Resistance 直流電阻	MΩ	MIN 20	FLUKE 45 RATE : FAST MEASUREMENT TIME : 1 Sec (only for ≤20mm must be test)
14	Environmental Protection Regulation 環保法規		HSF	Piezo electronic device is exempted from HSF. Lead contain restriction. 電子陶瓷產品不受 HSF 條款規範

C. APPEARANCE DRAWING 外觀尺寸圖



1. Zones without coating for contact springs as per dwg. RoHS compliant
2. The 3 wires must be multi-stranded wire
3. The lower wire and upper wire must be tinned

Unit : mm

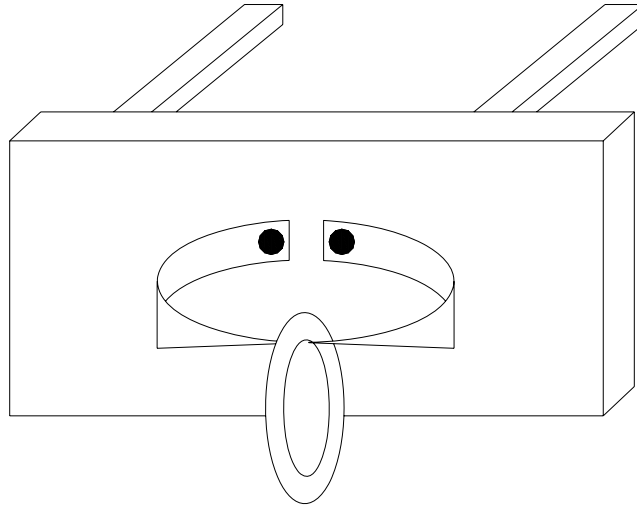
Tol : ± 0.5

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 4 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 ~ 4kHz 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

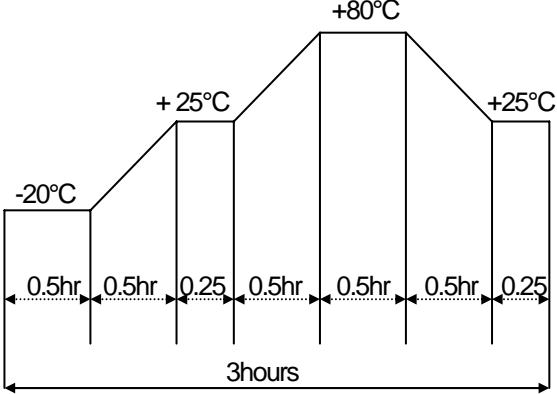
An electrostatic capacity capacitance shall be measured at 1K Hz by using L.C.R. meter, ex.HP4194A(H.P.), or equivalent. The part shall be clamped in the same way as the measurement of resonant frequency/ resonant impedance mentioned in the above.

以 HP4194A 測量在 1K 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	Solderability 焊錫附著性 (Connector excepted) 端子類不適用此項	Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of $+270\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds. 裸線部份浸入松香溶液 5 秒後,再浸入 $+270\pm 5^{\circ}\text{C}$ 溶融焊錫槽 3 ± 0.5 秒。	90% min. stripped wires shall be wet with solder.(Except the edge of terminal) 浸入裸線部份附著焊錫 90%以上。(末端斷面不算)。
2	Lead Wire Pull Strength 線材拉力	The pull force shall be applied to double lead wire : Horizontal 3.0N(0.306kg) for 30 seconds. 雙線材水平方向施以 3.0N(0.306kg)的力量,30 秒。	No damage and cutting off. 線材不鬆動,不脫落。
3	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. 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

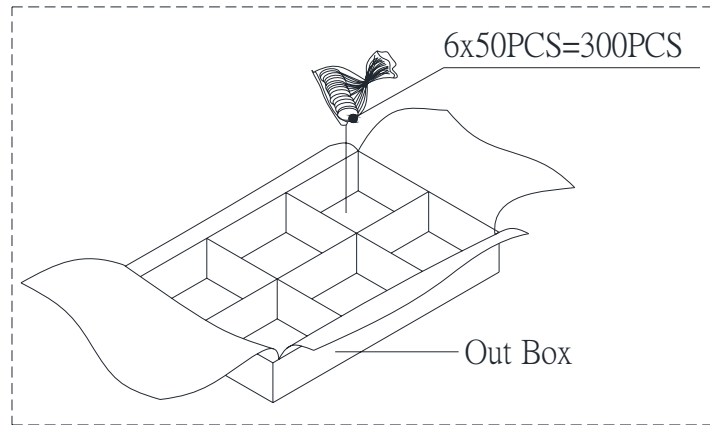
F. ENVIRONMENT TEST 環境測試



No	Item	Test Condition	Evaluation standard
1	High temp. test 高溫測試	After being placed in a chamber at $+80^{\circ}\text{C}$ for 240 hours 置於 $+80^{\circ}\text{C}$ 環境中 240 小時	Being placed for 4 hours at $+25^{\circ}\text{C}$, 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 $+25^{\circ}\text{C}$ (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 -30°C for 240 hours 置於 -30°C 環境中 240 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 240 hours 置於 $+40^{\circ}\text{C}$, 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.

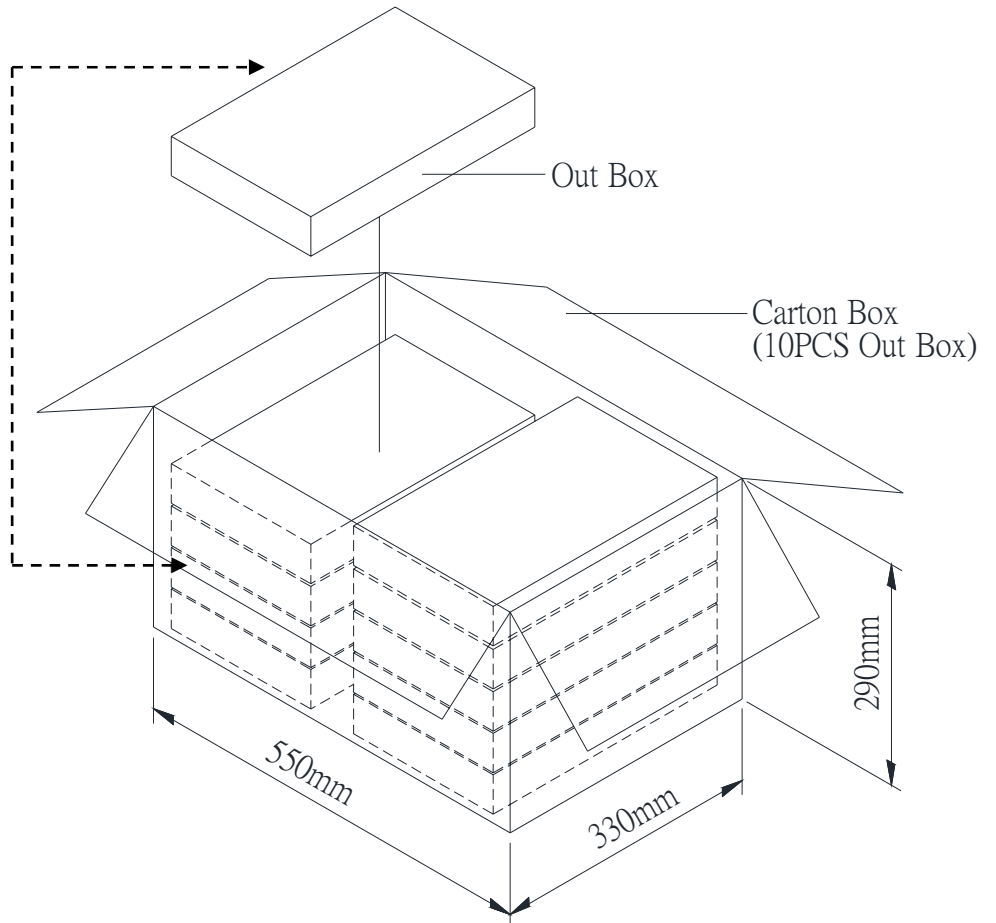
Standard Test Condition 一般測試條件	:	a) Temperature : $+5 \sim +35^{\circ}\text{C}$	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
Judgement Test Condition 爭議時測試條件	:	a) Temperature : $+25 \pm 2^{\circ}\text{C}$	b) Humidity : 60-70%	c) Pressure : 860-1060mbar

H. PACKING STANDARD 包裝規格



Lot No.	XXXXXXXXXX
Model No.	XXXXXXXXXX
Quantity.	XXXX Pcs
Date:	
DD 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