

SPECIFICATION FOR APPROVAL

承認書

Description : Piezoelectric Diaphragm

Kingstate Part No. : KBIG2036NB04032A

Customer's Model No. : _____

Specification No. : DOD-X743

Number Of The Edition : 1.1

CUSTOMER'S APPROVED SIGNATURE		



KINGSTATE 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](http://www.kingstate.com.tw)

Approved by	Checked by	Issued by
		Merry 2025/06/25

RELEASE HISTORY 發行歷史

Revision	Version	Date	Description	Remark
1	1.1	2025. 06. 25	初版發行	Merry

Preliminary

A. SCOPE 範疇

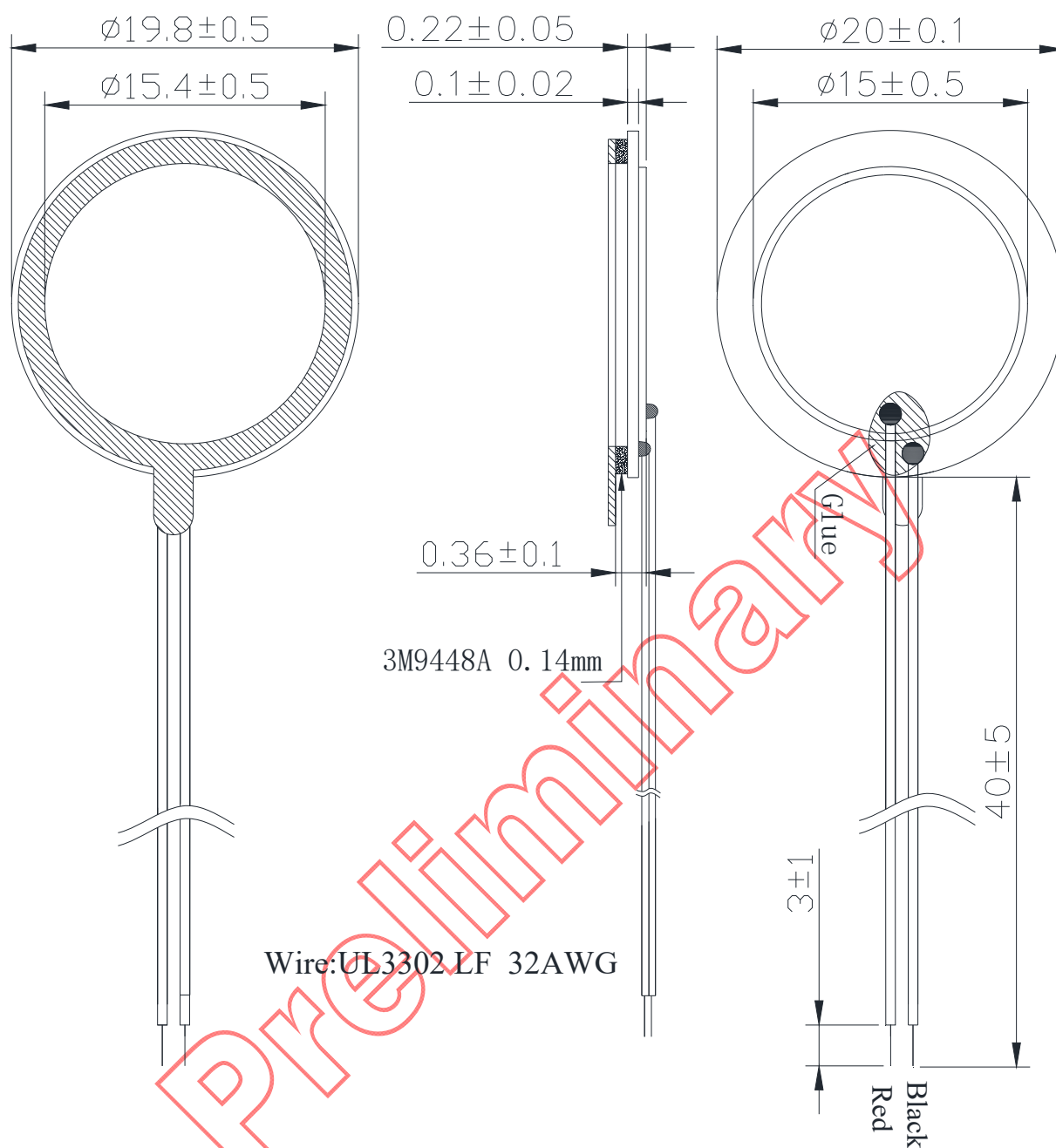
This specification applies piezoelectric diaphragm, **KBIG2036NB04032A**

此規格書適用於壓電式蜂鳴片, **KBIG2036NB04032A**

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	3.6±0.6	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	20,000 ± 35%	at 120Hz/1V
5	Operating temp. 操作溫度	°C	- 20 ~ + 70	
6	Storage temp. 儲存溫度	°C	-30 ~ +70	
7	Dimension 尺寸	mm	ψ20.0 x H 0.22	
8	Weight (MAX) 重量	gram	0.59	
9	Material 材質		BRASS	
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		RoHS2.0	Piezo electronic device is exempted from RoHS2.0. Lead contain restriction. 壓電陶瓷片產品含鉛是RoHS2.0 豁免的

C. APPEARANCE DRAWING 外觀尺寸圖



Unit : mm

Tol : ± 0.5

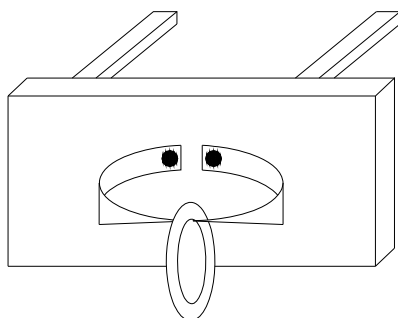
D. MEASURING METHOD 測量方法

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 5 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 ~ 5 KHz 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. tatic capacitance 靜電容量

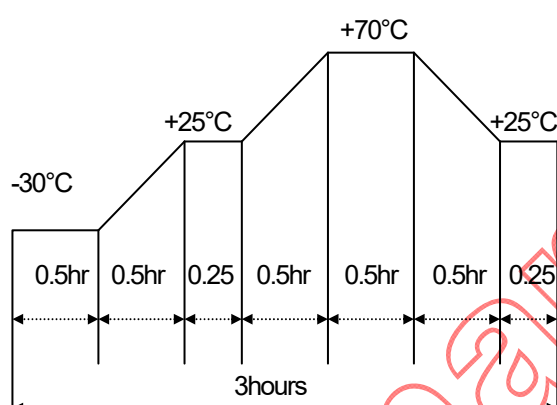
An electrostatic capacity capacitance shall be measured at 120Hz by using L.C.R. meter, ex. HP4194A (H.P.), or equivalent. The part shall be clamped in the same way as the measurement of resonant frequency/ resonant impedance mentioned in the above.

以 HP4194A 測量在 120Hz 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。

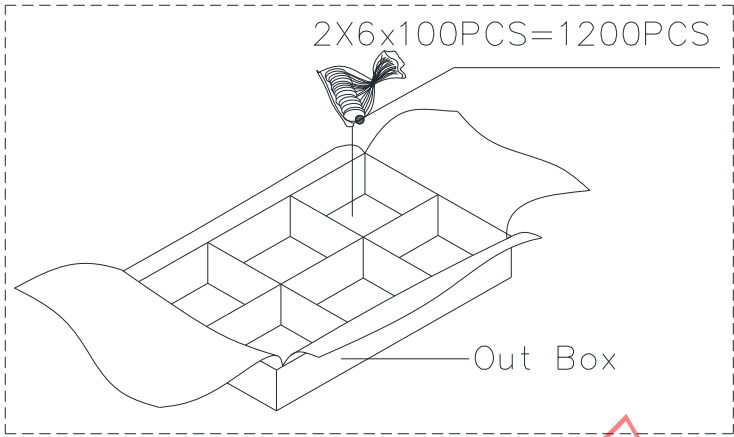
F. ENVIRONMENT TEST 環境測試

No	Item	Test Condition	Evaluation standard
1	High temp. test 高溫測試	After being placed in a chamber at +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 -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°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.

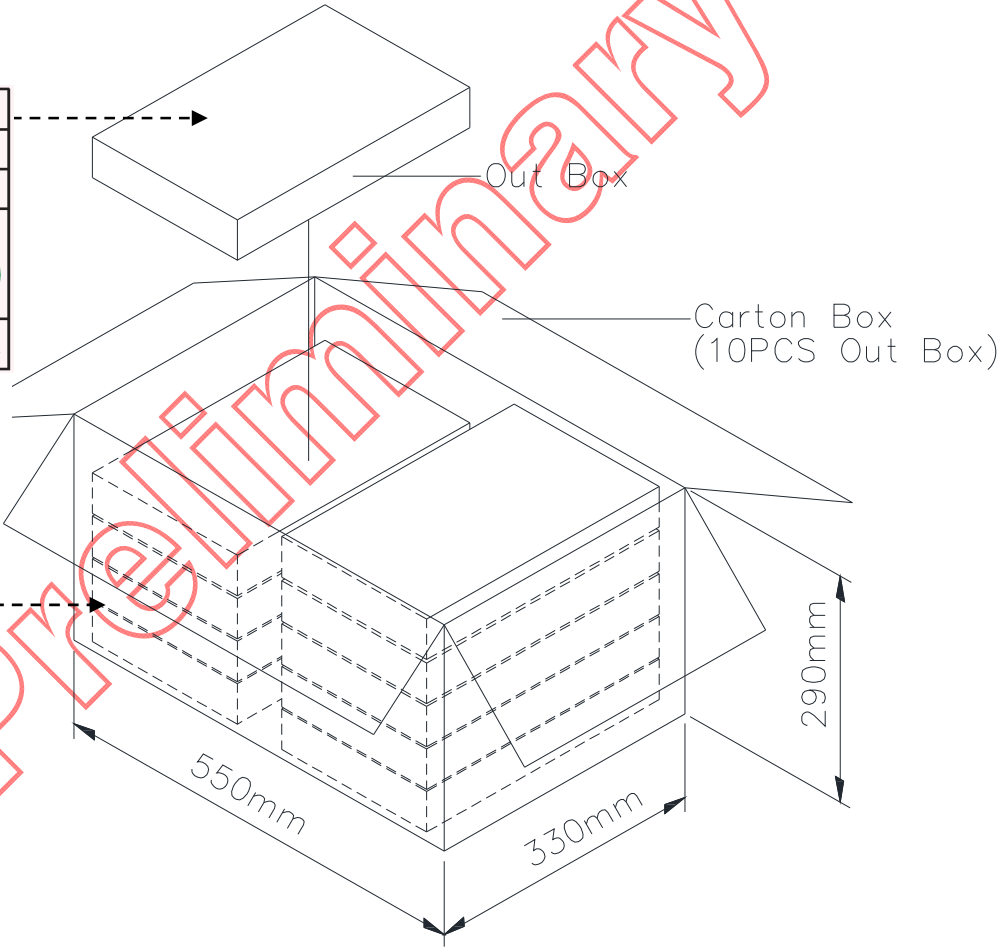
Standard Test Condition	:	a) Temperature : +5 ~ +35°C	b) Humidity : 45-85%	c) Pressure : 860-1060mbar
一般測試條件	:	a) 溫度 : +5 ~ +35°C	b) 濕度 : 45-85%	c) 氣壓 : 860-1060mbar
Judgement Test Condition	:	a) Temperature : +25 $\pm$ 2°C	b) Humidity : 60-70%	c) Pressure : 860-1060mbar
爭議時測試條件	:	a) 溫度 : +25 $\pm$ 2°C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

G. PACKING STANDARD 包裝規格



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	310mmx248mmx49mm	2x6x100PCS=1200PCS
Carton Box	550mmx330mmx290mm	1200PCSx10=12,000PCS