

Specificion for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	2/8

## CONTENTS

1. Scope
2. Model No.
3. Test Conditions
4. Maximum Rating
5. Electrical Characteristics
6. Measuring Method
7. Physical Characteristics
8. Environmental Characteristics
9. Dimensions
10. Packing
11. Revision

Specificion for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	3/8

## 1. Scope

This product specification is applied to the piezoelectric element used for sounder in alarm systems. Please contact us when using this product for any other applications than described in the above.

2.Model No. : MFT-15T-4.0AL11

## 3.Test Conditions

Product shall be measured under a condition (Temperature :+15 to +35℃,Humidity :45 to 85%R.H.,Atmosphere:86~106kPa)unless the standard condition (Temperature :+25 ±3℃,Humidity :60 ± 10%R.H.,Atmosphere:86~106kPa) is regulated measure.

## 4. Maximum Rating

	Item	Specification
4.1	Maximum Input Voltage	30 Vp-p /max.
4.2	Operating Temperature Range	-20 ~ +50℃
4.3	Storage Temperature Range	-20 ~ +60℃

## 5. Electrical Characteristics

	Item	Specification
5.1	Resonant Frequency	4.0± 0.5 kHz
5.2	Resonant Impedance	500 Ω /max
5.3	Electrostatic Capacity (at 100Hz)	34nF ± 30%
5.4	Insulation Resistance ( Multi meter )	20M Ω min.

Refer to next item for measuring method.

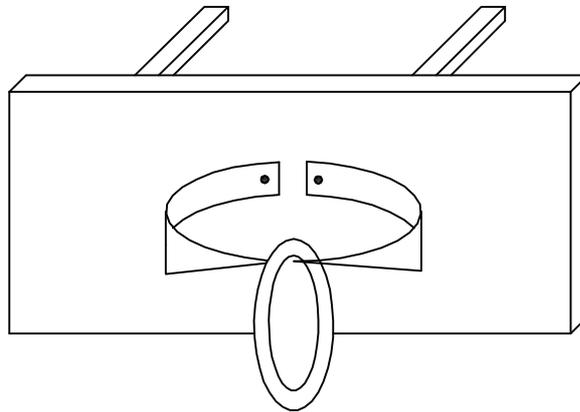
Specificion for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	4/8

## 6. Measuring Method

### 6.1 Resonant Frequency / Resonant Impedance

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 2 to 5 kHz, the resonant frequency is defined the frequency where the impedance shows minimum value, and this impedance shall be the resonant impedance.



### 6.2 Electrostatic Capacitance

An electrostatic capacity capacitance shall be measured at 100Hz by using L.C.R.meter, ex. HP4192A(H.P.), or equivalent. The part shall be clamped in the same way as the measurement of resonant frwquency / resonant impedance mentioned in the above.

### 6.3 Insulation resistance

An insulation resistance shall be measured by using an insulation resistance meter.

Specificion for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	5/8

## 7. Physical Characteristics

	Item	Test Condition	Specification
7.1	Shock	Diaphragm shall be measured after being applied shock(980m/s <sup>2</sup> ) for each three mutually perpendicular directions to each of 3 times by half sine wave.	The measured value shall meet Table 1.
7.2	Vibration Resistant	Diaphragm shall be measured after being applied vibration of amplitude of 1.5mm with 10 to55Hz band of vibration frequency to each of 3 perpendicular directions for 2 hours.	

## 8. Environmental Characteristics

	Item	Test Condition	Specification
8.1	Dry Heat Test (Storage)	After being placed in a chamber with $+70 \pm 3^{\circ}\text{C}$ for 20 hours and then being placed in natural condition for 4 hours, diaphragm shall be measured.	The measured value shall meet Table 1.
8.2	Cold Test (Storage)	After being placed in a chamber with $-30 \pm 3^{\circ}\text{C}$ for 20 hours and then being placed in natural condition for 4 hours, diaphragm shall be measured.	
8.3	Humidity	After being placed in a chamber with $95 \pm 5\%\text{R.H.}$ at $+50 \pm 3^{\circ}\text{C}$ for 20 hours and then being placed in natural condition for 4 hours, diaphragm shall be measured.	
8.4	Temperature Cycle	After being placed in a chamber at $-30 \pm 2^{\circ}\text{C}$ for 30 minutes, diaphragm shall be placed at room temperature( $+20^{\circ}\text{C}$ ).After 15 minutes at this temperature ,diaphragm shall be placed in a chamber at $+70 \pm 2^{\circ}\text{C}$ . After 30 minutes at this temperature, diaphragm shall be returned to room temperature ( $+20^{\circ}\text{C}$ ) for 15 minutes. After 4 above cycles, sounder shall be measured after being placed in natural condition for 4 hours.	
8.5	The action under the high tempreture condition	Place the products in the condition of $+40 \pm 3^{\circ}\text{C}$ $95 \pm 4\%$ R.H. for 2 hours and test later.	Pass
8.6	The action under the low tempreture condition	Place the products in the condition of $+60 \pm 3^{\circ}\text{C}$ $-10^{\circ}\text{C}$ for 2 hours and test later.	

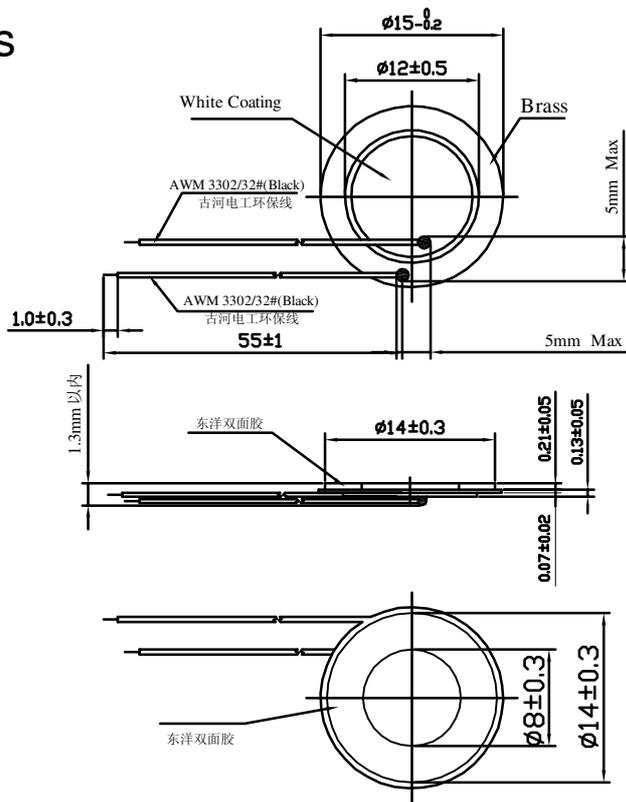
Remark: All the dependence test shows that there will not appear the dew on the surface of the elements.

Table 1.

	Item	Specification after test
1	Resonant Frequency	Initial Value $\pm 15\%$
2	Resonant Impedance	500 $\Omega$ /max
3	Electrostatic Capacity	Initial Value $\pm 30\%$

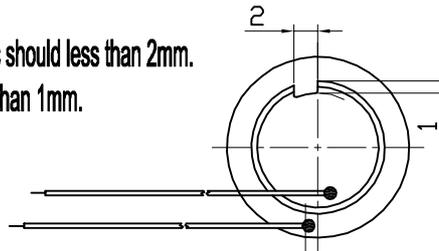
Specificion for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	6/8

## 9. Dimensions



### 9.1. Appearance

The depth of permitted crack on ceramic should less than 2mm.  
The crack long on ceramic should less than 1mm.



UNIT : mm

### 9.2. Table 2

Item	Specification after test
1 Soldering tin	Xi Han Sn96.5Ag3Cu0.5 $\phi 0.6$
2 Iron temperature	$380 \pm 20^\circ\text{C}$

### 9.3. Table 3 (RoHS)

Compliance with RoHS

Name	Spec	SGS
1 Piezo-element	$\phi 15 \times 0.07$ H65 Brass	SH401150/CHEM
	$\phi 12 \times 0.07$ Ceramic	/
2 Wire	AWM3302-32#	SH315205/CHEM
3 Solder	Sn96.5Ag3Cu0.5 $\phi 0.6$	SH426701/CHEM
4 $\phi 14-\phi 8$ Double side glue	TOYO R202	DF05-1026

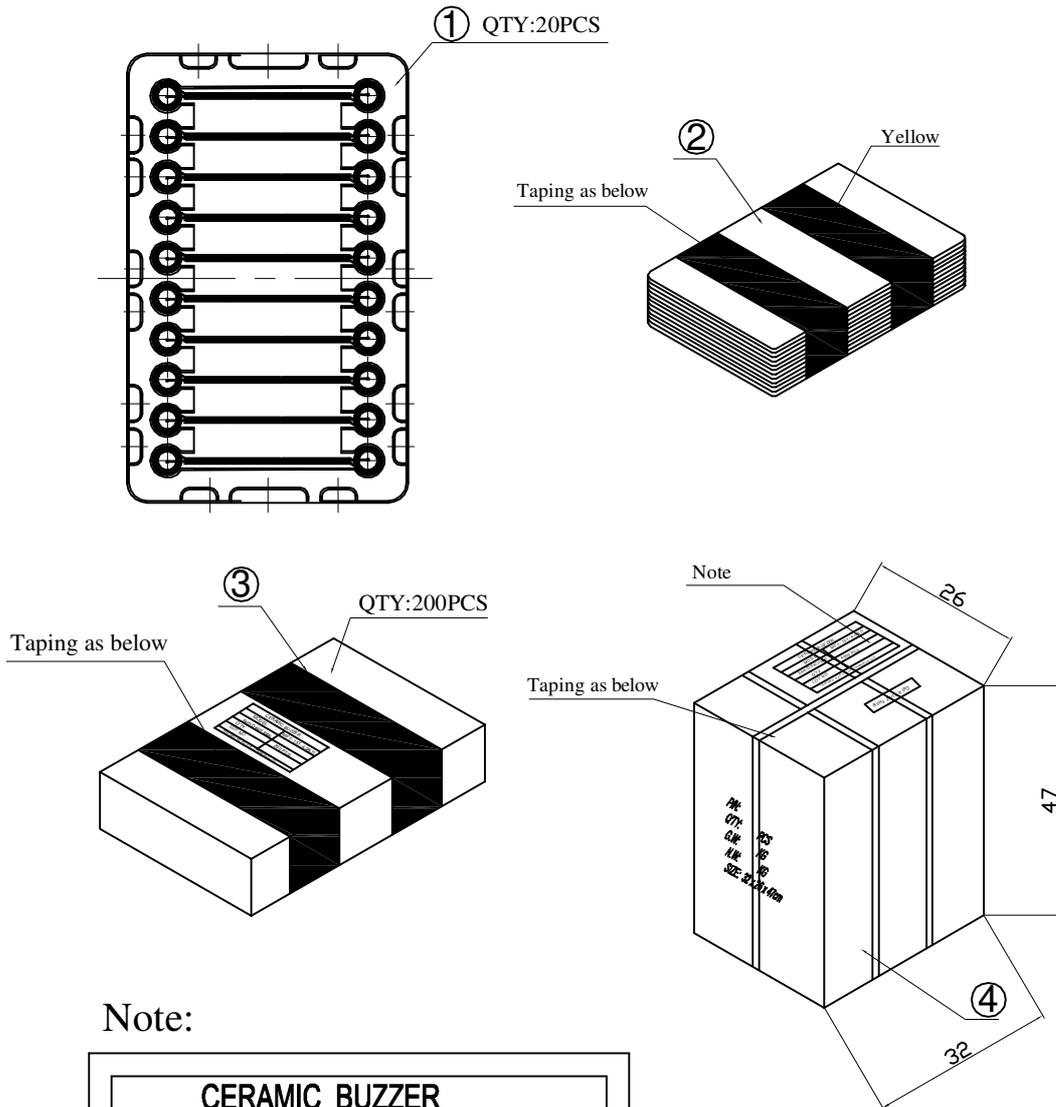
FIRST ANGLE PROJECTION



Specifiction for Piezoelectric Diaphragm	Drawing No.	Revision No.	Page
Model No. : MFT-15T-4.0AL11	KC3.001.013	1.2	7/8

## 10. Packing

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.



Note:

CERAMIC BUZZER	
MODEL	MFT-15T-4.0AL11
Item/Description	XXXXXXXX
QTY	4000PCS
LOT NO.	XXXXXXXX
NINGBO KEPO ELECTRONICS CO.,LTD.	

RoHs part in IPO

1	Cover
2	Sponge Pad
3	Single Packing
4	Carton box

