



PRODUCT SPECIFICATION

Product: Piezo Element

Model: PIEZO20T-6.5A1-EST

Release Date: 2022/11/04

Revision History

Rev.	Date	Description	Engineer	Approved By
01	2022/11/04	Initial Release	James Jin	Simon



1.PRODUCT IMAGE



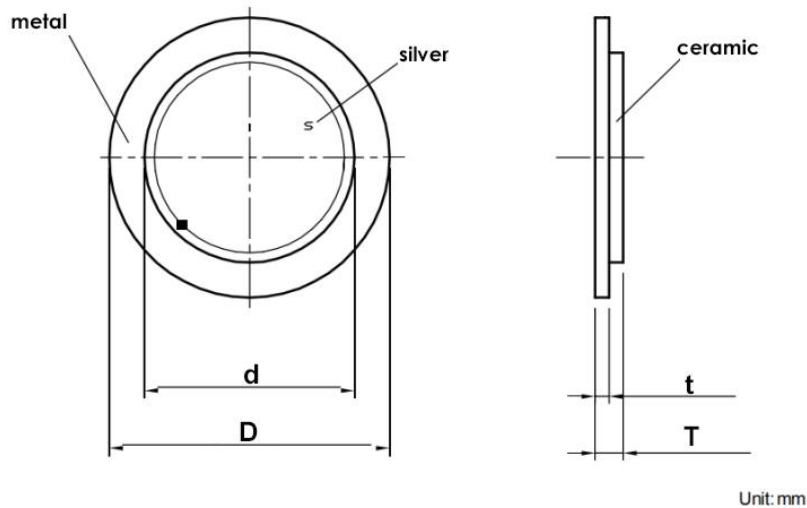
Testing Condition

1	Operation condition	Temperature : 15C~35C Relative humidity: 25%~85% Air pressure : 86~ 106Kpa
2	Arbitration condition	Temperature : 25C±2C Relative humidity: 25%~85% Air pressure : 86~ 106Kpa

2. Electrical characteristics

1.	Resonant Frequency(KHZ)	6.5±0.5
2.	Resonant Impedance(OHM)	300 Max
3.	Capacitance at 100 Hz(pF) at 100hz	15000±30%
4.	Insulation resistance(OHM) at 50 VDC	100M Min
5.	Max. input voltage(Vp-p)	30 Vp-p
6.	Coaxial degree(mm)	0.6
7.	Metal Material	Brass
8.	DC Resistance	MIN 20M Ω -FLUKE 45 RATE: FAST MEASUREMENT TIME: 1 Sec (only for 20mm must be test)
9.	Operating Temperature(°C)	-20...+70
10.	Storage Temperature(°C)	-30...+80
11.	Total thickness-T(mm)	0.42±0.03
12.	Metal thickness-t(mm)	0.2±0.02
13.	Metal Diameter-D(mm)	20±0.2
14.	Ceramic Diameter-d(mm)	15±0.5

3:Dimension:

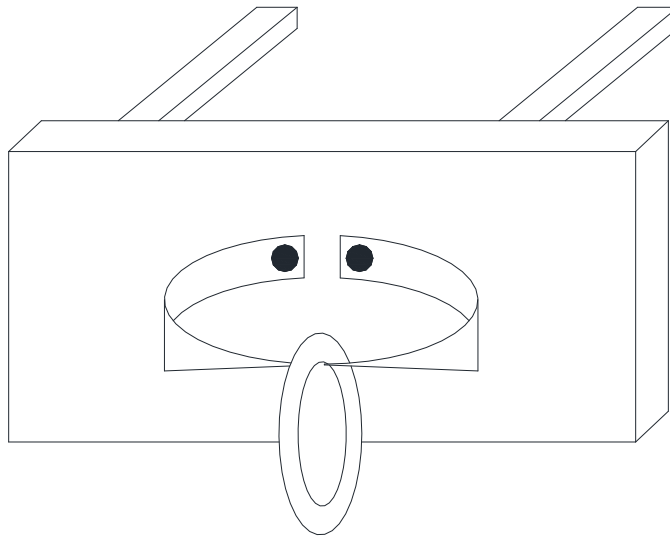


4.Measuring Method

4. 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 100Hz to 5KHz, the resonant frequency is defined the frequency where the impedance shows minimum value, and this impedance shall be the resonant impedance



4 .2 . Capacitance:

An electrostatic capacity capacitance shall be measured at 100Hz 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.

4 .3 . Insulation Resistance:

An insulation resistance shall be measured by using an insulation resistance meter such as DF2863 insulation resistance meter.

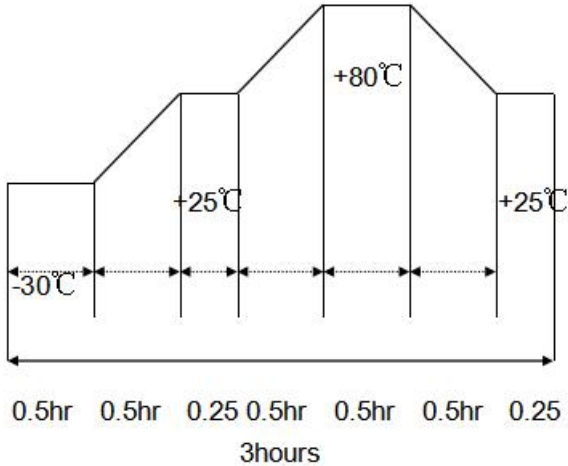
4 .4 . Measuring Condition:

Parts shall be measured under the standard condition(Temperature: $+23 \pm 5^{\circ}\text{C}$, Humidity: $45 \pm 10\%$ R. H.)is regulated to measure.

5.Mechanical Characteristics

No.	Item	Test Condition	Evaluation standard
1	Solderability	Stripped wires of lead wires are immersed in rosin for 5 seconds and then immersed in solder bath of $+230\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds.	90% min. stripped wires shall be wet with solder.(Except the edge of terminal)
2	Soldering Heat Resistance	Stripped wires are immersed up to 1.5mm from insulation in solder bath of $+300\pm 5^{\circ}\text{C}$ for 3 ± 0.5 seconds or $+260\pm 5^{\circ}\text{C}$ for 10 ± 1 seconds, and then sounder shall be measured after being placed in natural condition for 4 hours.	No interference in operation.
3	Lead Wire Pull Strength	The pull force shall be applied to lead wire: Horizontal 3.0N Vertical 2.0N	No damage and cutting off.
4	Vibration	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 perpendicular directions for 2 hours.	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
5	Shock	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.	

6. Environment Test:

No.	Item	Test Condition	Evaluation standard
1	High temp. test	After being placed in a chamber at +80°C for 240 hours	Being placed for 4 hours at +25°C, diaphragm shall be measured. The value of resonant frequency should be in ±10%, electrostatic capacity should be ±20%, which is compared with initial ones. The resonant impedance should be 2000 ohm max.
2	Low temp. test	After being placed in a chamber with -30°C for 240 hours	
3	Humidity test	After being placed in a chamber at +40°C and 90±5% relative humidity for 240 hours	
4	Temp. cycle test	The part shall be subjected to 5 cycles. One cycle shall consist of: <div style="text-align: center;">  <p>The diagram illustrates a temperature cycle test profile. It shows a trapezoidal temperature profile over a 3-hour period. The temperature starts at -30°C, rises to +25°C, then to +80°C, and finally returns to +25°C. The time intervals for each temperature level are: 0.5hr at -30°C, 0.5hr at +25°C, 0.25hr at +80°C, 0.5hr at +25°C, 0.5hr at +25°C, and 0.25hr at +25°C. The total duration is 3 hours.</p> </div>	