

SPECIFICATION FOR APPROVAL
承 认 书

Description : Piezo Element
Vender's Part No. : FDT-9.5T-18C12-W11

PMB

상표등록 <제40-0729433호>

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SPECIFICATIONS

Model No.

FDT-9.5T-18C12-W11

Page

1/5

1. Scope

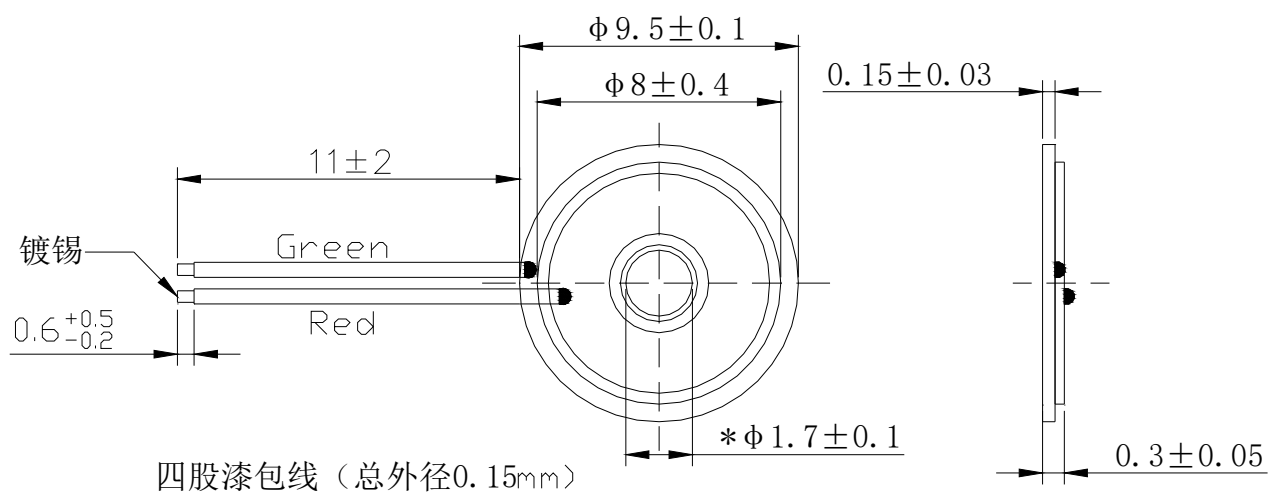
This specification applies PIEZO ELEMENT FDT-9.5T-18C12-W11

2.Characteristics

No	Item	Unit	Specification	Condition
1	Max. input voltage	Vp-p	MAX 30	
2	Resonant frequency	KHz	18± 1.5	The resonant frequency is suitable only for piezo element without wire.
3	Resonant impedance	ohm	MAX 60	The resonant resistance is suitable only for piezo element without wire.
4	Electrostatic capacity	pF	65,000±30%	at 120Hz/1V
5	Operating temp.	℃	- 20 ~ + 60	
6	Storage temp.	℃	-30 ~ + 70	
7	MATERIAL		BRASS	
8	DC Resistance	M Ω	MIN 20	FLUKE 45 RATE: FAST MEASUREMENT TIME: 1 Sec (only for *20mm must be test)
9	Weight (MAX)	gram	0.2	
10	Environmental Protection Regulation		RoHS	

SPECIFICATIONS	Model No.	FDT-9.5T-18C12-W11
	Page	2/5

3. Drawing



Tolerance general unless otherwise specified: ± 0.5 mm

unit: mm

SPECIFICATIONS

Model No.

FDT-9.5T-18C12-W11

Page

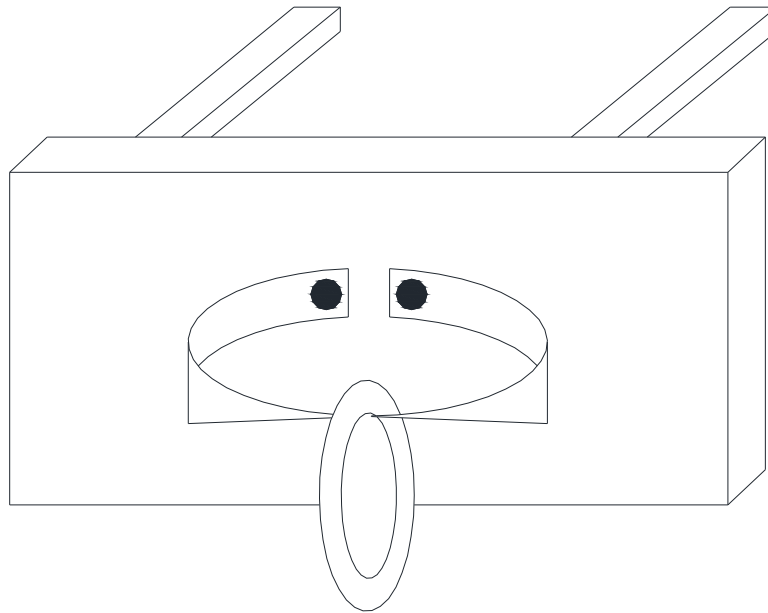
3/5

4.Measuring Method

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



2. Static 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.

SPECIFICATIONS

Model No.

FDT-9.5T-18C12-W11

Page

4/5

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.	

SPECIFICATIONS

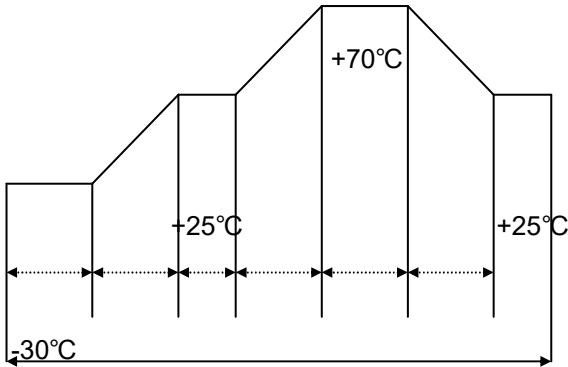
Model No.

FDT-9.5T-18C12-W11

Page

5/5

6. Environment Test

No.	Item	Test Condition	Evaluation standard
1	High temp. test	After being placed in a chamber at +70°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 be consist of:  0.5hr 0.5hr 0.25 0.5hr 0.5hr 0.5hr 0.25 3hours	

TEST CONDITION.

Standard Test Condition : a) Temperature : +5 ~ +35°C b) Humidity : 45-85% c) Pressure : 860-1060mbar
 Judgment Test Condition : a) Temperature : +25 ± 2°C b) Humidity : 60-70% c) Pressure : 860-1060mbar