



## DT SERIES ELEMENTS WITH LEAD ATTACHMENT

### SPECIFICATIONS

- Piezoelectric film sensor
- AC Coupled
- Silver Ink Electrodes
- Protective Coating over Electrodes
- Lead Wires Attached with Rivets.

The DT Series of Piezo film sensors elements are rectangular elements of Piezo film with silver ink screen printed electrodes. They are available in a variety of different sizes and thicknesses. Lead attachment is accomplished using a riveted lug going to 12" (300 mm) of 28 AWG wire.

The DT film element produces more than 10 millivolts per micro-strain. The capacitance is proportional to the area and inversely proportional to the thickness of the element.

The DT elements are supplied with a thin protective coating over the active electrode area to prevent oxidation to the top surface of the silver ink.

### FEATURES

- Minimum Impedance: 1 MΩ
- Preferred Impedance: 10 MΩ and higher
- Output Voltage: 10 mV to 100V depending on Force and Circuit Impedance
- Storage Temperature: -40°C to +70°C [-40°F to 60°F]
- Operating Temperature: 0°C to +70°C [32°F to 160°F]

### APPLICATIONS

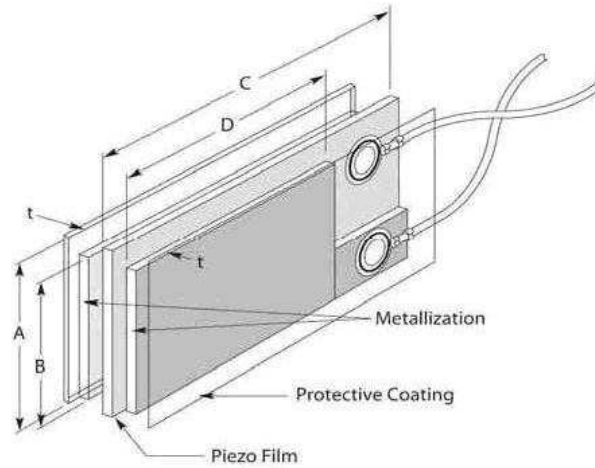
- Sensing Direct Contact Force
- Recording Time of an Event
- Counting Number of Impact Events
- Measuring Impact Related Events

### TYPICAL PIEZO FILM PROPERTIES

| Symbol          | Parameter                         | PVDF         | Units                                      |
|-----------------|-----------------------------------|--------------|--|
| t               | Thickness                         | 28, 52       | μm   |
| d <sub>31</sub> | Piezo Strain Constant             | 23           | (10 <sup>-12</sup> )C/N                    |
| d <sub>33</sub> |                                   | -33          |  |
| g <sub>31</sub> | Piezo Stress constant             | 216          | (10 <sup>-3</sup> )Vm/N                    |
| g <sub>33</sub> |                                   | -330         |  |
| k <sub>31</sub> | Electromechanical Coupling Factor | 12%          |  |
| k <sub>t</sub>  |                                   | 14%          |  |
| C               | Capacitance                       | 380 for 28μm | pF/cm <sup>2</sup> . @ 1KHz                |
| Y               | Young's Modulus                   | 2-4          | 10 <sup>9</sup> N/m <sup>2</sup>           |
| V <sub>0</sub>  | Speed of Sound                    | 2.2          | 10 <sup>3</sup> m/s in thickness direction |

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### DIMENSIONS and PART NUMBERS



Dimensions in inches (mm)

| Model Number        | Part Number | Film Thickness | A Film   | B Electrode | C Film     | D Electrode | Total Thickness (μm) | Cap (nF) |
|---------------------|-------------|----------------|----------|-------------|------------|-------------|----------------------|----------|
| DT1-028K/L w/rivets | 1-1002908-0 | 28 μm          | .64 (16) | .484 (12)   | 1.63 (41)  | 1.19 (30)   | 40                   | 1.38     |
| DT1-052K/L w/rivets | 2-1002908-0 | 52 μm          | .64 (16) | .484 (12)   | 1.63 (41)  | 1.19 (30)   | 64                   | .740     |
| DT2-028K/L w/rivets | 1-1003744-0 | 28 μm          | .64 (16) | .484 (12)   | 2.86 (73)  | 2.42 (62)   | 40                   | 2.78     |
| DT2-052K/L w/rivets | 2-1003744-0 | 52 μm          | .64 (16) | .484 (12)   | 2.86 (73)  | 2.42 (62)   | 64                   | 1.44     |
| DT4-028K/L w/rivets | 1-1002150-0 | 28 μm          | .86 (22) | .740 (19)   | 6.72 (171) | 6.72 (171)  | 40                   | 11.00    |
| DT4-052K/L w/rivets | 2-1002150-0 | 52 μm          | .86 (22) | .740 (19)   | 6.72 (171) | 6.72 (171)  | 64                   | 5.70     |

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