

NDT1-220K Ultrasonic Transducer

- Low cost ultrasonic transducer
- Flexible Format
- 3 MHz nominal center frequency
- High Bandwidth; Low Q Performance
- Low Impedance

The **NDT1-220K** element offers outstanding ultrasonic transducer performance in a low-cost, flexible format for general-purpose use. 3 MHz nominal center frequency, with extremely low Q-factor of 1.3 (air-backed, into PMMA). Electrical impedance is well matched to conventional NDT instrumentation (pulsar/receivers). Unit-to-unit repeatability is very good. The transducer is robust, and conforms perfectly to cylindrical surfaces such as pipe or tank walls. Epoxies, transfer adhesives, or even double-coated tapes may be used as bonding agents.



| Description | Model No. | Part No. |
|-------------------|-----------|-----------|
| Dual layer 110 μm | NDT1-220K | 1005935-1 |

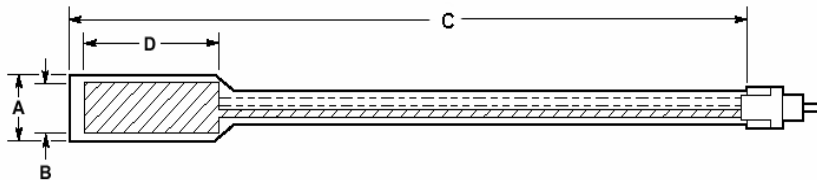
APPLICATIONS

- Liquid Presence/Absence (through-wall)
- Thickness Measurement (solids, elastomers)
- Liquid Depth (bottom-up)
- Speed of Sound Measurement
- Tamper Detection

FEATURES

- High Bandwidth, Low Q Performance
- Excellent Acoustic Match to Liquids, Polymers
- Low Electrical Impedance (30 to 100 ohms typ)
- Lightweight, Robust, Flexible Design
- Conforms to Flat or Curved Surfaces
- Low Cost, Disposable Transducers

Dimensions in Inches [in millimeters]



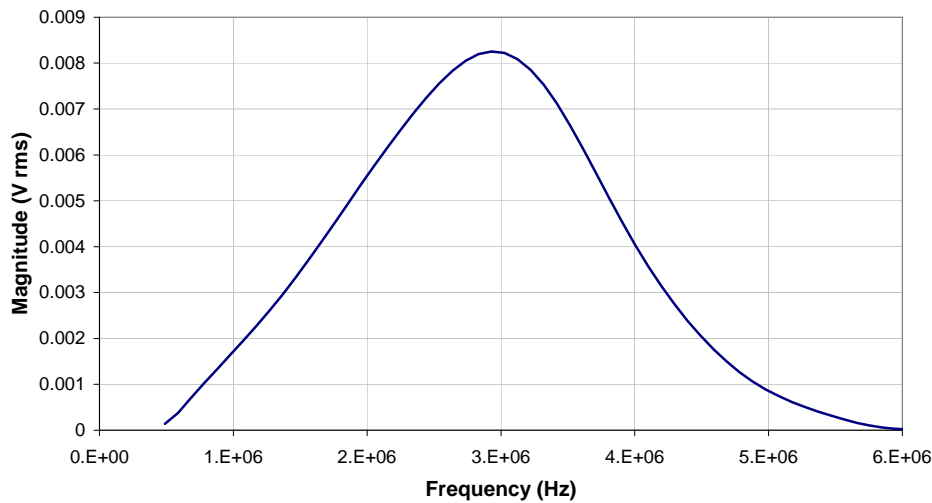
| A (film) | B (electrode) | C (film) | D (electrode) |
|-----------|---------------|------------|---------------|
| .650 [17] | .485 [12] | 5.51 [140] | 1.18 [30] |

Connector provides two 0.025" square pins on 0.1" spacing and will mate with a wide range of FFC (flexible flat cable) receptacles.

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performance specifications

NDT1-220K Frequency Response



Typical properties/specifications

Typical Properties (at 25 °C)

| Parameter | NDT1-220K | Units |
|-----------------------------|-----------|---------------|
| Capacitance | 670 | pF @ 1 kHz |
| Center Frequency | 3 | MHz (in PPMA) |
| Lower -6 dB Freq | 1.7 | MHz |
| Upper -6 dB Freq | 4.0 | MHz |
| Q-Factor | 1.3 | (none) |
| Impedance at f(c) | 100 | ohms |
| Thickness (over length "C") | 0.30 | mm |

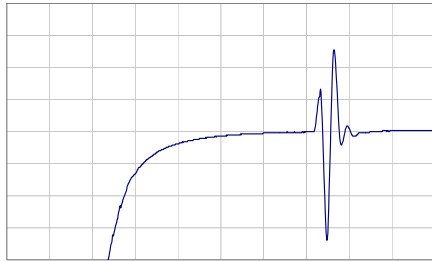
Environmental Specifications

| | |
|-----------------------|------------------|
| Storage Temperature | -40 to +80 deg C |
| Operating Temperature | -20 to +60 deg C |

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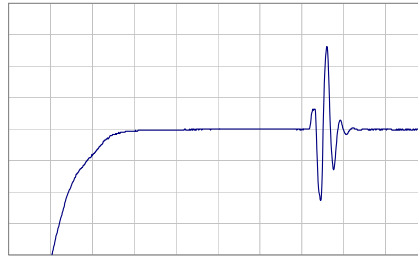
examples of typical receiver waveforms

damping = 0



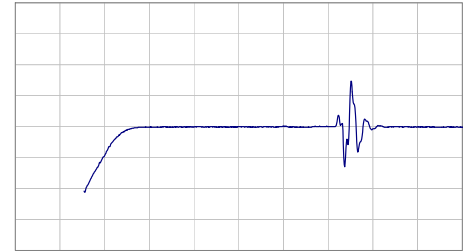
Y-axis: 0.2 V/div

damping = 5



Y-axis: 0.1 V/div

damping = 10

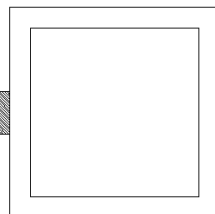
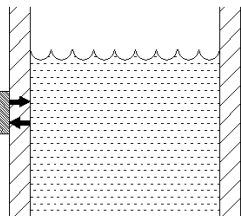


Y-axis: 10 mV/div

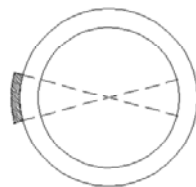
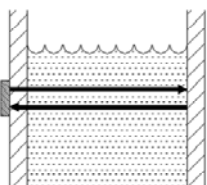
X-axis 1 μ s/div, overall system gain: +10 dB
(note: transmit pulse amplitude varies according to damping setting).

Traces above taken using NDT1-220K element bonded with epoxy resin to nominal 9.5 mm thickness PMMA block.

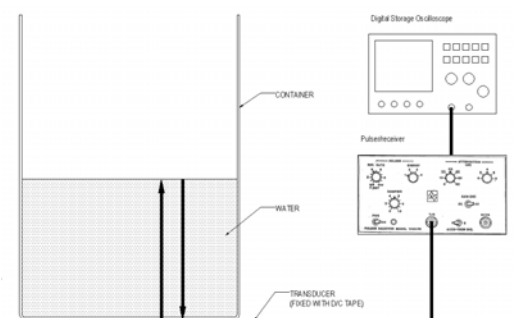
examples of applications



Liquid presence/absence in tank – through-wall



Liquid presence/absence in pipe or cylindrical vessel
(high S/N ratio)



Liquid depth in tank
(< 3 mm min depth, with polymer tank)

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ordering information

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