

**1 Scope**

The pulse/tone burst transducer is designed for echo ranging systems requiring a shorter ringing characteristic when comparing to our standard type transducers.

**2 Part Number**

**250EP25F** Pulse Transit Enclose Type Ultrasonic Transducer

**3 Dimension**

As per Figure 4

**4 Specification**

(rated at temperature  $25\pm 3^{\circ}\text{C}$ , 45 to 60% RH, unless otherwise noted)

|      | Items                 | Specification                                  | Remarks  |
|------|-----------------------|--|--|
| 4-1  | Center Frequency      | 25.0KHz  | $\pm 1.0\text{KHz}$  |
| 4-2  | Sound Pressure Level  | 110dB (min)                                    | at resonant frequency ;<br>0dB re $0.0002\mu\text{bar}$ per 10Vrms at 30cm<br>10Vrms sine wave input<br>detail see attached Figure 1 |
| 4-3  | Sensitivity           | -63dB (min)                                    | at resonant frequency; 0dB re 1Volt/ $\mu\text{bar}$<br>detail see attached Figure 2   |
| 4-4  | Ringing               | 100mV (max)                                    | at 2.3ms, detail see attached Figure 3<br>L 2nd wind of IFT sets at 14.5mH   |
| 4-5  | Bandwidth             | 1.0KHz (min)                                   | -6dB (Figure Of Merit)   |
| 4-6  | Capacitance           | 2800pF   | $\pm 20\%$ , measured at 1KHz  |
| 4-7  | Total Beam Angle      | $40^{\circ}$ (TYP.)                            | -6dB main beam   |
| 4-8  | Max. Driving Voltage  | 100Vp-p  | 20 bursts maximum, 25ms repetition rate  |
| 4-9  | Housing Material      | aluminum                                       | natural  |
| 4-10 | Operation Temperature | $-30^{\circ}\text{C}$ to $+70^{\circ}\text{C}$ |  |
| 4-11 | Storage Temperature   | $-40^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ |  |

## **5 Environmental Characteristics**

- 5-1 Overall echo sensitivity shall not change by more than  $\pm 3\text{dB}$  in the temperature range of  $-30^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  at a relative humidity of  $\pm 50\%$
- 5-2 Overall echo sensitivity shall not change by more than  $\pm 3\text{dB}$  in the humidity range of 10% to 90% at the temperature of  $25^{\circ}\text{C}$
- 5-3 Overall echo sensitivity shall be within  $\pm 3\text{dB}$  of the specified values after the device is subjected to any or all of the below
  - 5-3-1 Operation at 90% relative humidity and  $40^{\circ}\text{C}$  for 100 hours, followed by a normalization period of 24 hours at 30% and  $25^{\circ}\text{C}$
  - 5-3-2 Storage at  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  for 24 hours followed by a normalization period of an hour at  $25^{\circ}\text{C}$
  - 5-3-3 Vibration at 10 to 55Hz, 1.5mm amplitude. 1 minute sweep. X, Y, Z, 3 each axis for 3 hours.
  - 5-3-4 Shock: After impact of 50G is applied following. X, Y, Z, 3 axis /3 cycle / each direction.

## **6 Mechanical Characteristics**

Lead strength

To pull longitudinally 1.0 kgf min.

To push longitudinally 1.0 kgf min.

## **7 Warranty**

- 7-1 Warranty period is one year after delivery
- 7-2 Defective transducers attributable to manufacturer's responsibility shall be replaced for free, during the warranty period. However, following cases are out of the this replacement.
  - 7-2-1 Unsuitable handling or misuse by user.
  - 7-2-2 Modification or repair by user.
  - 7-2-3 Any other cases not responsible for manufacturer such as natural calamity, accident, etc.

**This warranty covers only replacement. Any loss derived from failure or malfunction of the transducer, or cost to replace is excluded from this warranty.**

**Sound Pressure Level measuring system:**

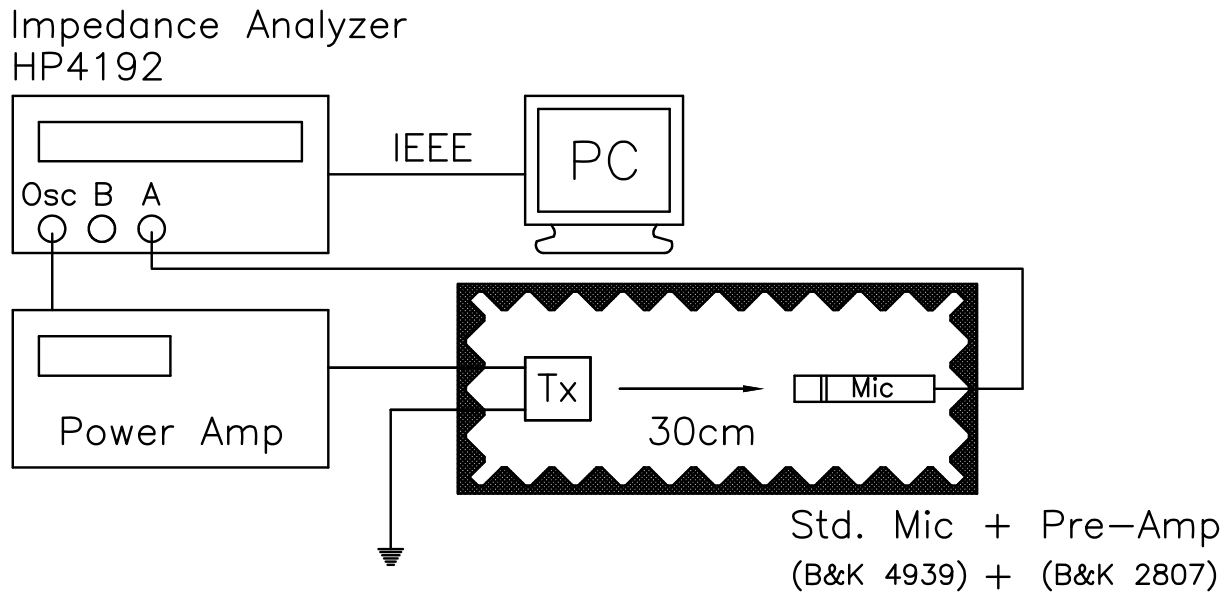


Figure 1

**Sensitivity measuring system:**

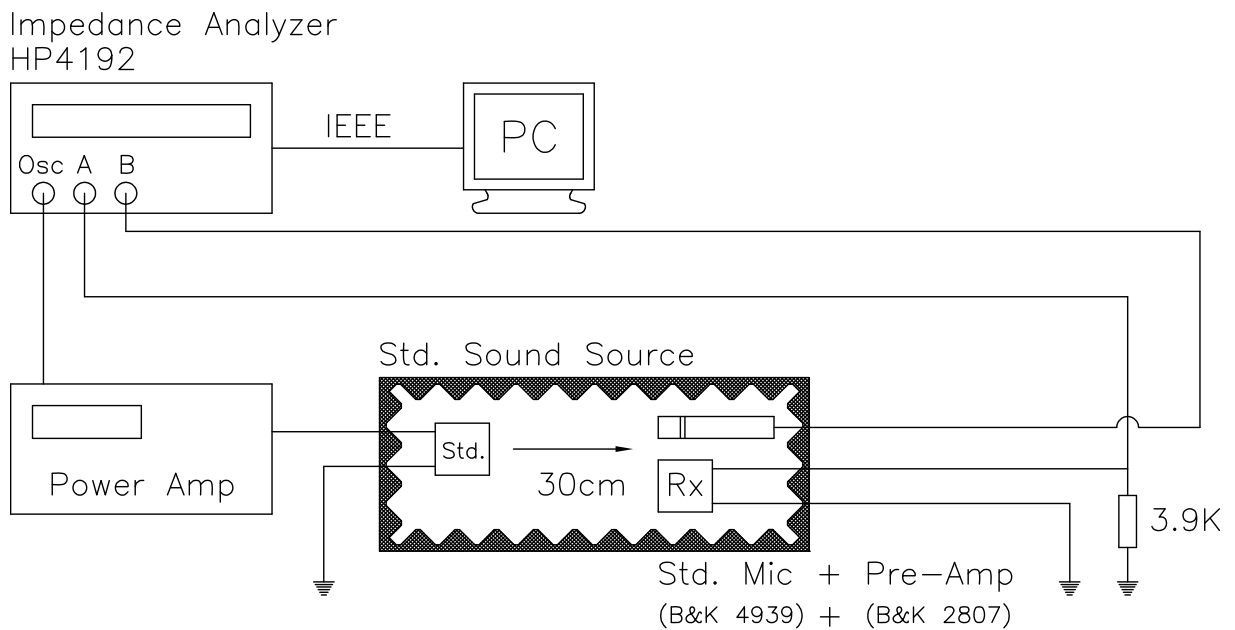


Figure 2