

**1 Scope**

The standard enclosed (E) type transducers can be used for outdoor installation, or, because of its special dust-proof construction, can be used in a dusty atmosphere. The transducers consist of a metal housing with integral metal diaphragm, which operate at resonance on the first harmonic overtone. The backs of transducers are completely sealed with resin protecting from exposure the environment.

**2 Part Number**

250ER25F Standard Enclosed Type Air Ultrasonic Transducer

**3 Dimension**

As per Figure 1

**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 (Fc)	25KHz $\pm$ 1KHz	HP4192A Impedance analyzer
4-2	Sound Pressure Level	110dB (min)	at Fc; 0dB re 0.0002 $\mu$ bar per 10Vrms at 30cm 10Vrms sine wave input detail see attached Figure 2
4-3	Sensitivity	-60dB (min)	at Fc; 0dB=1Volt/ $\mu$ bar detail see attached Figure 3
4-4	Bandwidth	1.0KHz (TYP.)	-6dB
4-5	Capacitance	2800pF	$\pm$ 20%, measured at 1KHz
4-6	Max. Driving Voltage	15Vrms	cont.
4-7	Total Beam Angle	40° (TYP.)	-6dB Main Beam
4-8	Housing Material	aluminum	natural
4-9	Operation Temperature	-30°C to +70°C	
4-10	Storage Temperature	-40°C to +80°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.

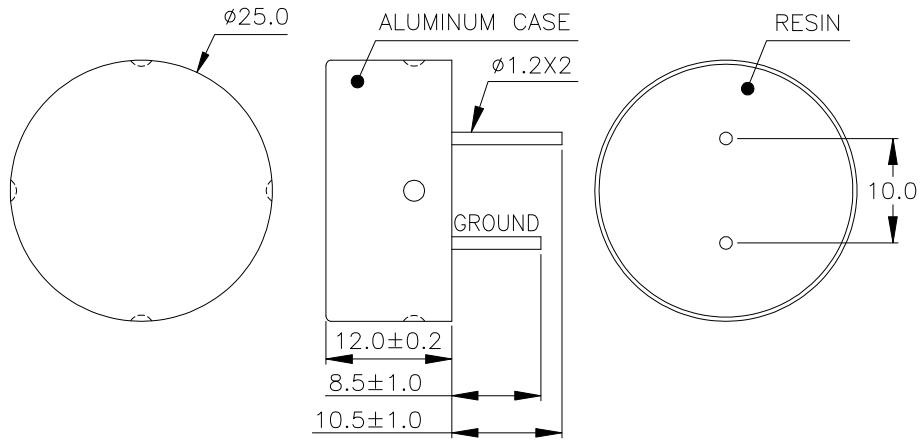
To push longitudinally 1.0 kgf min.

## **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.

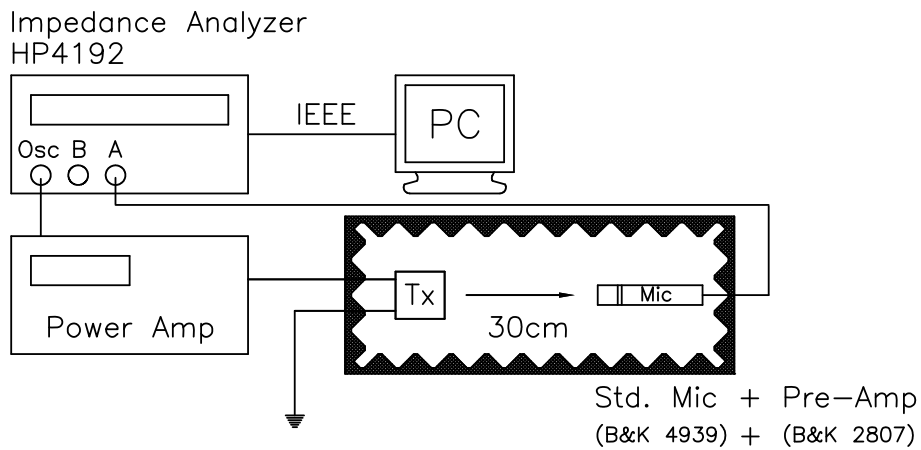
**This warranty covers only replacement. Any loss derived from failure or malfunction of the transducer, or cost to replace is excluded from this warranty.**

**Dimensions: unit mm**



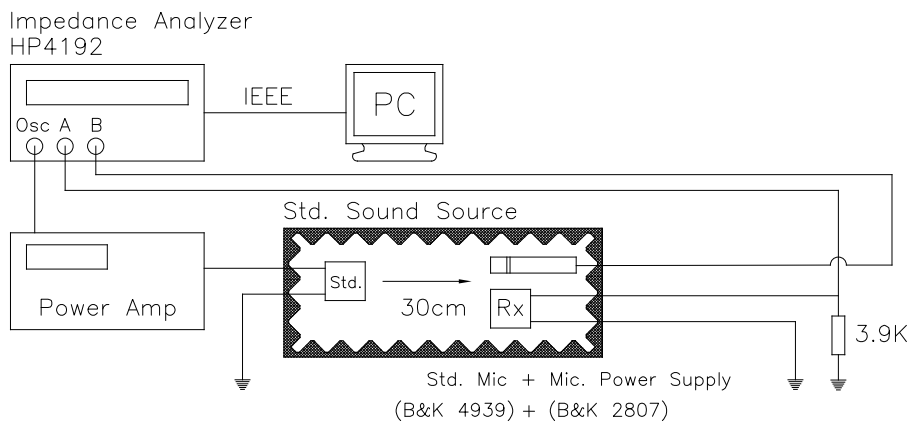
**Figure 1**

**Sound Pressure Level measuring system:**



**Figure 2**

**Sensitivity measuring system:**



**Figure 3**

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