

## 1 Scope

The IP67 compliant pulse / tone burst transducer is designed for echo ranging systems requiring a shorter ringing characteristic than standard type transducers.

## 2 Part Number

400EP25U, Pulse Transit Enclose Type Ultrasonic Transducer

## 3 Dimension

As per Figure 4

## 4 Specification

(rated at temperature  $25\pm3^{\circ}\text{C}$ , 45 to 60% RH, unless otherwise noted)

	Items	Specification	Remarks
4-1	Center Frequency	40.0KHz	$\pm 1.0\text{KHz}$
4-2	Sound Pressure Level	113dB (min)	at resonant frequency ; 0dB re $0.0002\mu\text{bar}$ per 10Vrms at 30cm 10Vrms sine wave input detail see attached Figure 1
4-3	Sensitivity	-68dB (min)	at resonant frequency; 0dB re 1Volt/ $\mu\text{bar}$ detail see attached Figure 2
4-4	Ringing	20mV (max)	at 1.7ms, detail see attached Figure 3 L 2nd wind of IFT sefs at 5.8mH
4-5	Bandwidth	2.5KHz (min)	-6dB (Figure Of Merit)
4-6	Capacitance	2800pF	$\pm 20\%$ , measured at 1KHz
4-7	Total Beam Angle	$37^{\circ}$ (TYP.)	-6dB main beam
4-8	Max. Driving Voltage	100Vp-p	20 bursts maximum, 30ms 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 belows
  - 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.

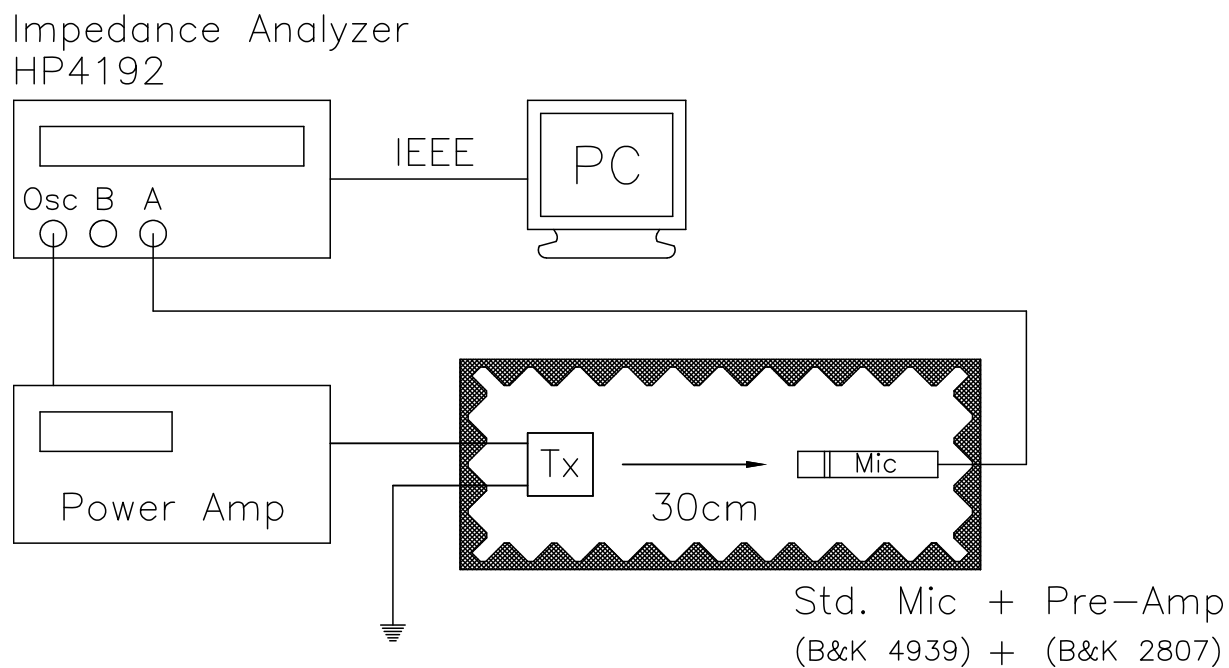
To push longitudinally 1.0 kgf min.

## **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.

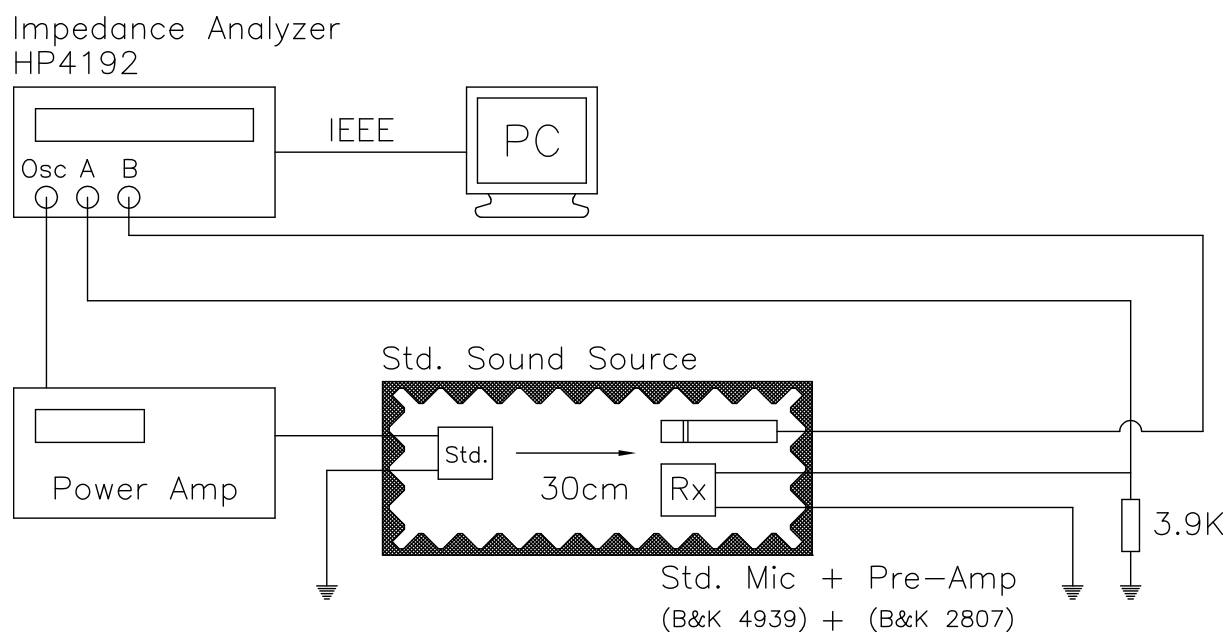
**This warranty covers only replacement. Any loss derived from failure or malfunction of the transducer, or cost to replace is excluded from this warranty.**

**Sound Pressure Level measuring system:**



**Figure 1**

**Sensitivity measuring system:**



**Figure 2**

### Echo Senitivity Test Circuit:

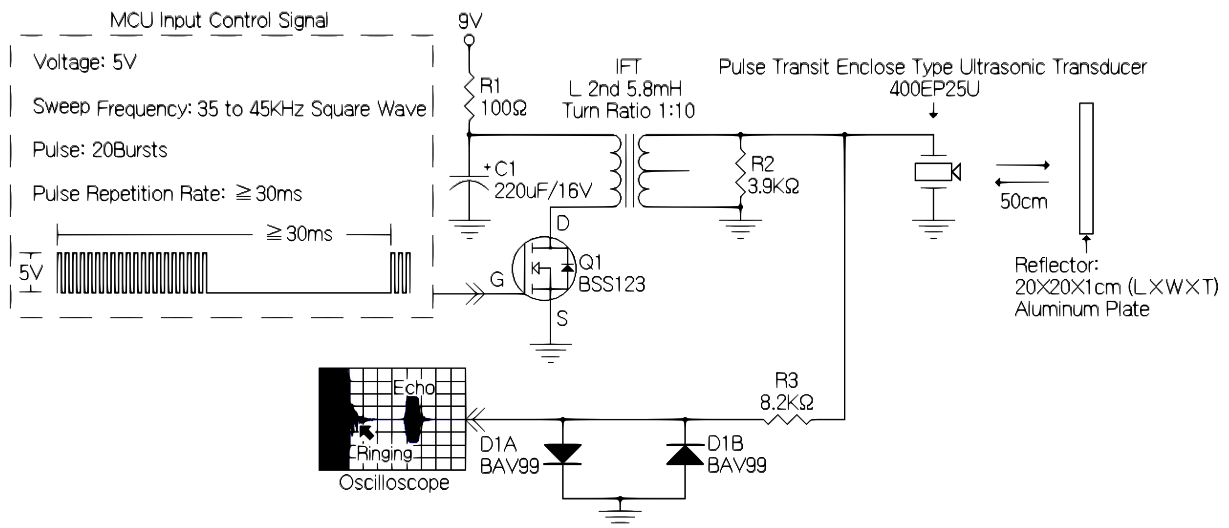


Figure 3

**Dimensions: unit mm**

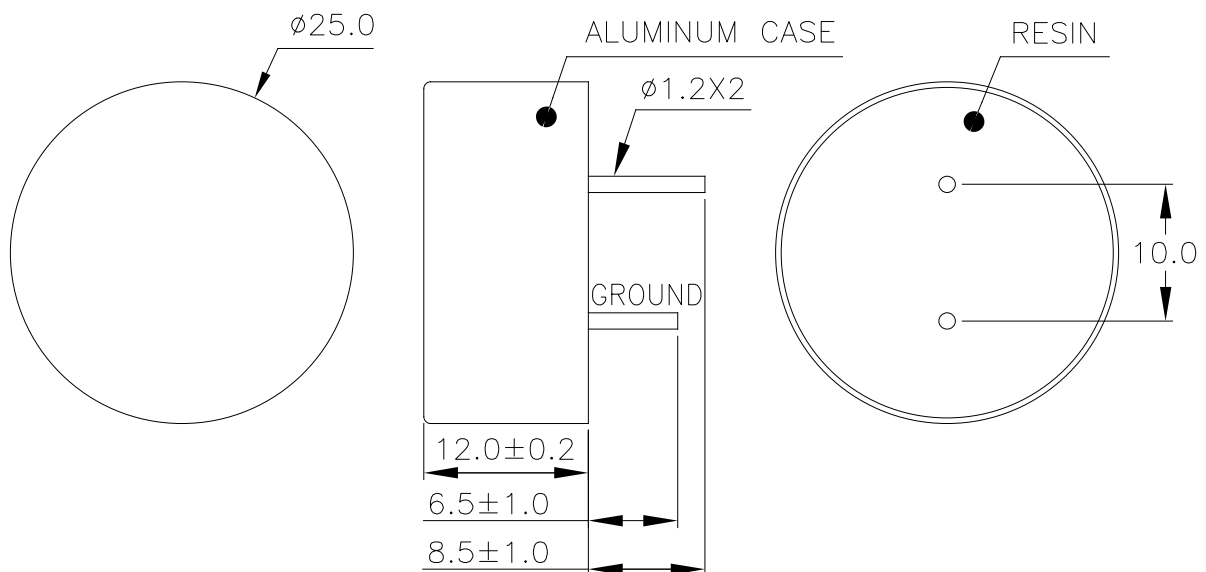


Figure 4

# Mouser Electronics

Authorized Distributor

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