

## Specification For Approval

Customer

Description            Open Type Air Ultrasonic Ceramic Transducers

Part Number            400PT10P

Issued Date            May 25 2015

Quantity

Version

Customer Ref. No.

Customer Approval Signature/Chop

Approved By	Checked By	Prepared By

**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**

400PT10P Open Type Air Ultrasonic Ceramic 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	40.0 $\pm$ 1.0KHz	
4-2	Ringing (max.)	60mV	At 1.7ms, detail see attached Figure 2
4-3	Sound Pressure Level	110dB (min)	At resonant frequency; 0dB re 0.0002 $\mu$ bar per 10Vrms at 30cm 10Vrms Sine Wave input Detail see attached Figure 3
4-4	Sensitivity	-69dB (min)	At resonant frequency; 0dB re 1Volt/ $\mu$ bar Detail see attached Figure 4
4-5	Bandwidth	1.5KHz (min)	-6dB
4-6	Capacitance	1800 $\pm$ 20%pF	Measured at 1KHz
4-7	Total Beam Angle	55 $^{\circ}$ $\pm$ 10 $^{\circ}$	-6dB
4-8	Max. Driving Voltage	100Vp-p	20 bursts maximum, 25ms repetition rate
4-9	Operation Temperature	-30 $^{\circ}$ to +70 $^{\circ}$ C	
4-10	Storage Temperature	-40 $^{\circ}$ to +80 $^{\circ}$ 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.
  - 5-3-5 Drop: After free drop from 1 meter height onto concrete floor, 3 times

## 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

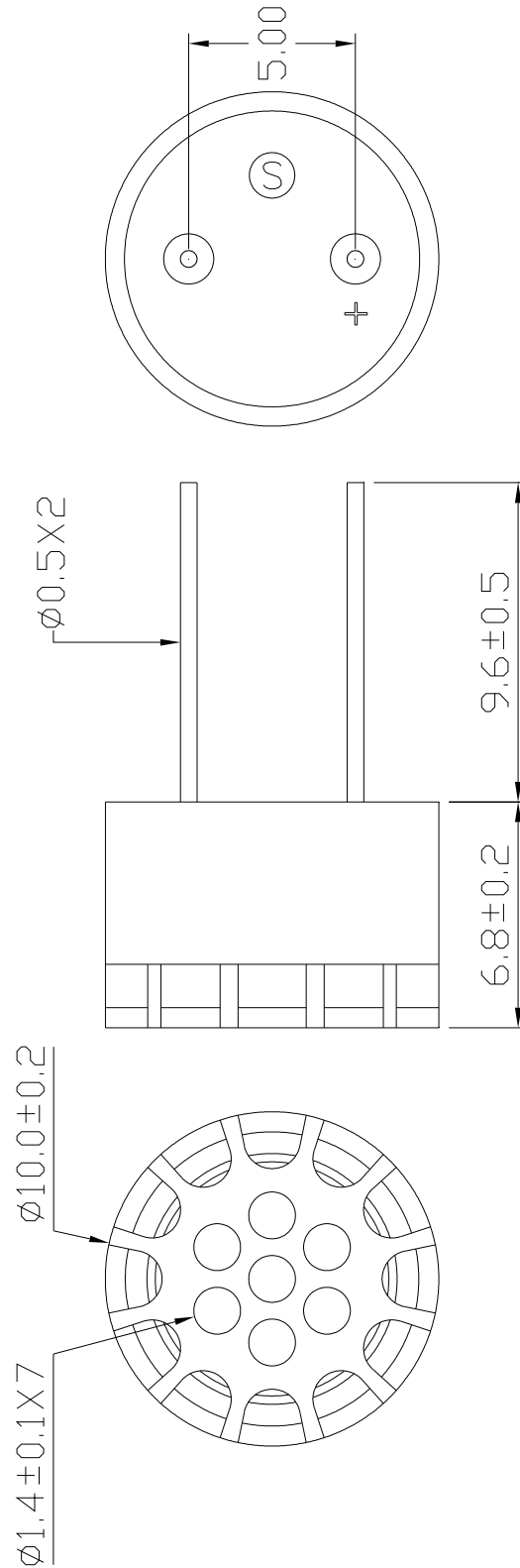


Figure 1

Test Circuit:

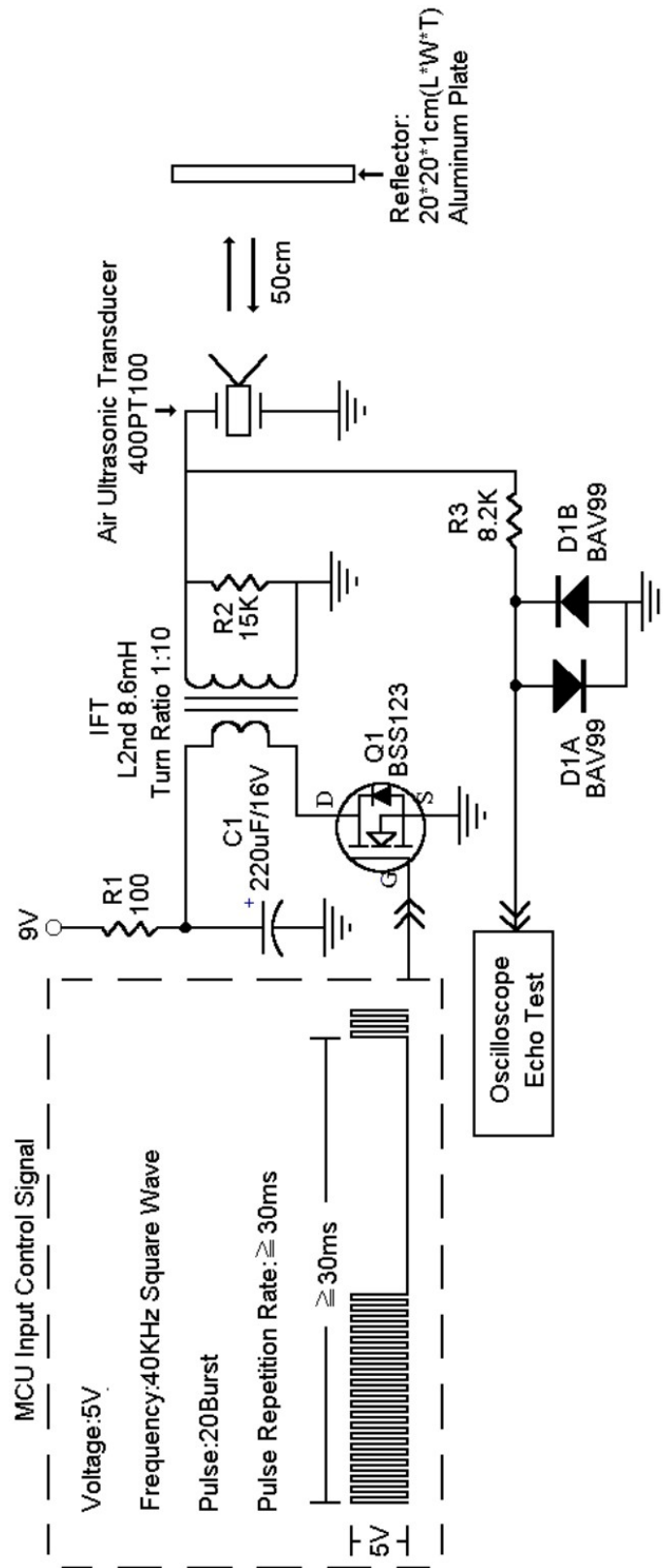


Figure 2

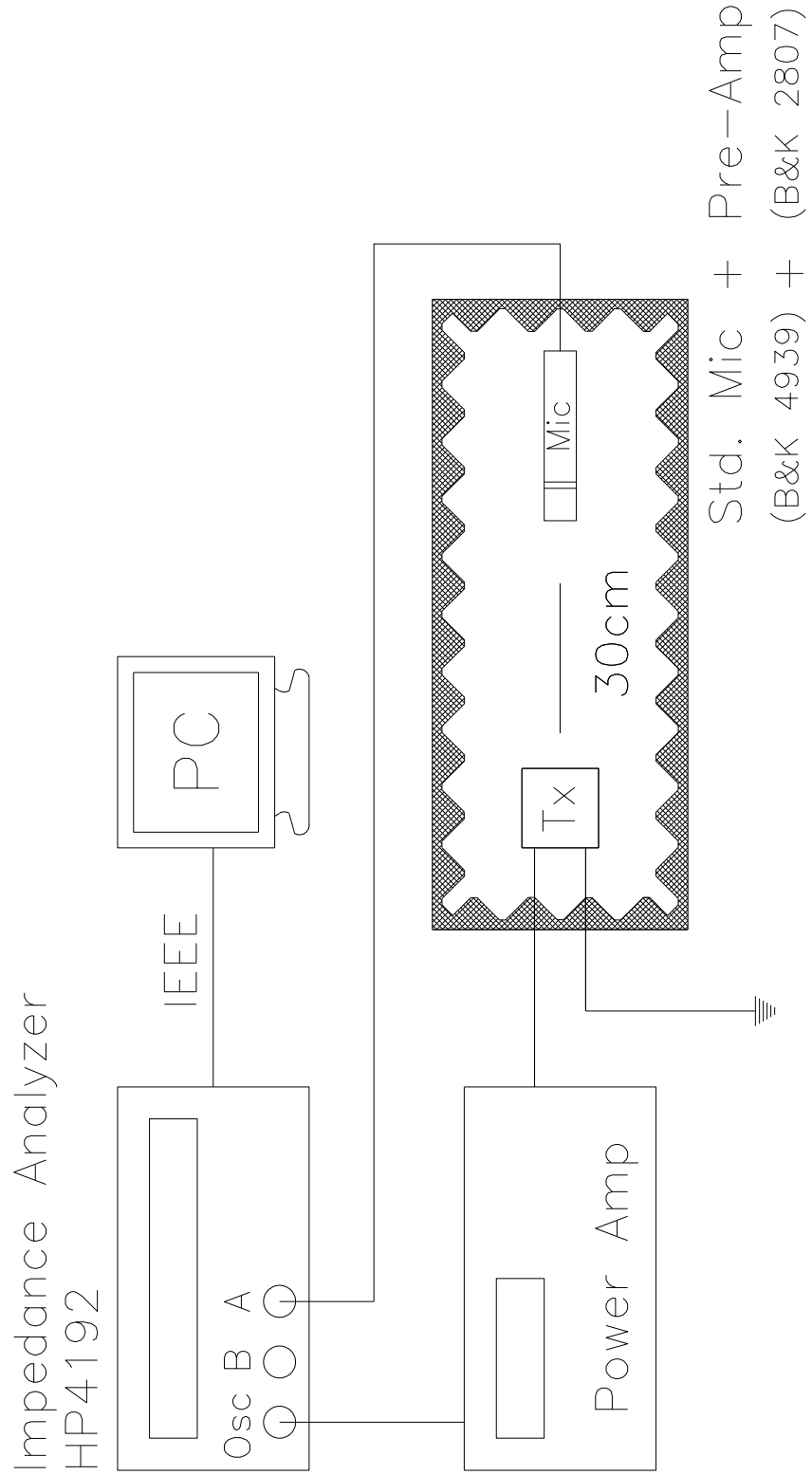


Figure 3