	<h1>Product Specification</h1>
<b>Model:</b> ISTO-P1640H12R	<b>RoHS</b>
<b>Revision:</b> original version	<b>Effective Date:</b> 2016-08-16
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## Revision

The first version.

## 1 Applications


Mainly used for ultrasonic ranging, smoke detector, parking system, robot R&D, liquid level measurement and so on.

## 2 Features

- 2.1 Receiver: "R" mark on housing
- 2.2 Compact and light weight
- 2.3 High sensitivity
- 2.4 Less power consumption
- 2.5 High reliability



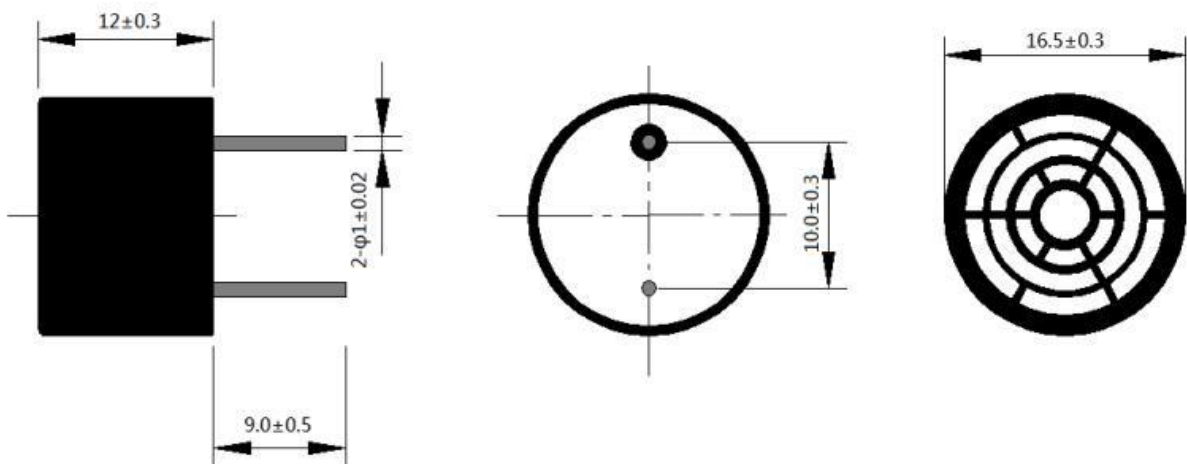
## 3 Technical Specifications

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Item	Value
Using method	Receiver
Nominal Frequency	40±1.0KHZ
Sensitivity	≥-68dBV/μMbar
Directivity	80deg
Capacitance	2200±20% @ 1KHz
Allowable input voltage	150Vp-p(39KHz)
Detectable range	0.2~18m
Operating Temperature	-20~ +70°C
Housing material	Plastic
Weight	2.0g

## 4 Mechanical Drawing

units:mm



## 5 Beam Pattern



## Product Specification

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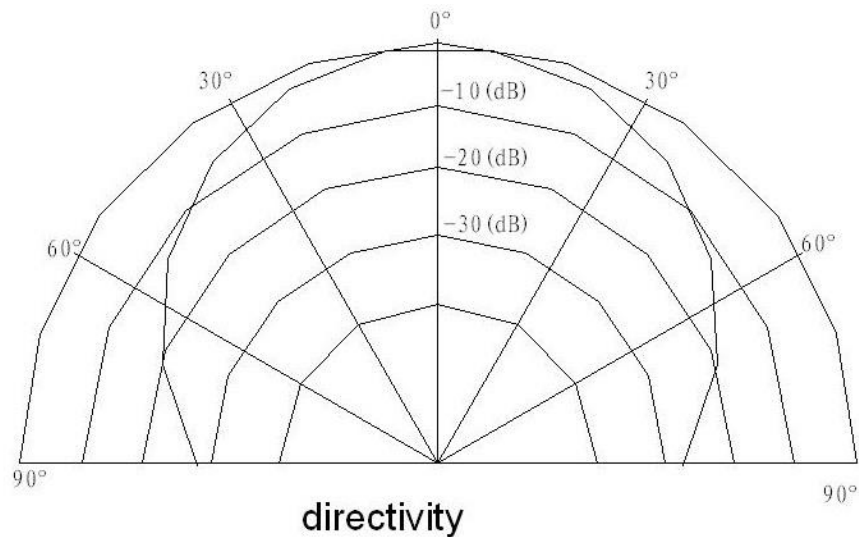
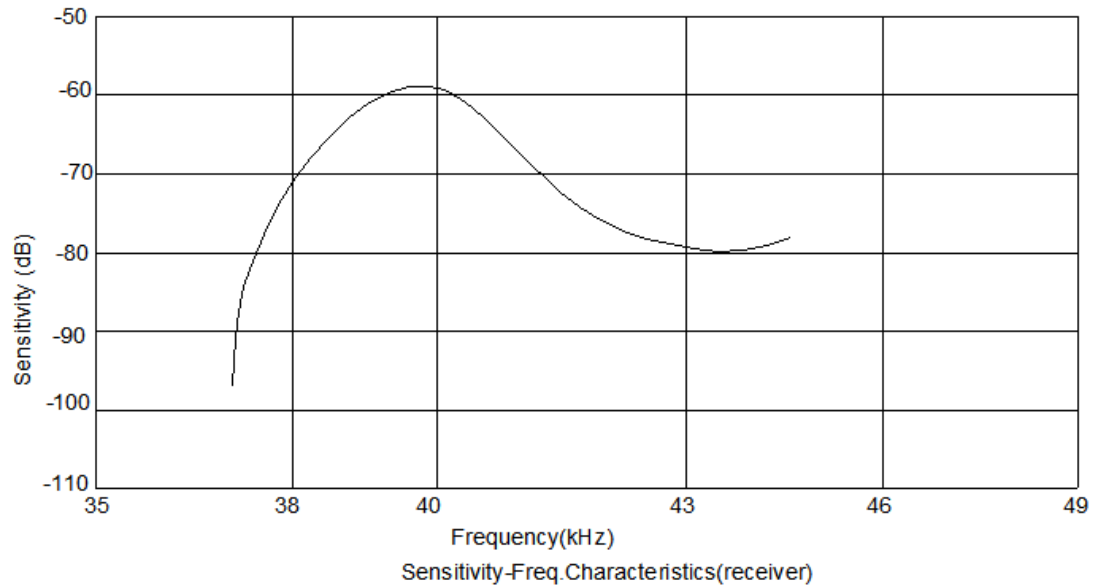
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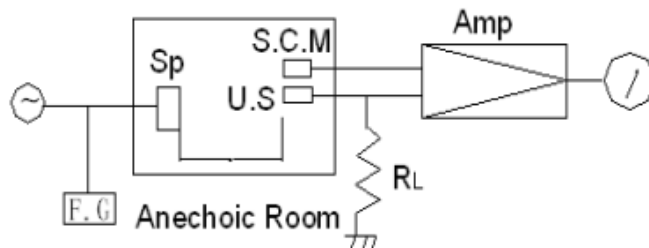
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## 6 Test Circuit

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## Receiver



RL: 3.9K $\Omega$

U.S :Ultrasonic Sensor

S.C.M:Standard Cappable Microphone

Amp. :Amplifier


OSC. :Oscillator

Sp :Tweeter

F.C :Frequency Counter

## 7 Reliability Test

- |  |                                |
|--|--------------------------------|
| 7.1 High Temp. Life Test   |                                |
| Temperature  | +85 $\pm$ 3 $^{\circ}$ C       |
| Duration   | 100 hrs                        |
| 7.2 Low Temp. Life Test  |                                |
| Temperature  | -40 $\pm$ 3 $^{\circ}$ C       |
| Duration   | 100 hrs                        |
| 7.3 Heat Cycle Test  |                                |
| Temperature  | +85 $\pm$ 3 $^{\circ}$ C 1hour |
|  | -40 $\pm$ 3 $^{\circ}$ C 1hour |
| Cycles   | 10 cycles                      |
| 7.4 Humidity Test  |                                |
| Temperature  | +60 $\pm$ 2 $^{\circ}$ C       |
| Relative Humidity  | 90~95%                         |
| Duration   | 100 hrs                        |
| 7.5 Vibration Test   |                                |
| Vibration Frequency  | 10~55Hz                        |
| Sweep Period   | 1.5 min                        |
| Direction  | x,y&z                          |
| Time   | 2 hours/direction              |
| 7.6 Shock Test   |                                |
| Acceleration   | sine 100G                      |
| Direction  | x,y&z                          |
| Shock Time   | 3 times/direction              |
| 7.7 Drop Test  |                                |
| Height   | 1 m on concrete floor          |
| Times  | 2 times                        |
| 7.8 Connector Soldering Check:   |                                |
| Immersing terminal up to 1mm below in soldering bath at 260 $^{\circ}$ C | 10                             |

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Seconds.

Notice:

The variation of the sensitivity at 40KHz is within 2dB compared with initial figures at 25°C in 24 hours after above test conditions.

## 8 Caution in Use

8.1 Please avoid applying an excessive stress to the transducer because it might be damaged.

8.2 The transducer may generate surge voltage by mechanical or thermal shock. Care should be taken to protect from it in designing your application circuit.

8.3 Please do not apply DC voltage to the transducer.

8.4 Please do not use the transducer in water.

8.5 The piece of sensor may be damaged by force pressure from back of sensor.

8.6 Please well evaluate the painting and electrical characteristic for your coating.


8.7 When used to distinguish between positive and negative.

## 9 Note

9.1 Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

9.2 You are requested not to use our product deviating from the agreed specifications.

9.3 We consider it not appropriate to include any terms and conditions with regard to the business transaction in the product specifications, drawings or other technical documents.

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## 10 Packaging Details

