	<h1>Product Specification</h1>
Model: MDO-A1640H12R	RoHS
Revision: original version	Effective Date: 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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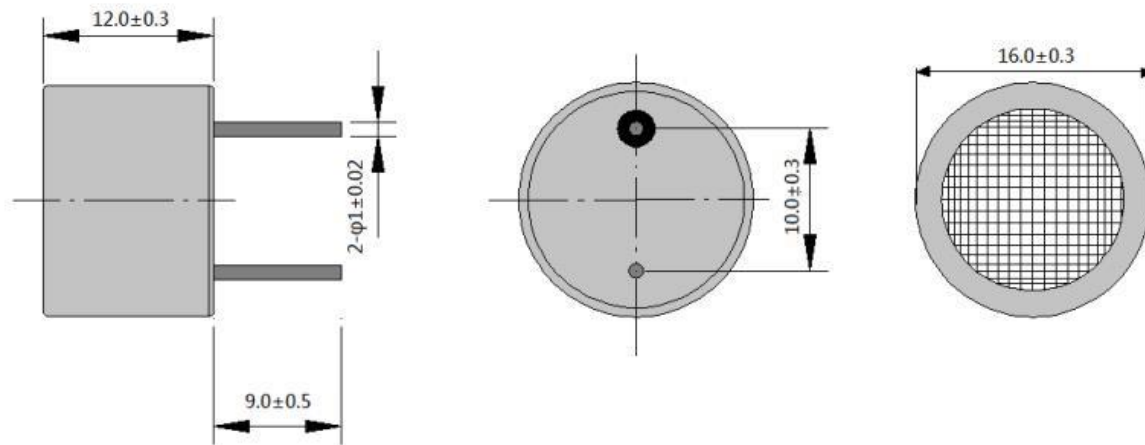
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Item	Value
Using method	Receiver
Nominal Frequency	40±1.0KHZ
Sensitivity	≥-68dBV/μMbar
Directivity	80deg
Capacitance	2200±20% @ 1KHz
Allowable input voltage	150Vp-p(39KHz)
Detectable range	0.2~18m
Operating Temperature	-20~ +70°C
Housing material	Aluminum
Weight	2.31g

4 Mechanical Drawing

units:mm



5 Beam Pattern



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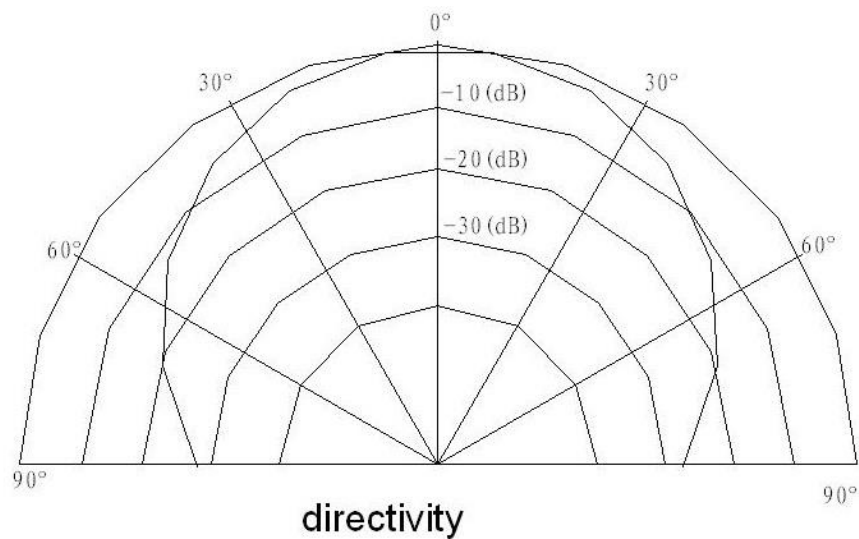
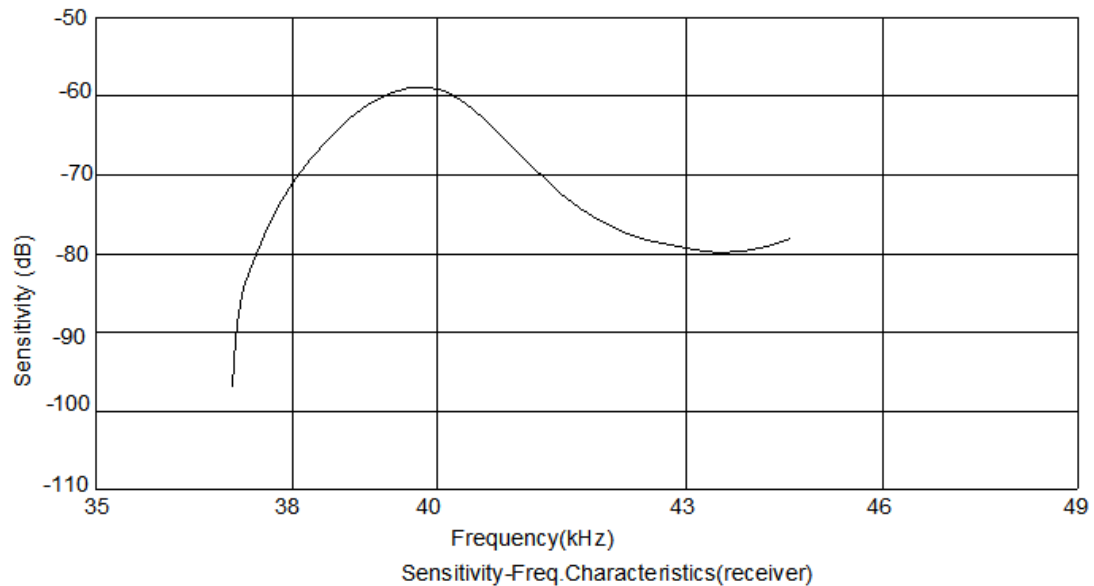
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6 Test Circuit



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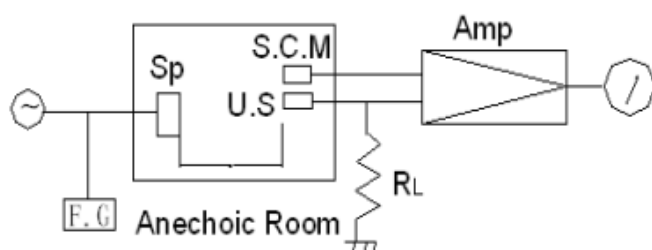
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Receiver



RL: 3.9K Ω

U.S.: Ultrasonic Sensor

S.C.M.: Standard Capacitor Microphone

Amp.: Amplifier

OSC.: Oscillator

Sp.: Tweeter

F.C.: Frequency Counter

7 Reliability Test

7.1 High Temp. Life Test

Temperature

$+85 \pm 3^{\circ}\text{C}$

Duration

100 hrs

7.2 Low Temp. Life Test

Temperature

$-40 \pm 3^{\circ}\text{C}$

Duration

100 hrs

7.3 Heat Cycle Test

Temperature

$+85 \pm 3^{\circ}\text{C}$ 1hour

$-40 \pm 3^{\circ}\text{C}$ 1hour

Cycles

10 cycles

7.4 Humidity Test

Temperature

$+60 \pm 2^{\circ}\text{C}$

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:



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Immersing terminal up to 1mm below in soldering bath at 260℃ 10
Seconds.

Notice:

The variation of the sensitivity at 40KHz is within 2dB compared with
initial figures at 25℃ 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

