

PIEZO ULT RASONIC SENSOR

Part Number: VT-US40D1401

Applications

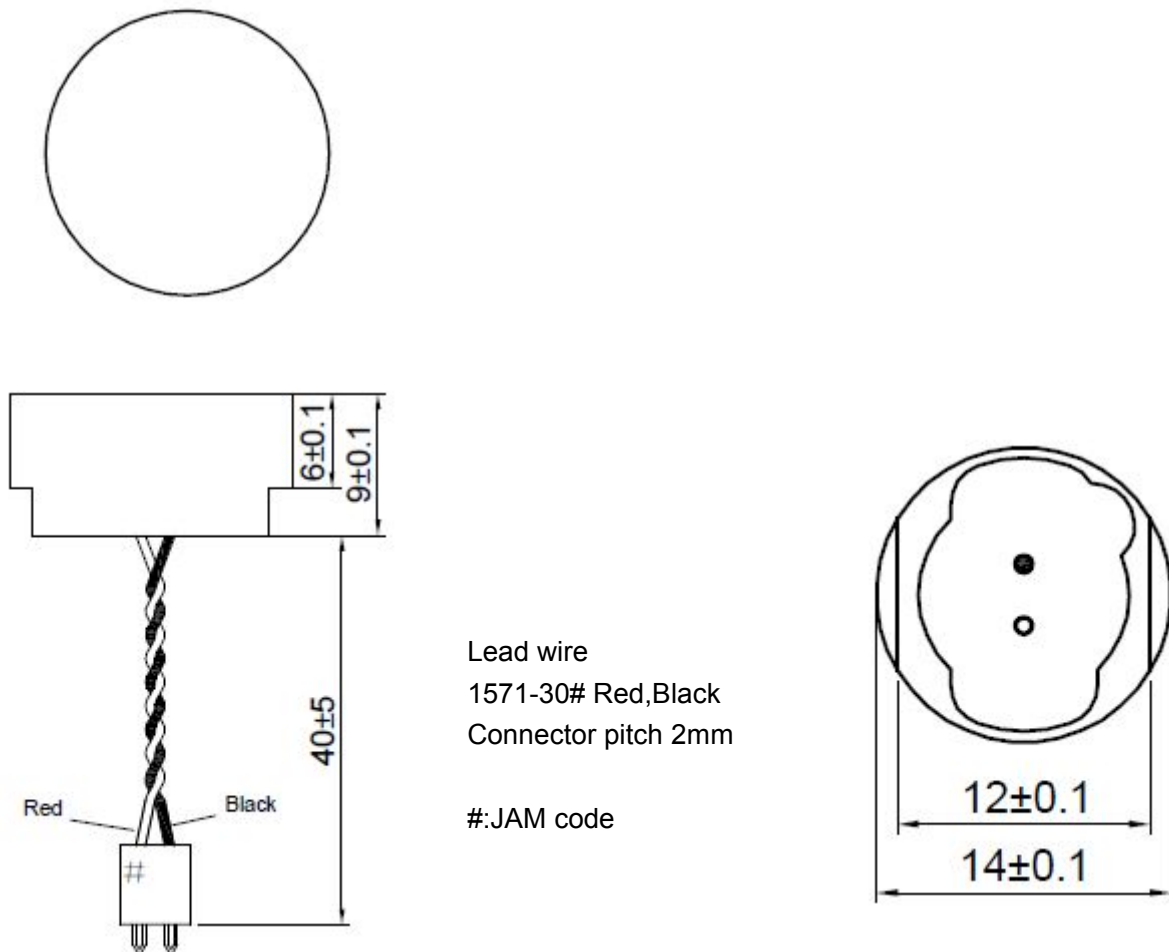
This specification covers the water proof type ultrasonic ceramic transducer which are used for ultrasonic ranging and parking sensor of automobile.

Features

- 2.1) Water proof and dual use
- 2.2) Compact and light weight.
- 2.3) High sensitivity and sound pressure.
- 2.4) Less power consumption
- 2.5) High reliability



1.Dimension (Unit: mm)



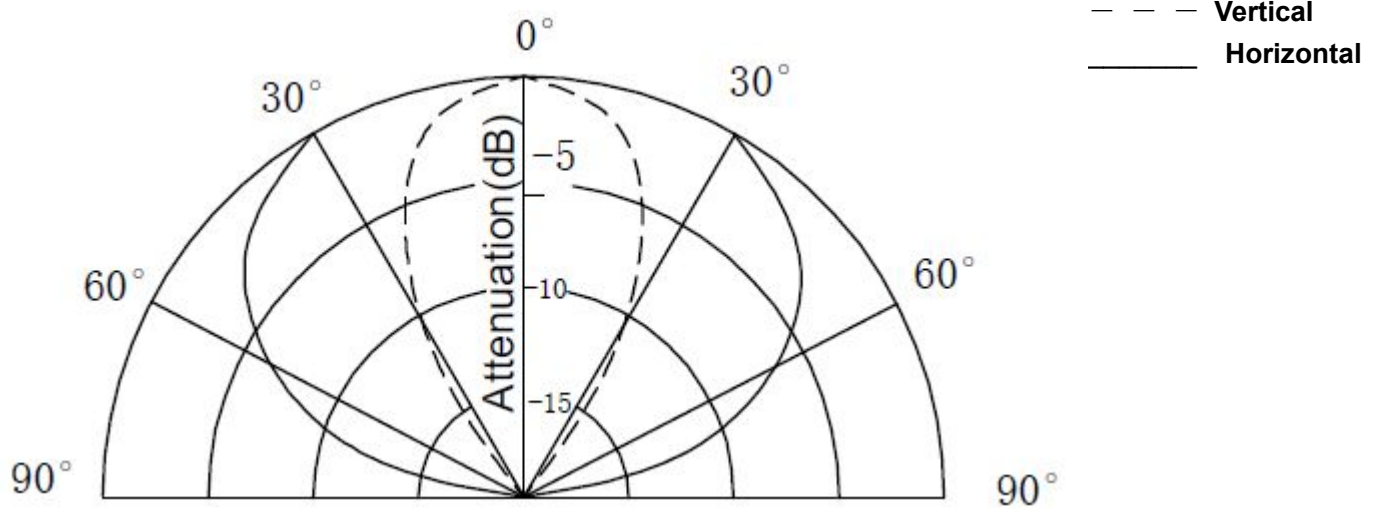
Lead wire
1571-30# Red,Black
Connector pitch 2mm

#:JAM code

2.Electrical Characteristics

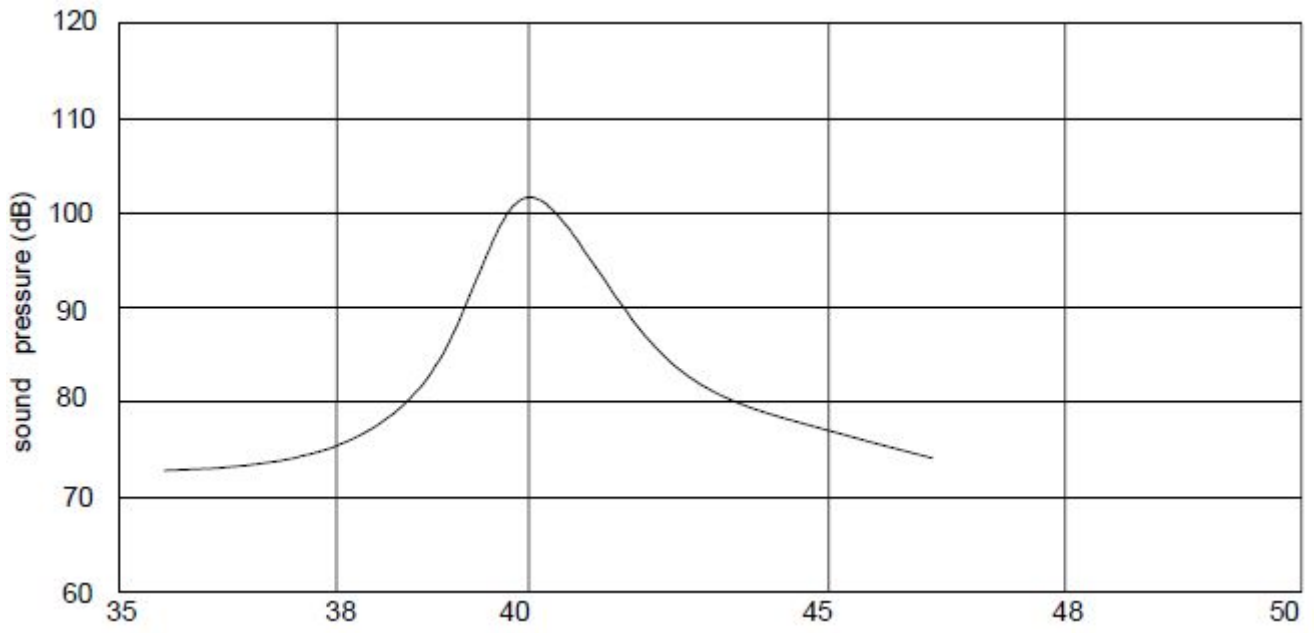
No.	Item	Unit	Specifications
1	Construction		Water Proof
2	Using Method		Dual Use
3	Center Frequency	Khz	40±1khz
4	Sound Pressure Level	dB	≥97(30cm/10Vrms)
5	Sensitivity	dB	≥-75dB /V/ μ bar
6	Echo Pulse Width	us	≥360us(at 1.2m)
7	Ringing Time	ms	≤1.72ms
8	Capacitance	pF	2100pF±25% at 1KHz
9	Directivity	°	110×50deg
10	Operating Tem.Range	°C	-40 to +85°C
11	Storage Tem.Range	°C	-40 to +85°C
12	Allowable Input Voltage	Vp-p	160Vp-p
13	Housing Material		Aluminum

3.Directivity

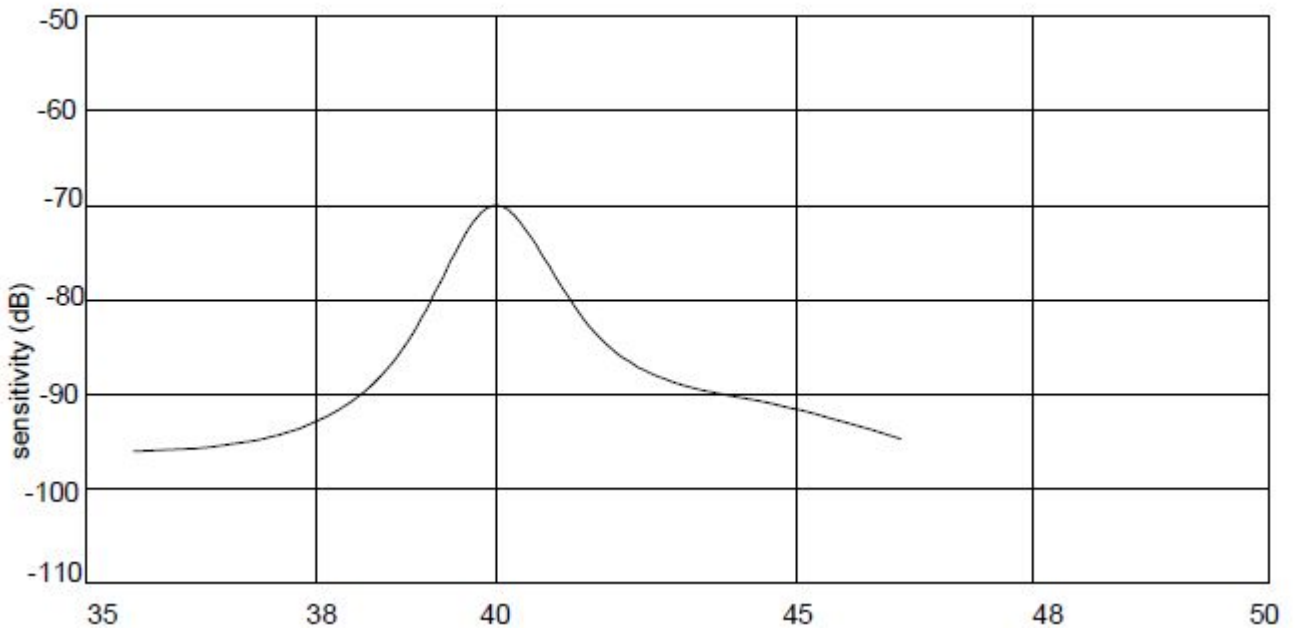


Directivity in Overall Sensitivity

4. Beam pattern



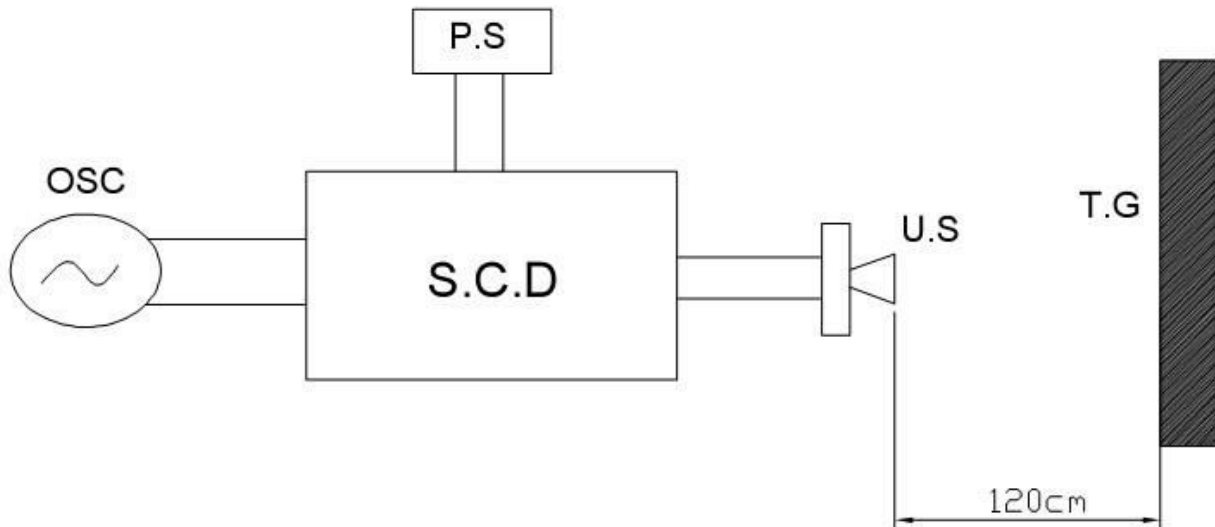
Frequency(KHZ)
SP-Freq.Characteristic



Frequency(KHZ)
Sensitivity-Freq.Characteristics

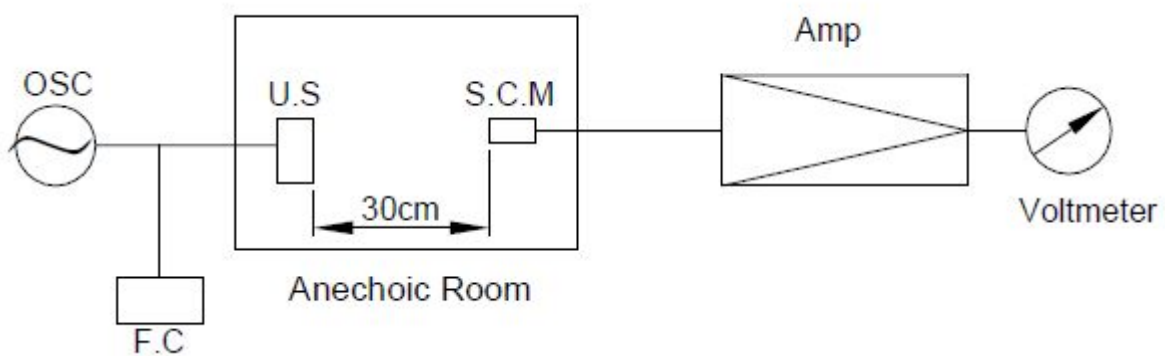
5. Test circuit

Echo&Resonant Time test circuit



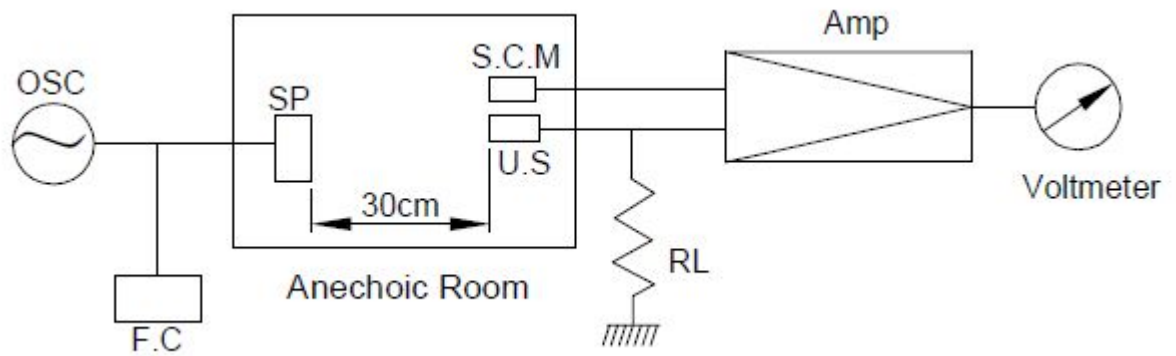
OSC:Oscillator
P.S:Power supply
S.C.D:Special circuit diagram
U.S :Ultrasonic Sensor
T.G:Target

S.P.L test circuit



OSC. :Oscillator
F.C :Frequency Counter
U.S :Ultrasonic Sensor
S.C.M:Standard Cappacitor Microphone
Amp.:Amplifier

Sensitivity test circuit



- OSC.:Oscillator
- F.C :Frequency Counter
- U.S :Ultrasonic Sensor
- S.C.M:Standard Cappacitor Microphone
- Amp.:Amplifier
- SP:Tweeter
- RL:3.9KΩ

6. Reliability Test

6.1 High temp. life test

Temperature	+ 85±3°C
Duration	500hrs

6.2 Low temp. life test

Temperature	-40±3°C
Duration	500hrs

6.3 Heat Cycle Test

Temperature	+ 85±3°C 1hour -40±3°C 1hour
Cycles	100cycles

6.4 Humidity Test

Temperature	+65±2°C
Relative Humidity	90~95%
Duration	500hrs

6.5 Vibration Test

Vibration Frequency	10~ 200Hz
Sweep Period	1 5min
Acceleration	43.12m/s ² (4.4G)
Direction	3(x.y&z)
Time	96hours/direction

6.6 Shock test

Acceleration	sine 980 m/s ² (100G)
Direction	3directions
Shock time	3 time/directions

6.7 Drop test

Height	1m onto concrete floor
Times	10 times

6.8 Connector soldering check:

Immersing terminal up to 1mm below base in soldering bath at 260 °C 10seconds

Notice:

The variation of the S.P.L at 40 kHz is within 3dB compared with initial figures at 25°C in 2 4 hours after above test condition.

7. Notice

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7.2 Please contact our sales representatives or product engineers before using the products in the specification or catalogue for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this specification.

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- b) Undersea equipment and Power plant equipment
- c) Medical equipment and Transportation equipment (vehicles, trains, ships, etc.)
- d) Traffic signal equipment i Disaster prevention / crime prevention equipment
- e) Data-processing equipment including Application of similar complexity and/or reliability requirements to the applications listed above

7.3 Product specifications and catalogues are subject to change and our products in them may be discontinued without advance notice.

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7.6 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.