

## PIEZO ULT RASONIC SENSOR

Part Number: VT-US40D1604



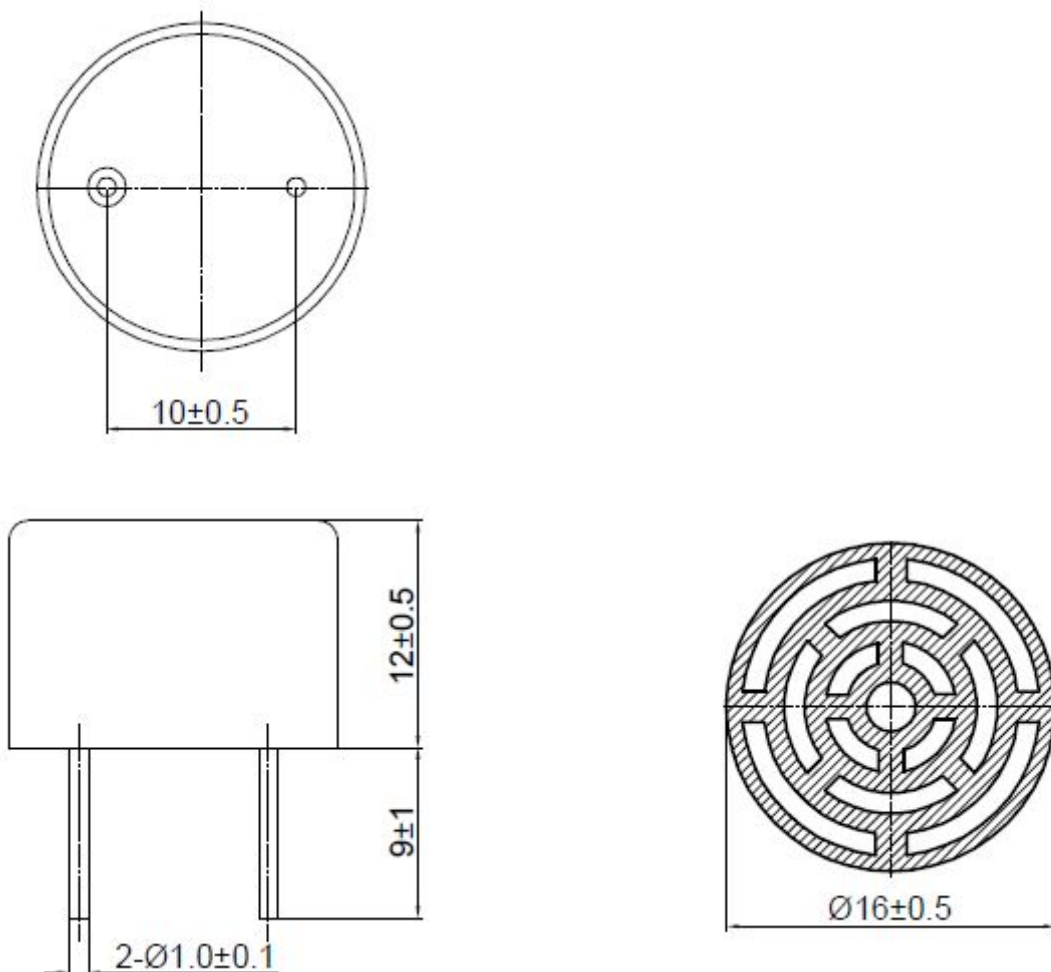
### Applications

Burglar alarms, Range finds, Automatic doors, Remote control.

### Features

- 2.1) Open Structure and fission
- 2.2) Compact and light weight
- 2.3) High sensitivity and sound pressure
- 2.4) Less power consumption
- 2.5) High reliability

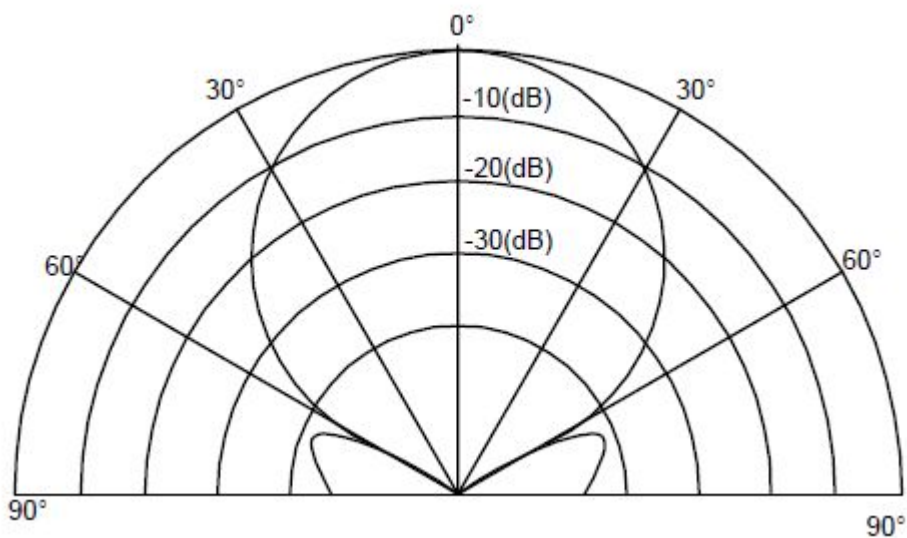
1.Dimension (Unit: mm)



## 2.Electrical Characteristics

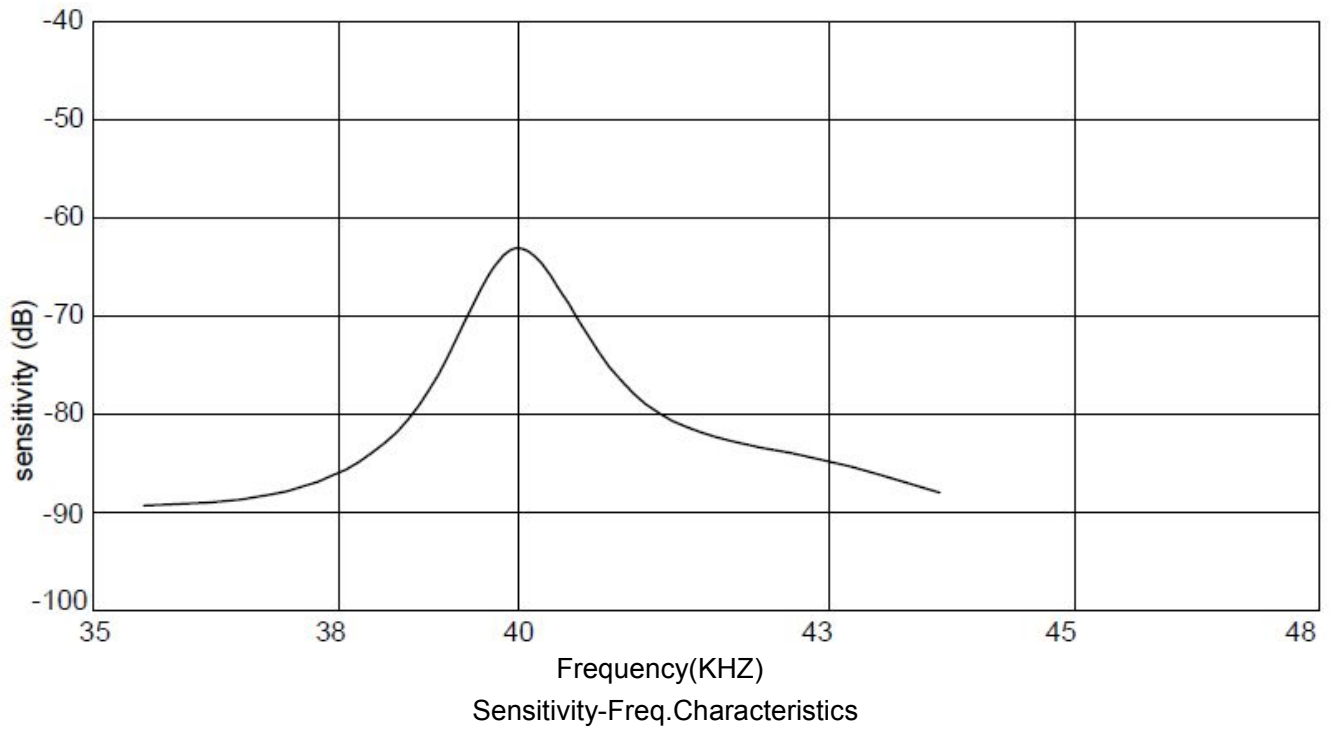
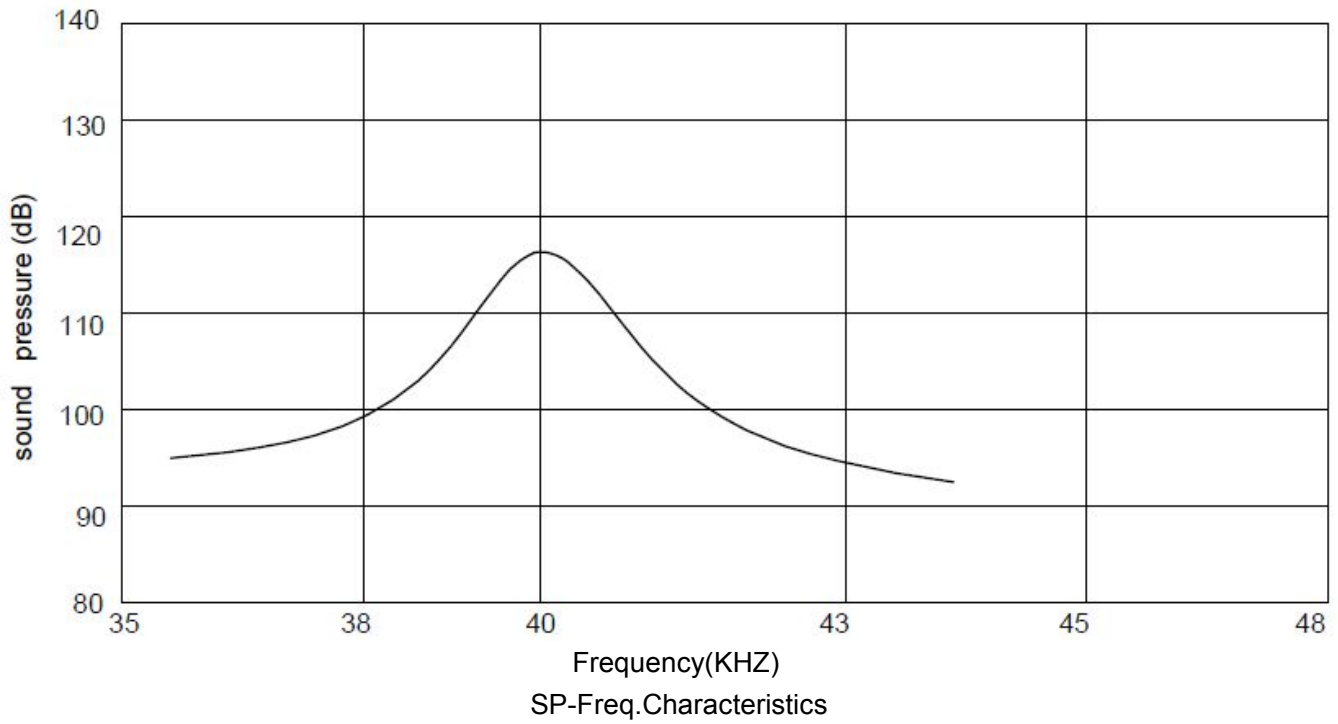
No	Item	Unit	Specifications
1	Construction		Open Structure
2	Using Method		Dual Use
3	Center Frequency	Khz	40±1khz
4	Sound Pressure Level	dB	min.110dB(40.0KHZ)0dB=0.0002 μbar
5	Sensitivity	dB	min.-65dBdB /V/ μ bar
6	Capacitance	pF	2500pF±25% at 1KHz
7	Directivity	°	50deg
8	Operating Tem.Range	°C	-35 to +85°C
9	Storage Tem.Range	°C	-35 to +85°C
10	Detectable Range	m	0.7...18m
11	Allowable Input Voltage	Vp-p	60Vp-p
12	Housing Material		ABS

## 3.Directivity

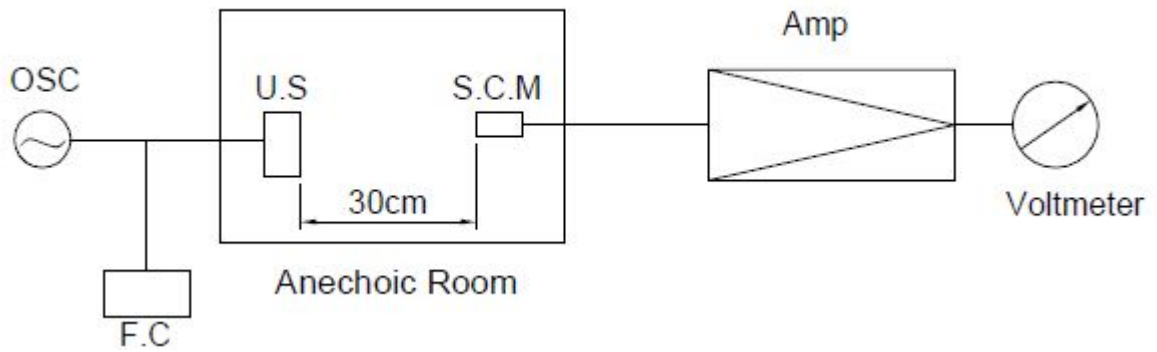


Directivity in Overall Sensitivity

4.Beam pattern



5. Test circuit



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

## 6. Reliability Test

### 6.1 High temp.life test

Temperature	+85±3 °C
Duration	100hrs

### 6.2 Low temp.life test

Temperature	-40±3 °C
Duration	100hrs

### 6.3 Heat Cycle Test

Temperature	+85±3 °C 1hour
	-40±3 °C 1hour
Cycles	10cycles

### 6.4 Humidity Test

Temperature	+60±2 °C
Relative Humidity	90~95%
Duration	100hrs

Tests above should be measured after leaving normal temperature for 24hrs

### 6.5 Vibration Test

Vibration Frequency	10~55Hz
Sweep Period	1min
Amplitude(peak to peak)	1.5mm
Direction	3(x,y&z)
Time	2hours/direction

### 6.6 Shock test

Acceleration	sine 100G
Direction	3directions
Shock time	3 time/directions

### 6.7 Drop test

Height	1m on concrete floor
Times	2times

### 6.8 Connector soldering check:

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

Notice:

The variation of the S.P.L or the sensitivity at 40KHz is within 3dB compared with initial figures at 25 °C in 24 hours after above test condition.

## 7. Caution

### 7.1 Limitation of Applications

Please contact us before using our product for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

- 1) Aircraft equipment
- 2) Aerospace equipment
- 3) Undersea equipment
- 4) Power plant control equipment
- 5) Medical equipment
- 6) Transportation equipment (vehicles, train, ships, etc.)
- 7) Traffic signal equipment
- 8) Disaster prevention/crime prevention equipment
- 9) Data-processing equipment
- 10) Application of similar complexity and/or reliability requirement to the applications listed in the above

### 7.2 Fail -safe

Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure of our product

## 8. Caution in use

- 1) Please avoid applying an excessive stress to the transducer because it might be damaged.
- 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.
- 3) Please do not apply DC voltage to the transducer.
- 4) Please do not use the transducer in water.
- 5) The piece of sensor may be damaged by force pressure from back of sensor.
- 6) Please do not use the sensor without painting on the surface.
- 7) Please well evaluate the painting and electrical characteristic for your coating.

## 9. Note

- 1) Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
- 2) You are requested not to use our product deviating from the agreed specifications.
- 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. Therefore, if your technical documents as above include such terms and conditions such as warranty clause, product liability clause, or intellectual property infringement liability clause, they will be deemed to be invalid