

PIEZO ULT RASONIC SENSOR

Part Number: VT-US58D1401

Applications

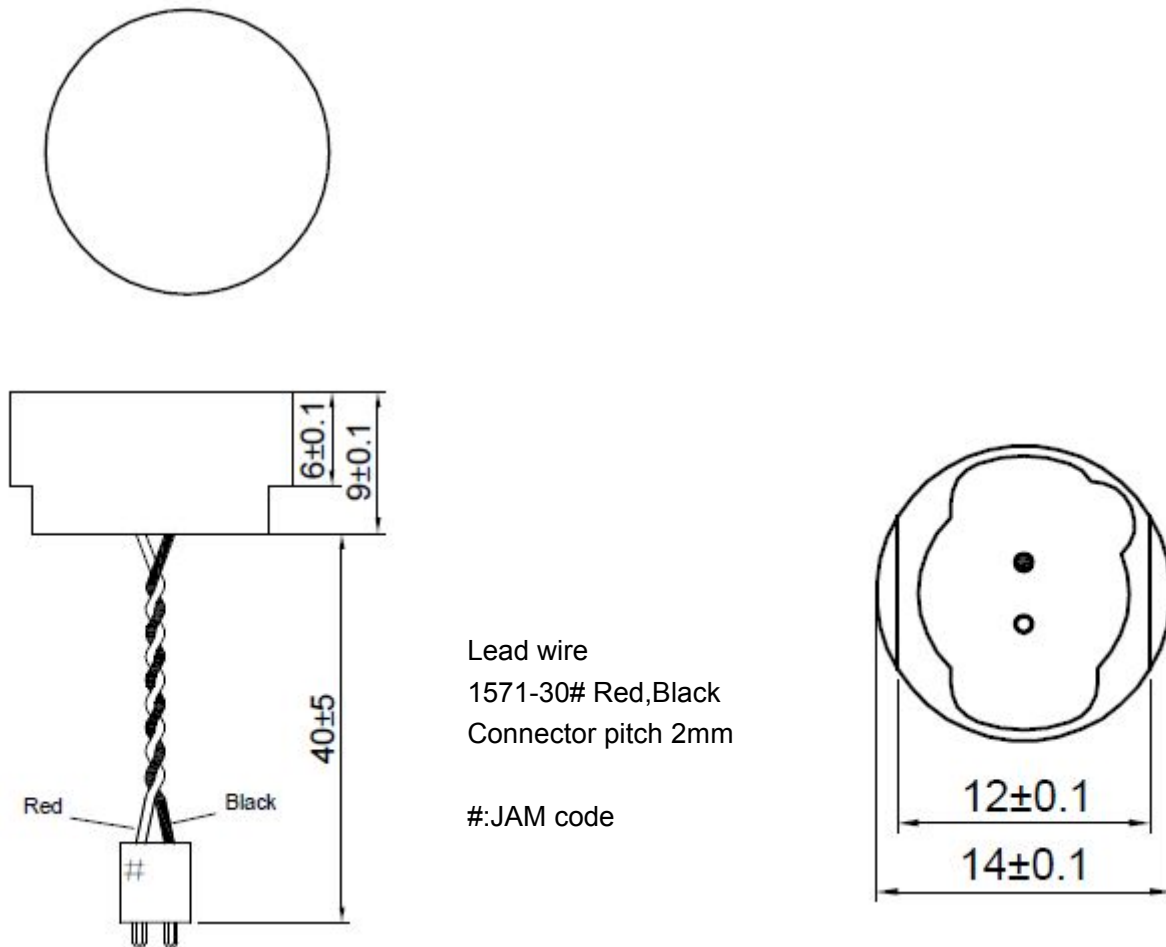
This specification covers the water proof type ultrasonic ceramic transducer which are used for ultrasonic ranging and parking sensor of automobile.

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)



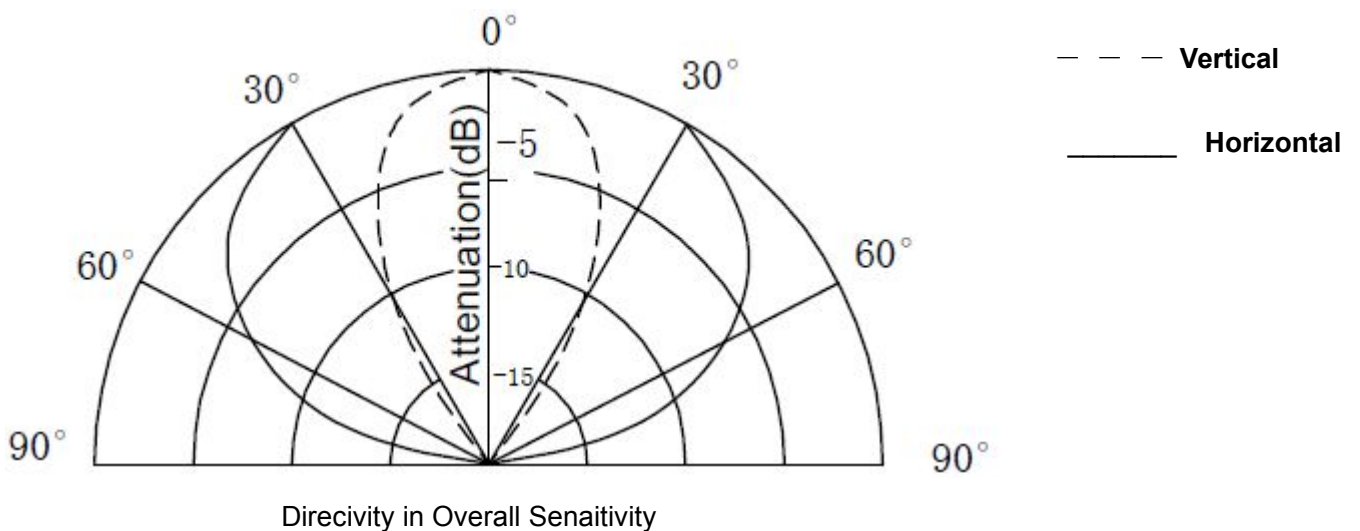
Lead wire
1571-30# Red,Black
Connector pitch 2mm

#:JAM code

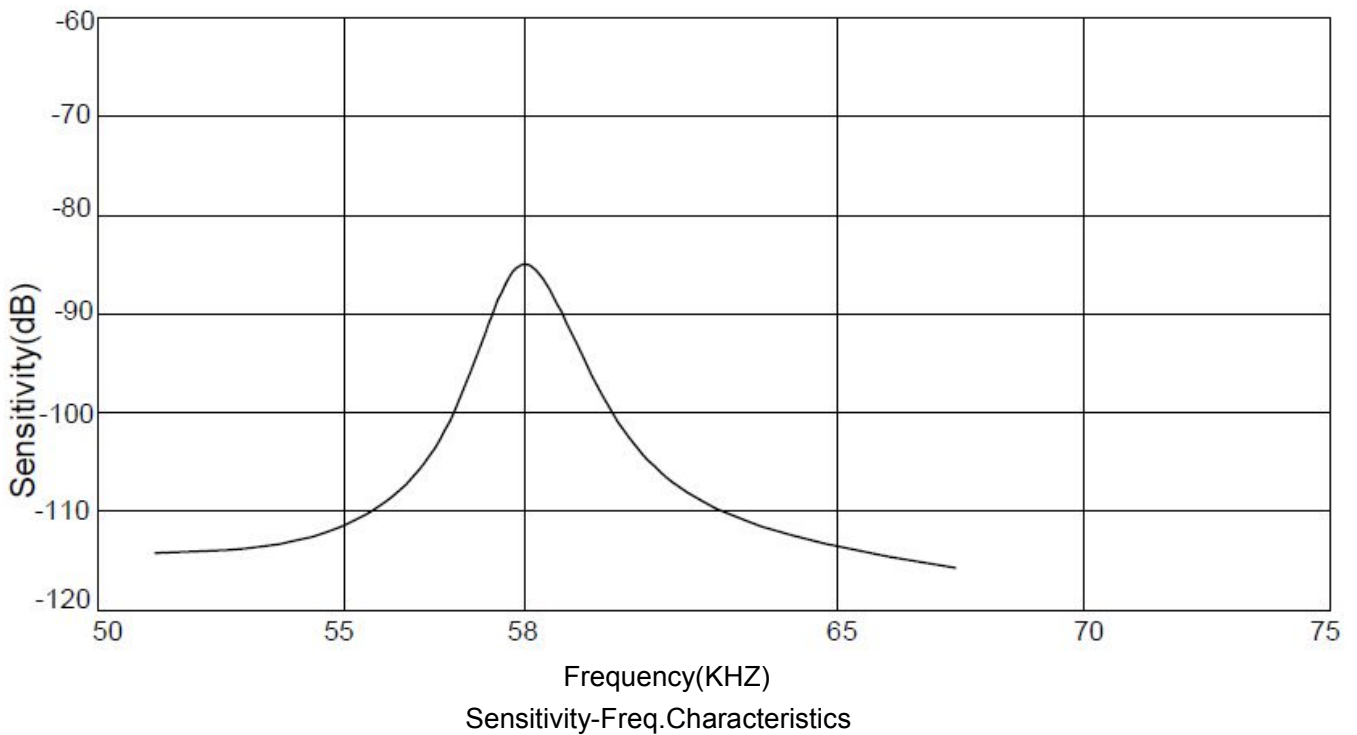
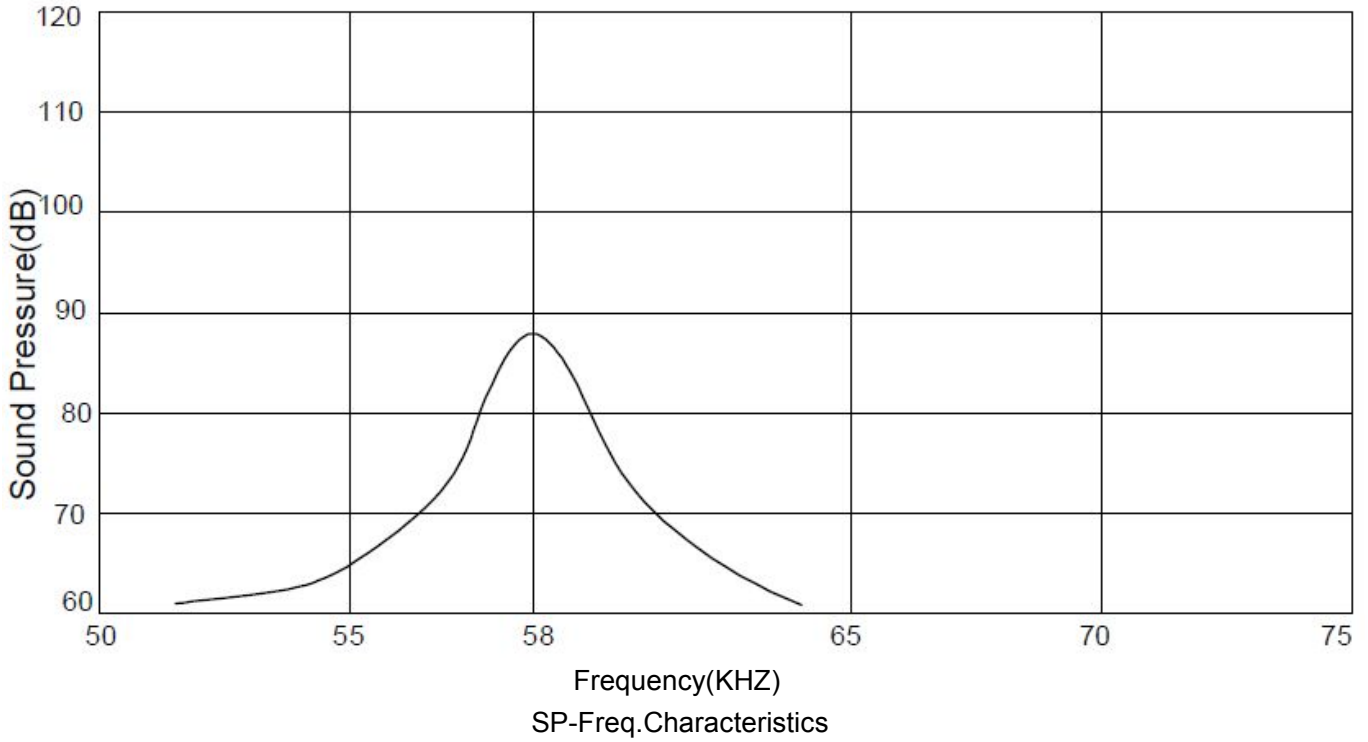
2.Electrical Characteristics

No.	Item	Unit	Specifications
1	Construction		Water Proof
2	Using Method		Dual Use
3	Center Frequency	Khz	58±1khz
4	Sound Pressure Level	dB	≥85(30cm/10Vrms)
5	Sensitivity	dB	≥-90dB /V/ μ bar
6	Echo Pulse Width	us	≥200(at 1.5cm)
7	Ringing Time	ms	≤1.6ms
8	Capacitance	pF	2000pF±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

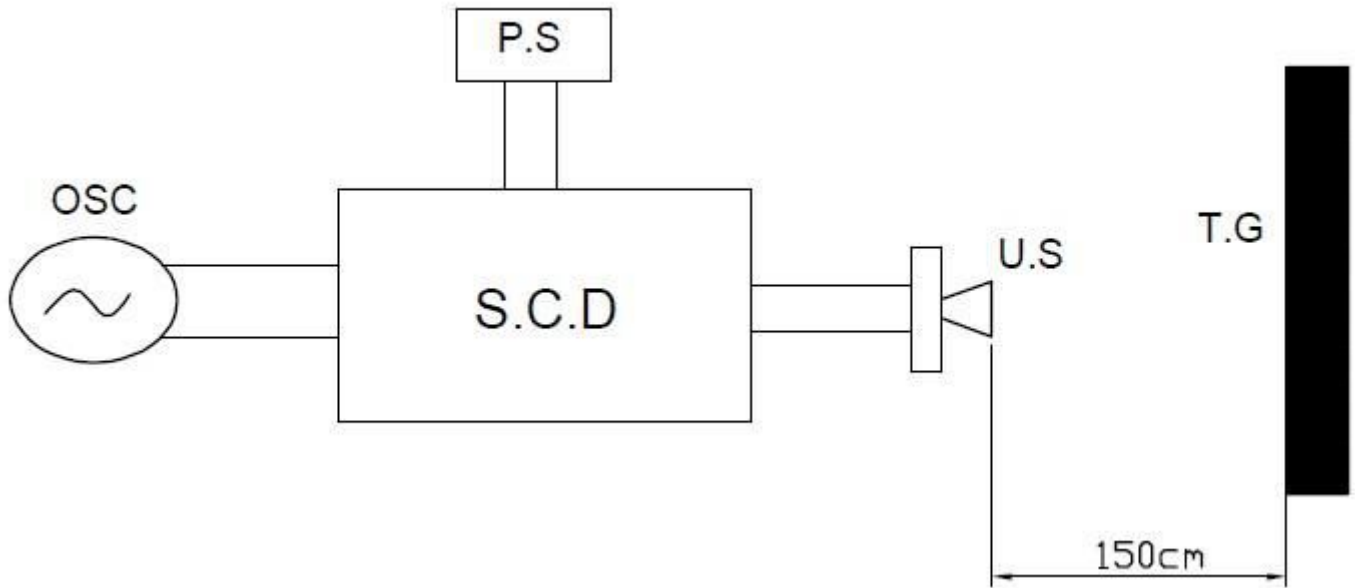


4. Beam pattern



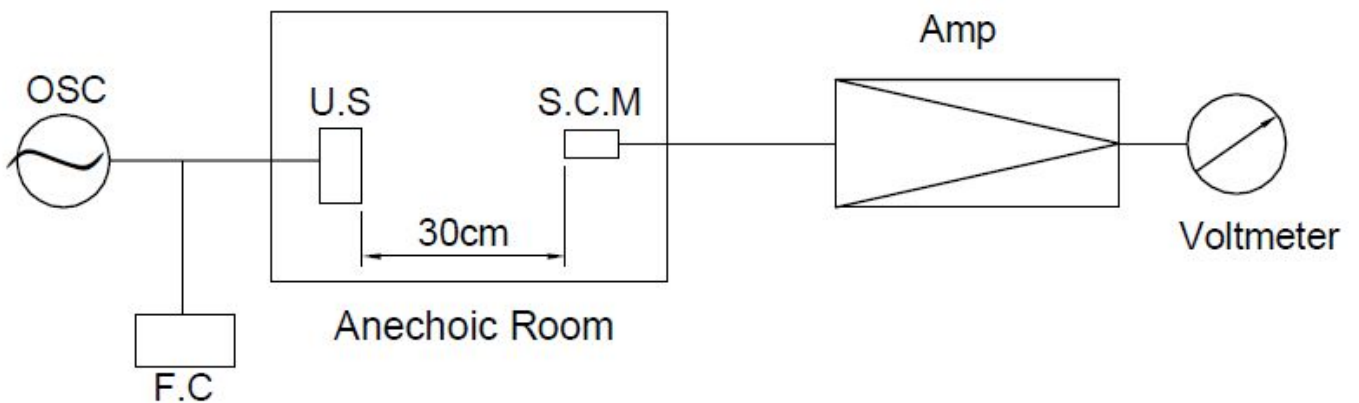
5. Test circuit

Echo&Resonant Time test circuit



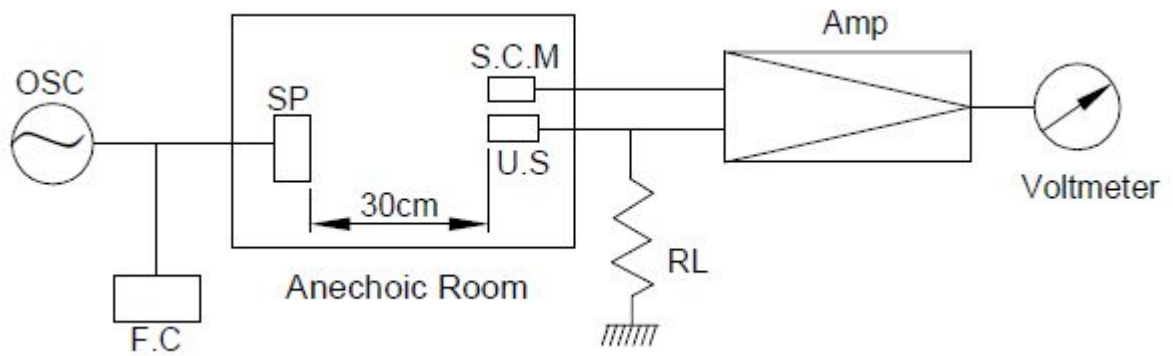
OSC:Oscillator
P.S:Power supply
S.C.D:Special circuit diagram
U.S :Ultrasonic Sensor
T.G:Target

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.:Ampifier
- SP:Tweeter
- RL:3.9KΩ

6. Reliability Test

6.1 High temp. life test

Temperature	+ 85±3°C
Duration	1000hrs

6.2 Low temp. life test

Temperature	-40±3°C
Duration	1000hrs

6.3 Humidity Test

Temperature	+85±3°C
Relative Humidity	(90±5%)
Duration	500hrs

6.4 Heat Cycle Test

Temperature	+ 85±3°C 1hour -40±3°C 1hour
Cycles	3000cycles

(Sensor paralleled resistance 3.9 Kohm. Temperature conversion T<5min)

6.5 Vibration Test

Vibration Frequency	10~ 200Hz
Sweep Period	15min
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 is within 3dB and other parameters are within 30% at 58kHz,
For 24 hours at 25°C after above test condition., compared with initial figures

7. Notice

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- 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

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