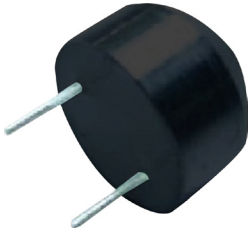


Ultrasonic Sensors

MCUSD18A40B12RS



RoHS
Compliant



Applications:

- Back sonar of automobiles
- Parking meters
- Water level meters

Features:

- Water proof and dual use
- Compact and light weight
- High sensitivity and sound pressure
- Less power consumption
- High reliability

Technical Terms

| Item | Specification | Unit |
|-------------------------|-------------------|------|
| Construction | Water Proof | - |
| Using Method | Dual Use | - |
| Centre Frequency | 40 ±1kHz | Hz |
| Sensitive | ≥-75dB/V/μbar | dB |
| Pressure Level | ≥97(30cm/10Vrms) | dB |
| Directivity | 80° | Deg. |
| Capacitance | 2,000 ±25% at1kHz | pF |
| Operating Temp. Range | -30 to +85 | °C |
| Storage Temp. Range | -30 to +85 | °C |
| Allowable Input Voltage | 60Vp-p | Vp-p |
| Housing Material | Aluminium | - |
| Red dot | Anode | - |

Part Number Explanation

MC **US** **D** **18** **A** **40** **B** **12** **R** **S**
 1 2 3 4 5 6 7 8 9 10

| Item | Description | Item | Description |
|------|-------------------------|------|---------------------------|
| 1 | Brand Name | 6 | Frequency (e.g. 40=40kHz) |
| 2 | Ultrasonic Sensor | 7 | B : Black |
| 3 | D : Dual | 8 | Height (e.g. 12=12mm) |
| 4 | Diameter (e.g. 18=18mm) | 9 | RoHS |
| 5 | A : Aluminium | 10 | Splash Proof |

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www.newark.com

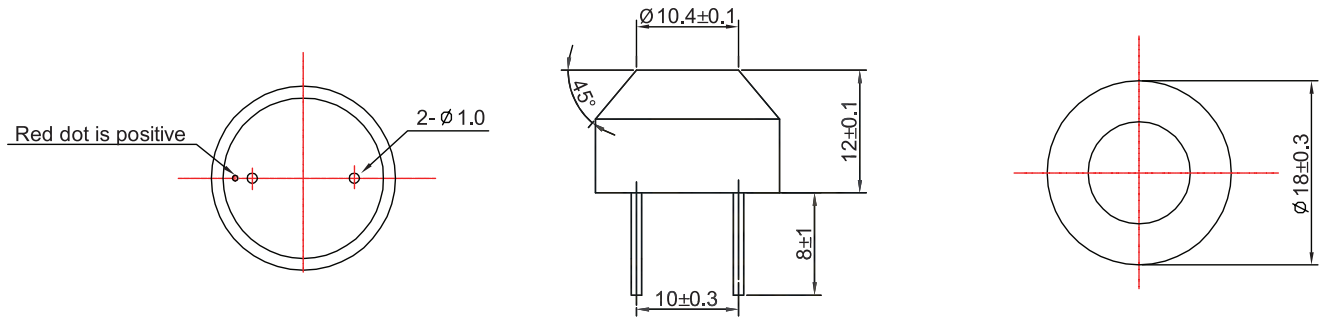


Ultrasonic Sensors

MCUSD18A40B12RS

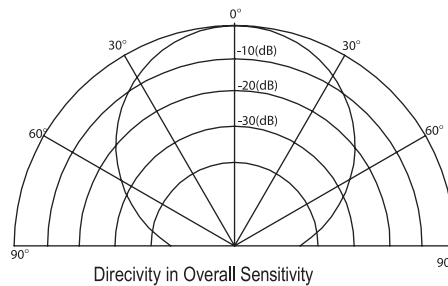
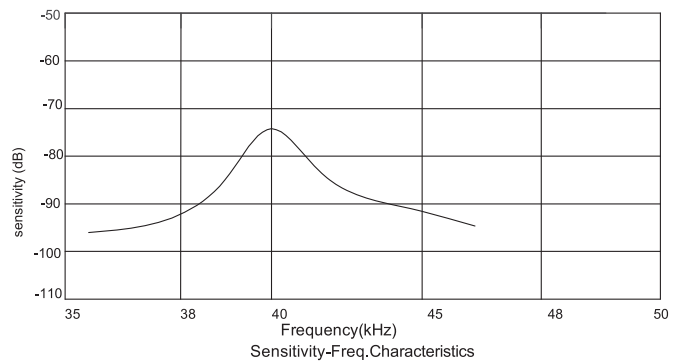
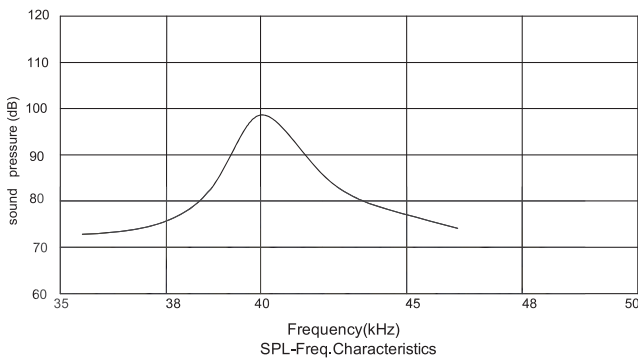


Drawing:



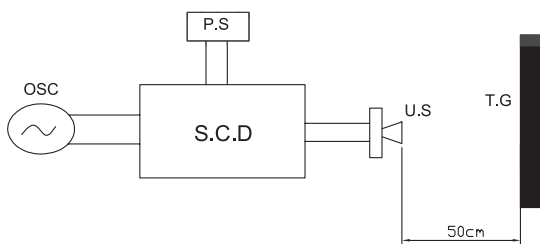
Dimensions : Millimetres

Beam Pattern:



Test Circuit:

Echo&Rest.Resonant Time test circuit



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

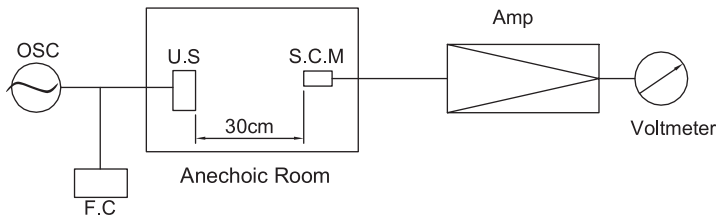


Ultrasonic Sensors

MCUSD18A40B12RS

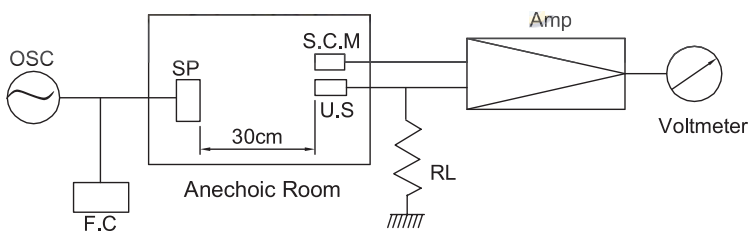


S.P.L test circuit



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

sensitivity test circuit



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

Reliability Test

| | |
|----------------------------|----------------------------------|
| High temperature life test | |
| Temperature | +85 ±3°C |
| Duration | 500hrs |
| Low temperature life test | |
| Temperature | -40 ±3°C |
| Duration | 500hrs |
| Heat Cycle Test | |
| Temperature | + 85±3°C 1hour |
| | -40±3°C 1hour |
| Cycles | 100 cycles |
| Humidity Test | |
| Temperature | +65 ±2°C |
| Relative Humidity | 90 ~ 95% |
| Duration | 500hrs |
| Vibration Test | |
| Vibration Frequency | 10~ 200Hz |
| Sweep Period | 15min |
| Acceleration | 43.12m/s ² (4.4G) |
| Direction | 3 (x, y & z) |
| Time | 96hours/direction |
| Shock test | |
| Acceleration | sine 980 m/s ² (100G) |
| Direction | 3 directions |
| Shock time | 3 time/directions |



Ultrasonic Sensors

MCUSD18A40B12RS



Drop test

Height 1m onto concrete floor
Times 10 times

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 at 40 kHz is within 3dB compared with initial figures at 25°C in 24 hours after above test condition.

Part Number Table

| Description | Part Number |
|---------------------------------|-----------------|
| Transceiver, 40kHz, 18mm, Metal | MCUSD18A40B12RS |

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