MCUSD14A40S09RS

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

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

Technical Terms:

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Part Number</td>
<td>MCUSD14A40S09RS</td>
</tr>
<tr>
<td>2</td>
<td>Construction</td>
<td>Water Proof</td>
</tr>
<tr>
<td>3</td>
<td>Using Method</td>
<td>Dual Use</td>
</tr>
<tr>
<td>4</td>
<td>Centre Frequency</td>
<td>40 ± 1kHz</td>
</tr>
<tr>
<td>5</td>
<td>Sound Pressure Level (dB)</td>
<td>≥90 (30cm/10V rms)</td>
</tr>
<tr>
<td>6</td>
<td>Sensitivity (dB)</td>
<td>≥-75dB/V/mbar</td>
</tr>
<tr>
<td>7</td>
<td>Beam pattern</td>
<td>110 × 50°</td>
</tr>
<tr>
<td>8</td>
<td>Capacitance (pF)</td>
<td>2,500 ± 25% at 1kHz</td>
</tr>
<tr>
<td>9</td>
<td>Operating Temperature Range</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>10</td>
<td>Storage Temperature Range</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>11</td>
<td>Allowable Input Voltage (Vp-p)</td>
<td>160V</td>
</tr>
<tr>
<td>12</td>
<td>Housing Material</td>
<td>Aluminium</td>
</tr>
</tbody>
</table>
MCUSD14A40S09RS

Drawing:

Dimensions: Millimetres
Beam Pattern:

![Graph 1] (SPL-Freq. Characteristics)

![Graph 2] (Sensitivity-Freq. Characteristics)
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

50cm
MCUSD14A40S09RS

S.P.L test circuit

OSC  F.C  U.S  S.C.M

Anechoic Room

Amp  Voltmeter

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

sensitivity test circuit

OSC  F.C  SP  S.C.M  U.S  RL

Anechoic Room

Amp  Voltmeter

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

Part Number Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
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<tbody>
<tr>
<td>Transceiver, 40kHz, 14mm, Metal</td>
<td>MCUSD14A40S09RS</td>
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</table>

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