MCUSR18A40B12RS
Ultrasonic Sensors

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 Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>-</td>
<td>Water Proof</td>
</tr>
<tr>
<td>Using Method</td>
<td>-</td>
<td>Transmitter</td>
</tr>
<tr>
<td>Frequency</td>
<td>Hz</td>
<td>40 ±1kHz</td>
</tr>
<tr>
<td>Sound Pressure Level</td>
<td>dB</td>
<td>min.97dB (10V/30cm)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>dB</td>
<td>-</td>
</tr>
<tr>
<td>Echo Pulse Width</td>
<td>us</td>
<td>≥360us (at 1.2m)</td>
</tr>
<tr>
<td>Capacitance</td>
<td>pF</td>
<td>2,100pF ±25% at 1kHz</td>
</tr>
<tr>
<td>Directivity</td>
<td>°</td>
<td>80°</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>°C</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>°C</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Allowable Input Voltage</td>
<td>Vp-p</td>
<td>160Vp-p</td>
</tr>
<tr>
<td>Detectable Range</td>
<td>-</td>
<td>0.1 to 3m</td>
</tr>
<tr>
<td>Housing Material</td>
<td>-</td>
<td>Aluminium</td>
</tr>
</tbody>
</table>

Drawing

Dimensions: Millimetres
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Beam Pattern

Test circuit
Echo & Rest. Resonant Time test circuit
S.P.L test circuit

Sensitivity test circuit
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Reliability Test
High temp. life test
  Temperature : +85 ±3°C
  Duration : 500hrs
Low temp. 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 to 95%
  Duration : 500hrs
Vibration Test
  Vibration Frequency : 10 to 200Hz
  Sweep Period : 15min
  Acceleration : 43.12m/s² (4.4G)
  Direction : 3(x,y&z)
  Time : 96hours/direction
Shock test
  Acceleration : sine 980 m/s²(100G)
  Direction : 3directions
  Shock time : 3 time/directions
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 40kHz is within 3dB compared with initial figures at 25°C in 24 hours after above test condition.

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Part Number Table

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiver, 40kHZ, 18mm, Aluminium</td>
<td>MCUSR18A40B12RS</td>
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</table>

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