

SENSORS

ULTRASONIC SENSORS

MA40 SERIES



MA40 SERIES OPEN TYPE FEATURES

- Small size: 10 and 16
- Combined types
- High SPL types
- Low voltage/current types

APPLICATIONS

- Burglar alarms
- Object detection devices
- Distance measurement devices

MA40E SERIES WATERPROOF TYPE FEATURES 40kHz Sensors

- Waterproof
- Many types leaded/not
- Short ringing time
- Directive models

APPLICATIONS

- Rear backing sonar
- Corner sonar

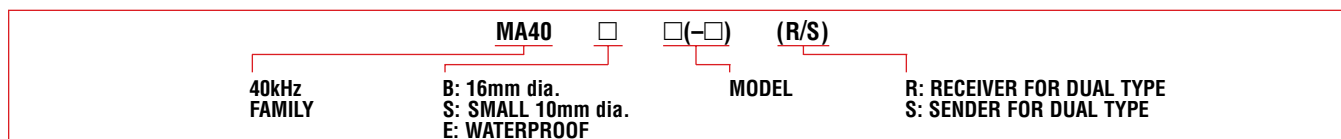
DIMENSIONS: mm

| | | | | |
|------|----------------------|-----------------------|----------------------|---------------------|
| OPEN | MA40S4R/S | MA40B8R/S | MA40S5 | MA40B7 |
| | MA407S-1 | MA40F14-1B | MA40E7R/S | MA40E8-2 |

SPECIFICATIONS

| Part Number | MA40E7R/S | MA40S4R/S | MA40B8R/S | MA40B7 | MA40E7S-1 | MA40S5 | MA40E8-2 | MA40MF14-1B |
|---|---|---------------------------------|---------------------------------|--|---|---|---|--|
| Construction | Waterproof type | Open structure type | | | Waterproof type | Open structure type | Waterproof type | |
| Using Method | Receiver and Transmitter (Dual use) type | | | | Combined use type | | | |
| Nominal Frequency (kHz) | 40 | | | | | | | |
| Overall Sensitivity (dB) | — | — | — | -45 ⁺⁴ ₋₅ | — | -50 ± 4 | — | — |
| Sensitivity (dB) | -74 min. | -63 ± 3 | -63 ± 3 | — | -72 min. | — | -85 min. | -87 min. |
| Sound Pressure (dB) | 106 min. | 120 ± 3 | 120 ± 3 | — | 106 min. | — | 106 min. | 103 min. |
| Directivity (deg) | 100 | 80 | 50 | 44 | 75 | 70 | 75 | 110 x 50 |
| Capacitance (pF) | 2200 ± 20% | 2550 ± 20% | 2000 ± 20% | 2000 ± 20% | 2200 ± 20% | 2550 ± 20% | 2800 ± 20% | 4000 ± 20% |
| Operating Temp. Range(°C) | -30 ~ +85 | -40 ~ +85 | -30 ~ +85 | | | -40 ~ +85 | -30 ~ +85 | |
| Detectable Range (m) | 0.2 ~ 3 | 0.2 ~ 4 | 0.2 ~ 6 | 0.2 ~ 4 | 0.2 ~ 3 | 0.2 ~ 2.5 | 0.2 ~ 1.5 | 0.2 ~ 1.5 |
| Resolution (mm) | 9 | | | | | | | |
| Dimension (mm) | 18φ x 12h | 9.9φ x 7.1h | 16φ x 12h | 16φ x 12h | 9.9φ x 7.1h | | 14φ x 8h | |
| Weight (g) | 4.5 | 0.7 | 2.0 | 2.0 | 4.5 | 0.7 | 2.4 | 2.4 |
| Allowable Input Voltage (Vp-p) (Rectangular wave) | 85 (40kHz) Pulse width 0.4ms Interval 100ms | 20 (40kHz) Continuous signal | 40 (40kHz) Continuous signal | 100 (40kHz) Pulse width 0.4ms Interval 100ms | 100Vpp Pulse width 0.4ms Interval 100ms | 60 (40kHz) Pulse width 0.4ms Interval 100ms | 160 (40kHz) Pulse width 0.8ms Interval 60ms | 160Vpp Pulse width 0.8ms Interval 60ms |
| Packaging Quantity (Pcs.) | 90 | 540 | 150 | 150 | 90 | 540 | 80 | 150 |

PART NUMBERING SYSTEM



For more detailed information regarding this product line in North America, consult us. To receive additional information on Murata Products call 1-800-831-9172.

Piezoelectric Ceramics (PIEZOTITE®) Sensors



Ultrasonic Sensors

Open Structure Type

■ Features

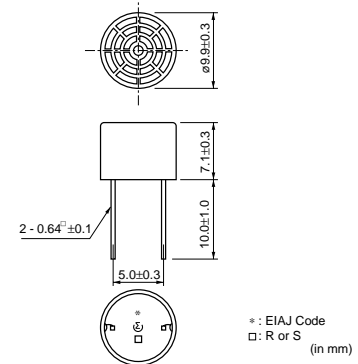
1. Compact and light weight.
2. High sensitivity and sound pressure.
3. High reliability.

■ Applications

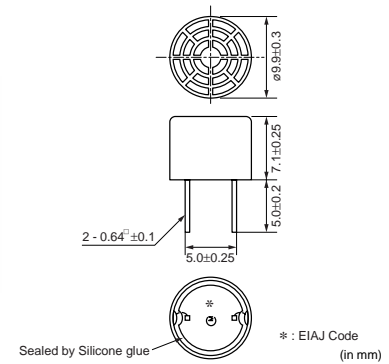
Burglar alarms, Range finders, Automatic doors, Remote control.



MA40S4R/S



MA40S5



5

| Part Number | Structure | Using Method | Nominal Freq. (kHz) | Overall Sensitivity (mVp-p) | Sensitivity (dB) | S.P.L. (dB) | Directivity (°) | Cap. (pF) | Operating Temp. Range (°C) | Detectable Range (m) | Max. Input Voltage (Vp-p) |
|----------------|--------------|--------------|---------------------|-----------------------------|------------------|-------------|-----------------|-----------|----------------------------|----------------------|---|
| MA40S4R | Open struct. | Receiver | 40 | - | -63 typ. | - | 80 (typ.) | 2550 | -40 to 85 | 0.2 to 4 | - |
| MA40S4S | Open struct. | Transmitter | 40 | - | - | 120 typ. | 80 (typ.) | 2550 | -40 to 85 | 0.2 to 4 | 20 40kHz square waves, Continuous signal |
| MA40S5 | Open struct. | Dual Use | 40 | 20 +20/-10 | - | - | 60 (typ.) | 2550 | -40 to 85 | 0.3 to 2 | 20 40kHz square waves, 16pulses per 100ms |

Distance: 30cm, Sensitivity: 0dB=10V/Pa, Sound pressure level: 0dB=20μPa. Refer P19.

The sensor can be used in the operating temperature range.

Please refer to individual specifications for the temperature drift of Sensitivity/Sound pressure levels or environmental characteristics in that temperature range.

Directivity and detectable range are typical values. They can be changed by application circuit and fixing method of the sensor.