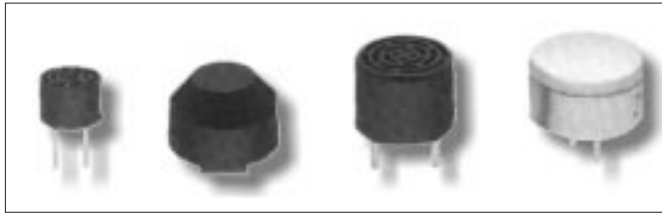


Ultrasonic Sensors



Ultrasonic MA Series



These sensors transmit and receive ultrasonic waves, having applications in distance measurement (vehicle reversing aids etc), object detecting, security alarms and remote control

Features

1. Compact and lightweight design
2. High sensitivity and sound pressure levels
3. Low power consumption
4. High reliability
5. Open, closed waterproof and high frequency options

Types

1. Open Structure

Using the combined vibration mode of a bimorph transducer and radial core, this type exhibits high sensitivity and high sound pressure levels.

Applications : Automatic doors, Burglar Alarms, Remote control, Range finders.

2. Water Proof

This type has excellent resistance to harsh environmental conditions and can be used outdoors.

Applications : Back sonar of vehicles, Parking meters
Water level meters.

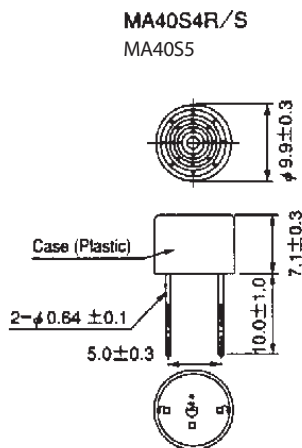
3. High Frequency

Using longitudinal vibration and acoustic matching layer, this type exhibits high sensitivity in air.

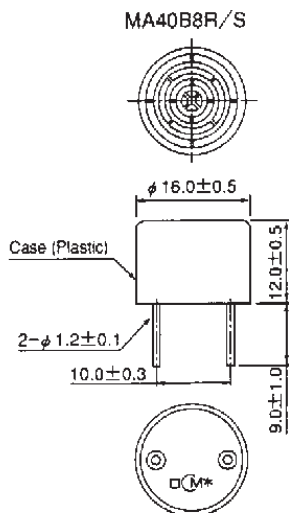
Short wavelengths facilitate sharp directivity for high precision measurements.

Applications: Approach switches, distance measurements, liquid level meters, gas flow meters.

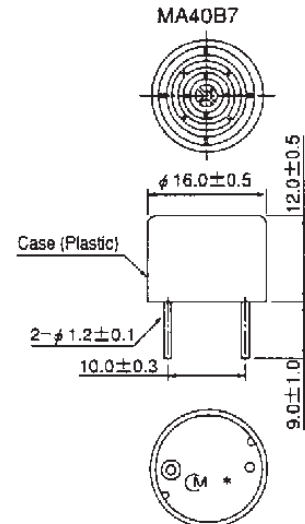
Dimensions



* EIAJ CODE
□ R or S



* EIAJ CODE
□ R or S



* EIAJ CODE

1- Open Structure Types

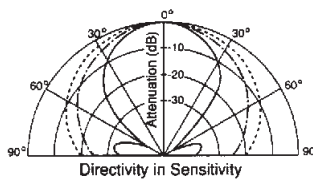
Order Code	MA40S4R/S*	MA40B8R/S*	MA40B7	MA40S5
Construction	Open structure type			
Type	Sep. Receiver & Transmitter		Combined type	
Norm. Freq.	(kHz) 40			
Sensitivity	(dB) -63±3	-63±3	-61	-62
Sound Pressure	(dB) 120±3	120±3	-116	-111
Directivity	(deg) 100	50	40	70
Capacitance	(pF) 2550±20%	2000±20%	2000±20%	2550±20%
Op. Temp. Range	(°C) -30 + 85			
Detect. Range	(m) 0.2 - 4	0.2 - 6	0.2 - 4	0.2 - 4
Resolution	(mm) 9	9	9	9
Dimension	(mm) 9.9 Ø x 7.1h	16 Ø x 12h	16 Ø x 12h	9.9Ø x 7.1h
Weight	(g) 0.7	2	2	0-7
Allowable Input (Vp-p)	20 (40kHz)	20 (40kHz)	100 (40kHz)	20 (40kHz)
(Rect. wave)	Continuous signal	Continuous signal	Pulse width 0.4ms Interval 100ms	Continuous signal

* Specify R=Receiver or S=Sender

Directivity

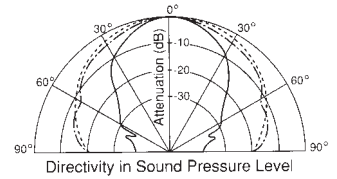
MA40B8R —
MA40S4R - - -

Frequency 40kHz
Distance 30cm



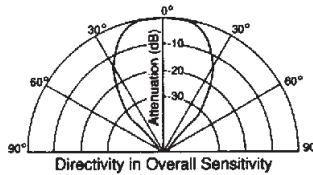
MA40B8S —
MA40S4S - - -

Frequency 40kHz
Input udgtage Sine wave 10Vrms
Distance 30cm



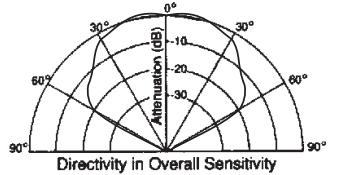
MA40B7

Frequency 40kHz
Input udgtage Rectangle Wave 10Vp-
Pulse width 0.4ms
Distance 30cm



MA40S5

Frequency 40kHz
Distance 30cm

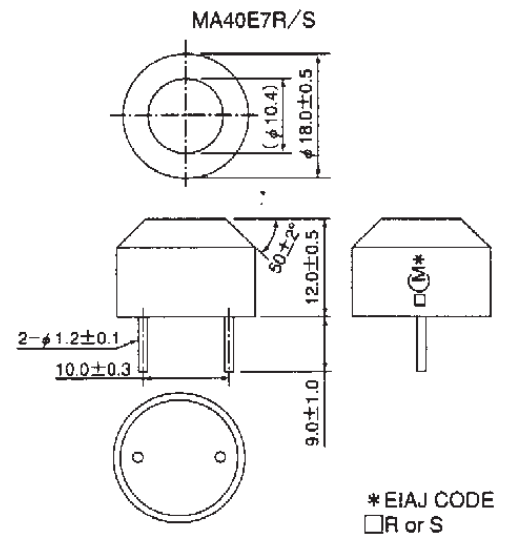


2- Water Proof Types

Order Code	MA40E7R/S*	MA40E8-2	MA40E6-7	MA40E9-1
Construction	Water proof type			
Type	Sep. Rec.& Trans.	Combined use		
		Miniature		Asymmetric Beam
Normal Frequency (kHz)	40			
Overall Sensitivity (dB)				
Sensitivity (dB)	-74min.	-85min	-82 min.	-85
Sound Pressure (dB)	106 min.	106min	108	106
Directivity (deg)	100	75	75	100Wx50H
Capacitance (pF)	2200±20%	2800	2200±20%	4500±20%
Op. Temp. Range (°C)	-30 + 85			
Detectable Range (m)	0.2 - 3	0.2-1.5	0.2 - 2	0.2 - 6
Resolution (mm)	9	9	9	8
Dimension (mm)	18 Ø x 12h	14Ø x 8h	18 Ø x 12h	18Ø x 10h
Weight (g)	4.5		4.5	
Allowable Input (Vp-p)	V	85 (40kHz)	160(40kHz)	140
(Rectangular wave)		Pulse width 0.4ms	Pulse width 0.8ms	(40kHz Sine wave) Pulse width 0.4ms
		Interval 100ms	Interval 60ms	Interval 100ms

* Specify R=Receiver or S=Sender

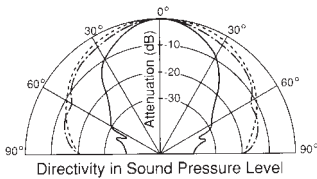
Dimensions



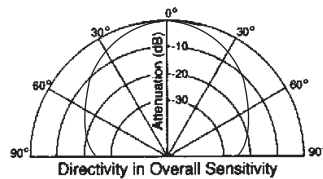
Directivity

MA40E7S ----

Frequency 40kHz
Input udtage Sine wave 10Vrms
Distance 30cm

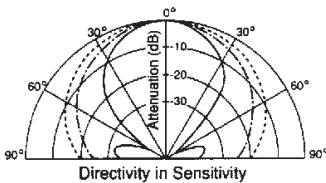


MA40E8-2



MA40E7R ----

Frequency 40kHz
Distance 30cm



$\phi 14 \pm 0.3$

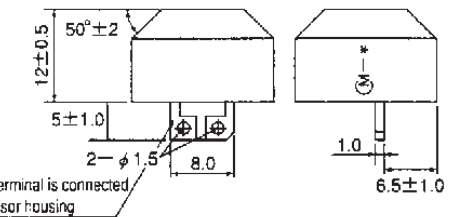
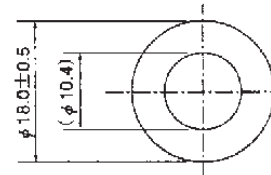
$(\phi 10.4)$



8 ± 0.3

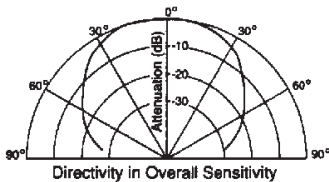
39.5 ± 5

MA40E6-7

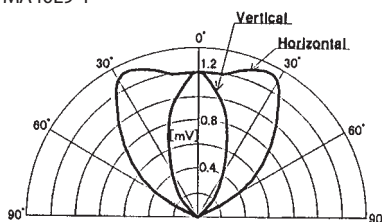


* EIAJ CODE

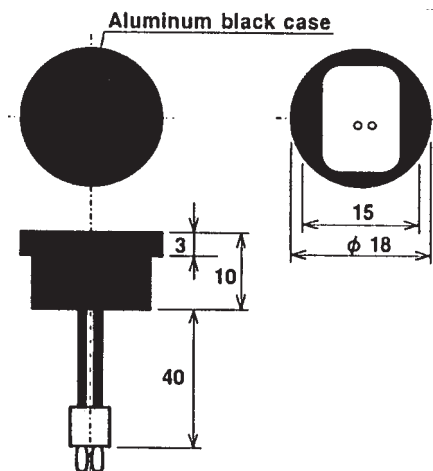
MA40E6-7



MA40E9-1



MA40E9-1



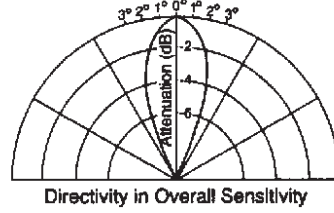
All dimensions in mm

3- High Frequency type

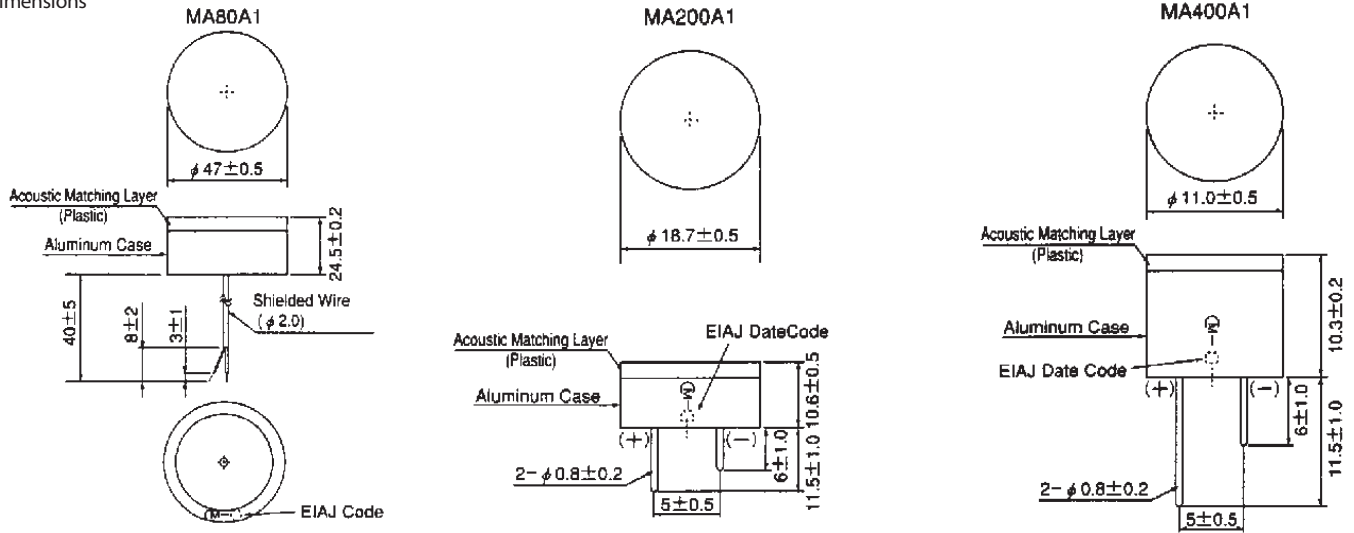
Order Code	MA80A1	MA200A1	MA400A1
Construction	High frequency type		
Type	Sep. Rec. & Trans.		
Normal Frequency (kHz)	75±5	200±10	400±20
Overall Sensitivity (dB)	-47 min.	-54 min.	-74dB min.
Sensitivity (dB)	0dB=18 Vp - p (at 50cm)	0dB=18 Vp - p (at 20cm)	0dB=18 Vp - p (at 10cm)
Sound Pressure (dB)			
Directivity (deg)	7		
Op. Temp. Range (°C)	-10 to +60	-30 to +60	
Detectable Range (m)	0.5 - 5	0.2 - 1	0.06 - 0.3
Resolution (mm)	4	2	1
Dimension (mm)	47 Ø X 24.5h	19 Ø X 11h	1 Ø X 10.5h
Weight (g)	93	6	2
Allowable Input (Vp-p) (Rectangular wave)	V	120 (75kHz) Pulse width 600 µs Interval 50ms	120 (200kHz) Pulse width 250 µs Interval 20ms
		120 (400kHz) Pulse width 125 µs Interval 10ms	

Directivity

MA80/200/400A1

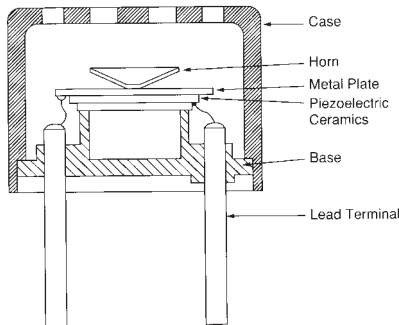


Dimensions

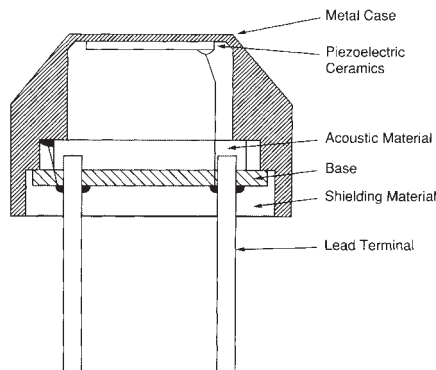


4- Construction Diagrams

1) Open Construction



2) Water Proof Type



3) High Frequency Type

