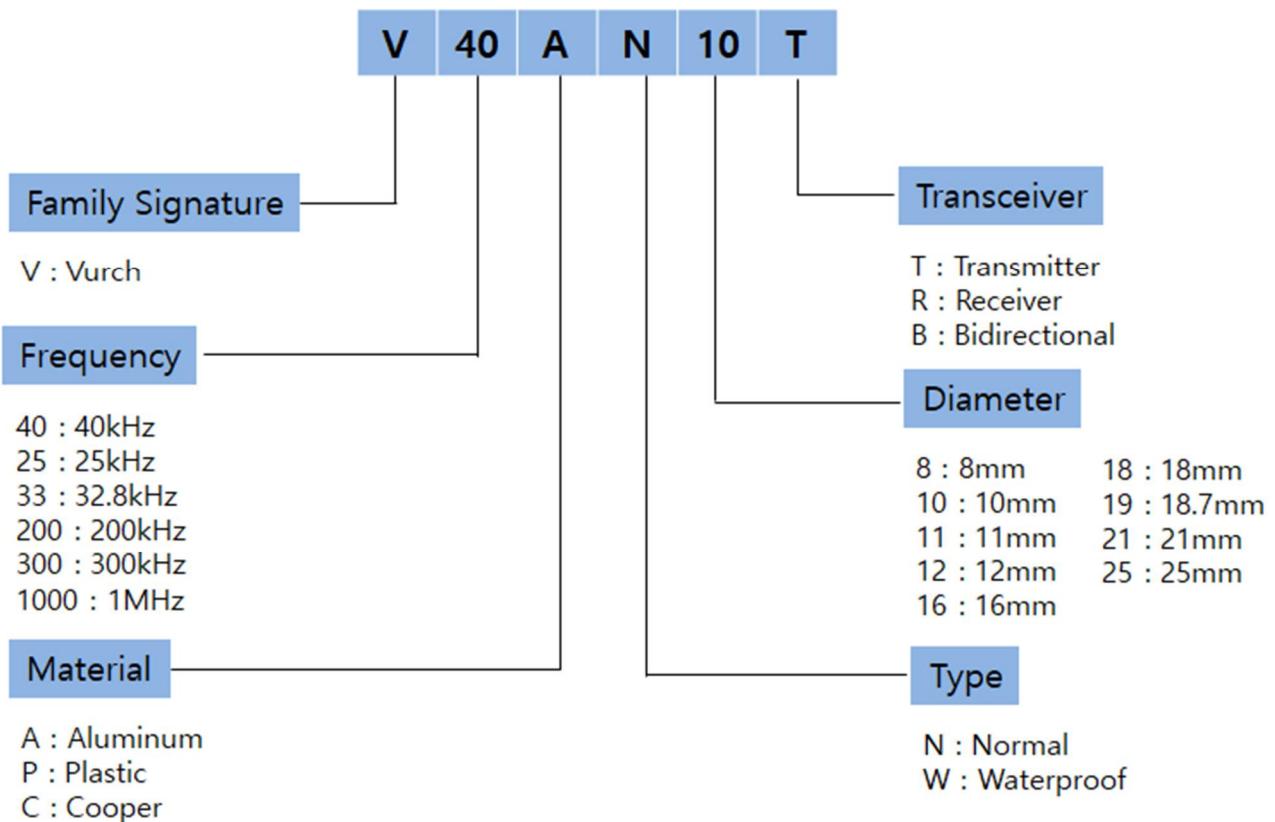




Ultrasound Transducer Datasheet REV1.1

Ordering Information

This section describes the devices ordering information. Below figure shows the ordering codes for transducers



All Products Information

Part Number	Frequency	Material	Type	Diameter	Transceivers
V40AN10T	40kHz	Aluminum	Normal	10mm	Transmitter
V40AN10R	40kHz	Aluminum	Normal	10mm	Receiver
V40PN10T	40kHz	Plastic	Normal	10mm	Transmitter
V40PN10R	40kHz	Plastic	Normal	10mm	Receiver
V40AN12T	40kHz	Aluminum	Normal	12mm	Transmitter
V40AN12R	40kHz	Aluminum	Normal	12mm	Receiver
V25AN16T	25kHz	Aluminum	Normal	16mm	Transmitter
V33AN16T	32.8kHz	Aluminum	Normal	16mm	Transmitter
V33AN16R	32.8kHz	Aluminum	Normal	16mm	Receiver
V40AN16T	40kHz	Aluminum	Normal	16mm	Transmitter
V40AN16R	40kHz	Aluminum	Normal	16mm	Receiver
V40PN16T	40kHz	Plastic	Normal	16mm	Transmitter
V40PN16R	40kHz	Plastic	Normal	16mm	Receiver
V40AN16B	40kHz	Aluminum	Normal	16mm	Bidirectional
V40PN16B	40kHz	Plastic	Normal	16mm	Bidirectional
V40AW14B	40kHz	Aluminum	Waterproof	14mm	Bidirectional
V40AW16B	40kHz	Aluminum	Waterproof	16mm	Bidirectional
V40AW18B	40kHz	Aluminum	Waterproof	18mm	Bidirectional
V40AW25B	40kHz	Aluminum	Waterproof	25mm	Bidirectional
V200AW19B	200kHz	Aluminum	Waterproof	18.7mm	Bidirectional
V300AW13B	300kHz	Aluminum	Waterproof	13mm	Bidirectional
V400AW11B	400kHz	Aluminum	Waterproof	11mm	Bidirectional
V1000PW21B	1MHz	Plastic	Waterproof	21mm	Bidirectional



V40A(P)N10T(R)

Application:

- Distance Measurement
- Moving Object Detection
- Obstacle Avoidance

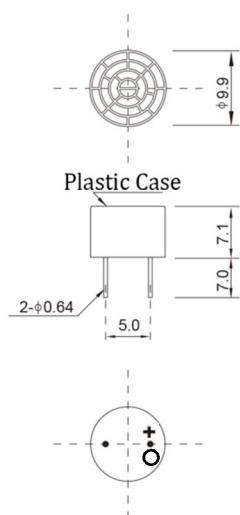
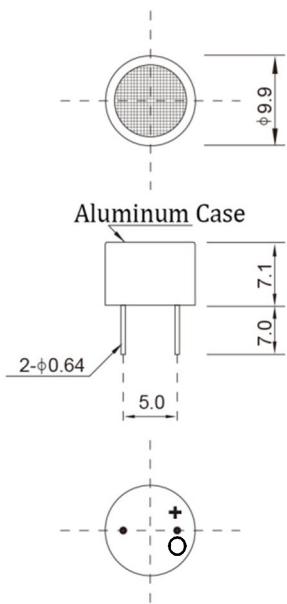
Specifications:

- Operating Frequency: 40 kHz \pm 2%
- Transmitting Sensitivity: 110 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -70 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2500 pF \pm 20%
- Typical Directivity(-6dB): 80°
- Max Driving Voltage: 20 Vp-p
(Continuous Signal)
- Distance of Detection: 0.2 ~ 5.0m
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum or Plastic

*All above parameters were measured at 25°C.

*Actual properties are depending on drive circuit.

Appearance & Dimensions



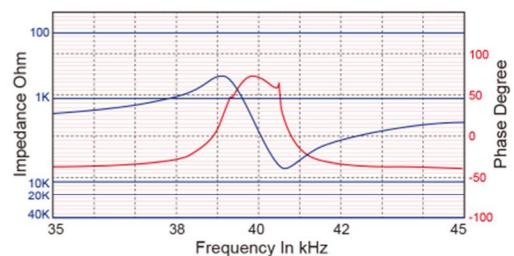
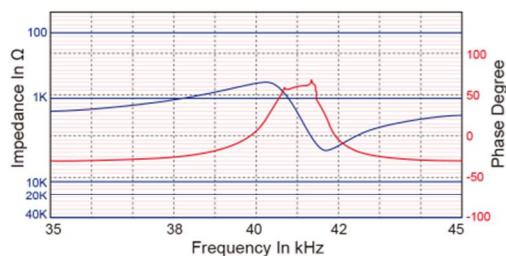
P/N	Material	Transceivers
V40AN10T	Aluminum	Transmitter
V40AN10R	Aluminum	Receiver
V40PN10T	Plastic	Transmitter
V40PN10R	Plastic	Receiver



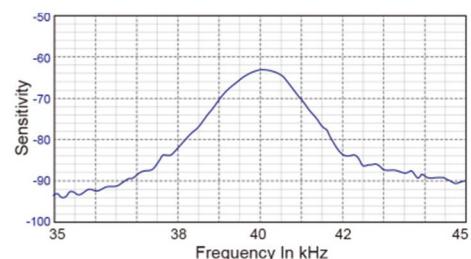
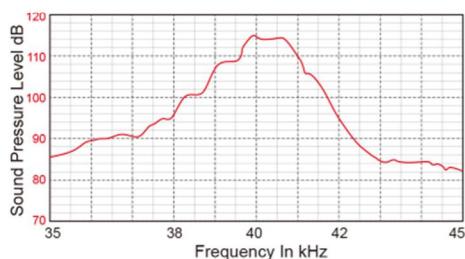


V40A(P)N10T(R)

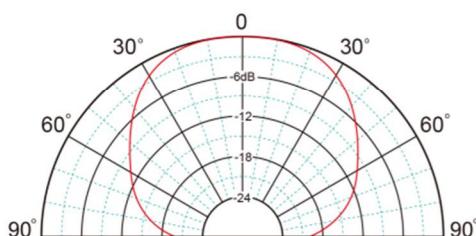
Impedance Magnitude/Phase



Sound Pressure Level & Sensitivity



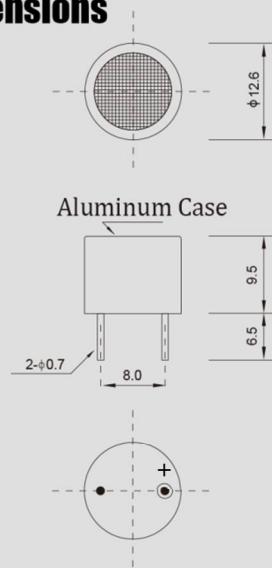
Directivity





V40AN12T(R)

Appearance & Dimensions



Specifications:

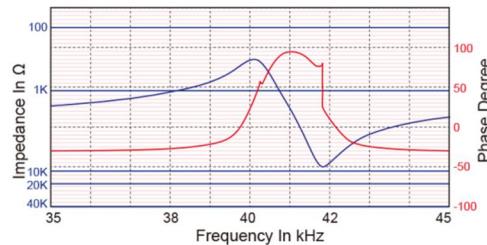
- Operating Frequency: 40 kHz ± 2%
- Transmitting Sensitivity: 112 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -70 dB Min.
(at 40Khz 30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2200 pF ± 20%
- Typical Directivity(-6dB): 85°
- Max Driving Voltage: 20 Vp-p
(Continuous Signal)
- Distance of Detection: 0.2 ~ 5.0m
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

*All above parameters were measured at 25°C.

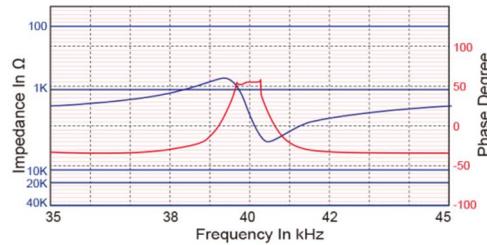
*Actual properties are depending on drive circuit.

Impedance Magnitude/Phase

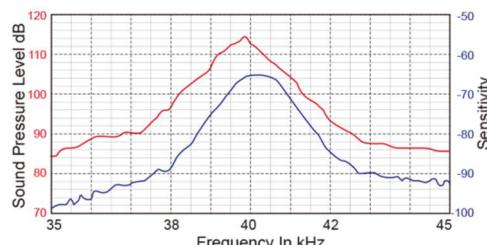
Transmitting



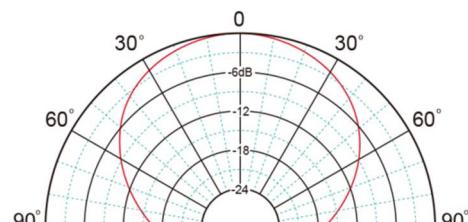
Receiving



Sound Pressure Level & Sensitivity



Directivity



P/N	Material	Transceivers
V40AN12T	Aluminum	Transmitter
V40AN12R	Aluminum	Receiver



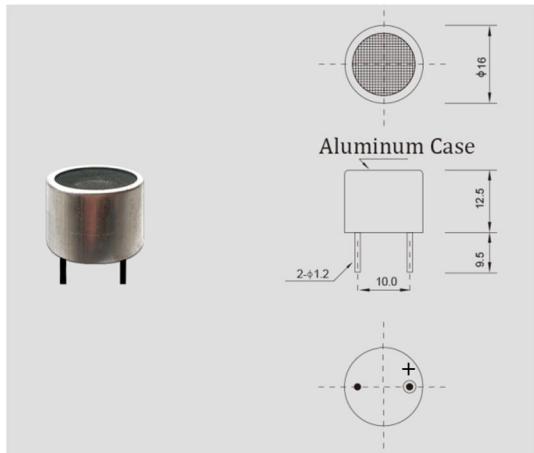
V25AN16T

Application:

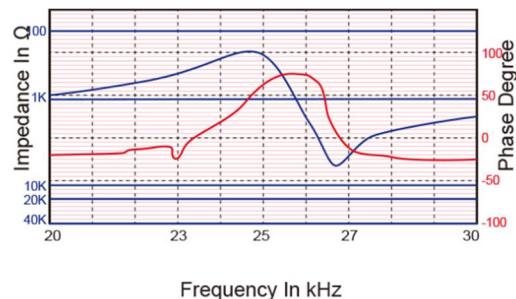
- Specially use in transmit ultrasonic.
- High transmit sound pressure.
- Driving dog, mouse and stopping the dog barking.

Specifications:

- Operating Frequency: $25\text{kHz} \pm 2\%$
- Transmitting Sensitivity: 112 dB Min.
(at 25Khz 10Vp-p/30cm 0dB = 20 uBar)
- Capacitance at 1 kHz: $2400 \text{ pF} \pm 20\%$
- Typical Directivity(-6dB): 85°
- Max Driving Voltage: 20 Vp-p
(Continuous Signal)
- Operating Temperature: $-30 \sim 80^\circ\text{C}$

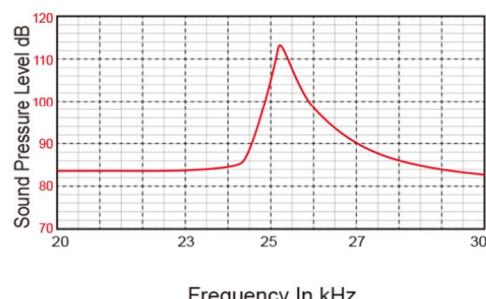


Impedance Magnitude / Phase



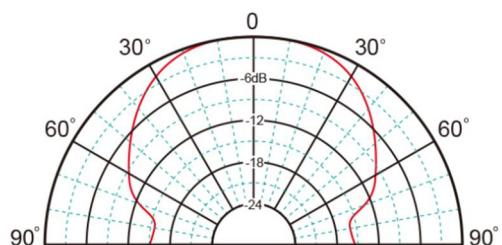
Frequency In kHz

Sound Pressure Level & Sensitivity



Frequency In kHz

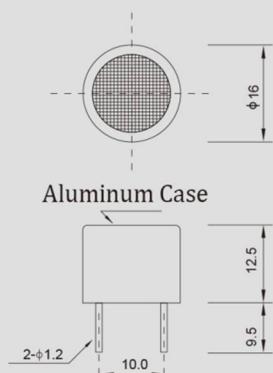
Directivity





V33AN16T(R)

Appearance & Dimensions



Specifications:

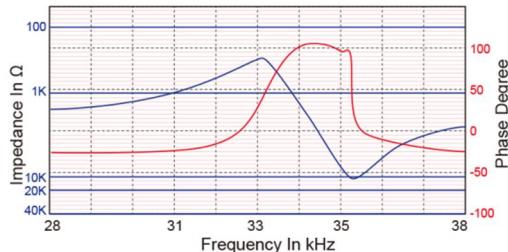
- Operating Frequency: 32.8 kHz ± 2%
- Transimitting Sensitivity: 114 dB Min.
(at 40Khz 30cm 0dB = 20 uBar)
- Receiving Sensitivity: -66 dB Min.
(at 40Khz 30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2500 pF ± 20%
- Typical Directivity(-6dB): 95°
- Max Driving Voltage: 20 Vp-p
(Continuous Signal)
- Operating Temperature: -30 ~ 80 °C
- Distance of Detection: 0.3 ~ 15 m
- Housing: Aluminum

*All above parameters were measured at 25°C.

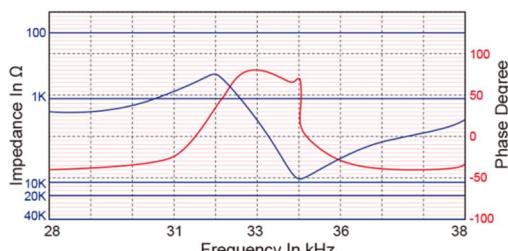
*Actual properties are depending on drive circuit.

Impedance Magnitude/Phase

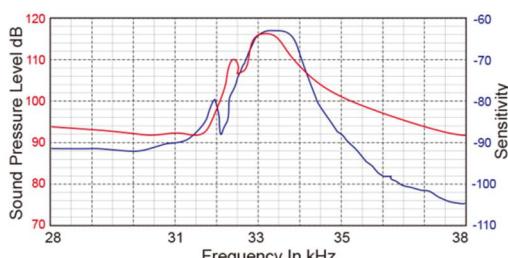
Transmitting



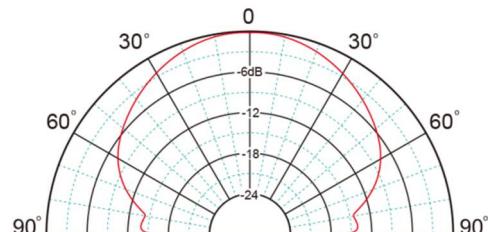
Receiving



Sound Pressure Level & Senitivity



Directivity



P/N	Material	Transceivers
V33AN16T	Aluminum	Transmitter
V33AN16R	Aluminum	Receiver



V40A(P)N16T(R)

Application:

- Distance Measurement
- Moving Object Detection
- Obstacle Avoidance

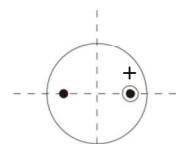
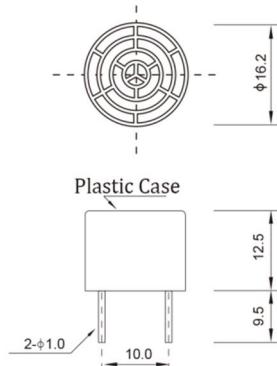
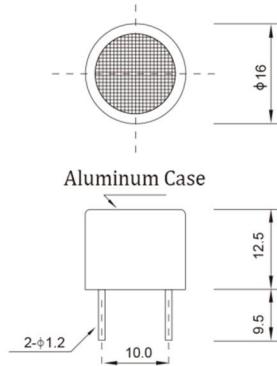
Specifications:

- Operating Frequency: 40 kHz \pm 2%
- Transmitting Sensitivity: 117 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -66 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2400 pF \pm 20%
- Typical Directivity(-6dB): 60°
- Max Driving Voltage: 80 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Distance of Detection: 0.3 ~ 15 m
- Housing: Aluminum or Plastic

*All above parameters were measured at 25°C.

*Actual properties are depending on drive circuit.

Appearance & Dimensions



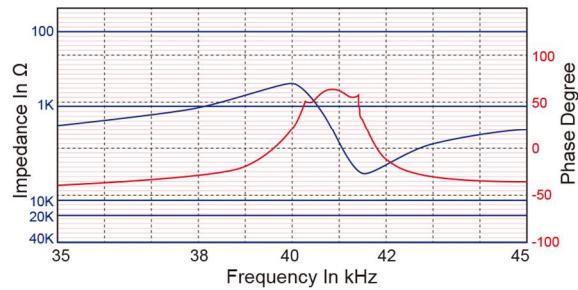
P/N	Material	Transceivers
V40AN16T	Aluminum	Transmitter
V40AN16R	Aluminum	Receiver
V40PN16T	Plastic	Transmitter
V40PN16R	Plastic	Receiver



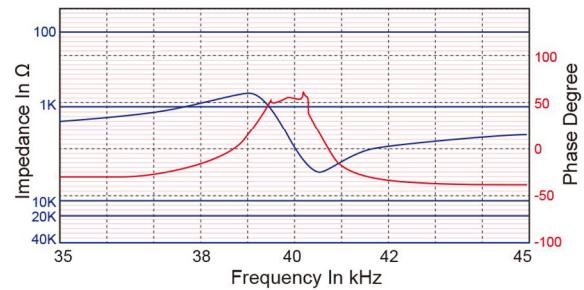
V40A(P)N16T(R)

Transmitting

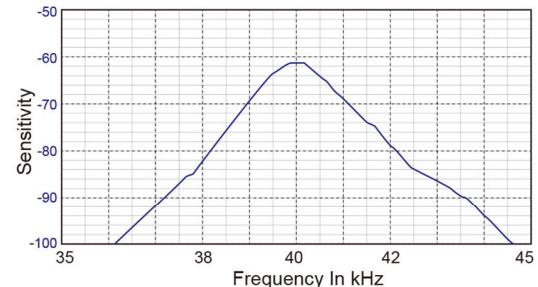
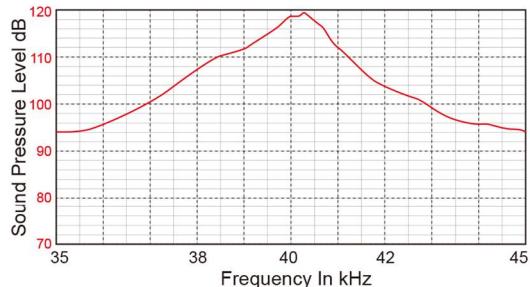
Impedance Magnitude/Phase



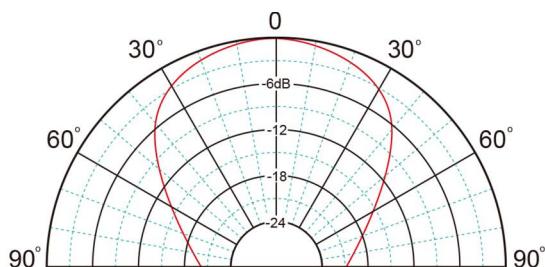
Receiving



Sound Pressure Level & Sensitivity



Directivity





V40A(P)N16B

Application:

- Distance Measurement
- Moving Object Detection
- Obstacle Avoidance

Specifications:

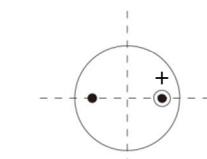
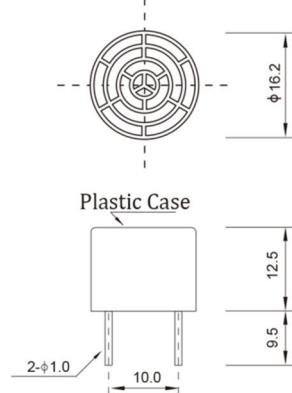
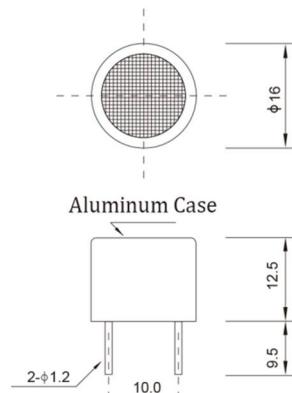
- Operating Frequency: 40 kHz \pm 2%
- Transmitting Sensitivity: 114 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -69 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2400 pF \pm 20%
- Ringing: 1.2 ms Max.
- Typical Directivity(-6dB): 55°
- Max Driving Voltage: 80 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Distance of Detection: 0.3 ~ 15 m
- Housing: Aluminum or Plastic

*All above parameters were measured at 25°C .

*Actual properties are depending on drive circuit.

P/N	Material	Transceivers
V40AN16B	Aluminum	Bidirectional
V40PN16B	Plastic	Bidirectional

Appearance & Dimensions





V40AW14B

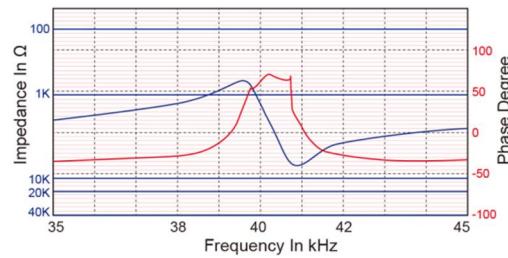
Specifications:

- Operating Frequency: 40 kHz \pm 2%
- Transmitting Sensitivity: 100 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -82 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 1900 pF \pm 20%
- Ringing: 1.2 ms Max.
- Typical Directivity: 75° (-6dB)
- Max Driving Voltage: 120 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

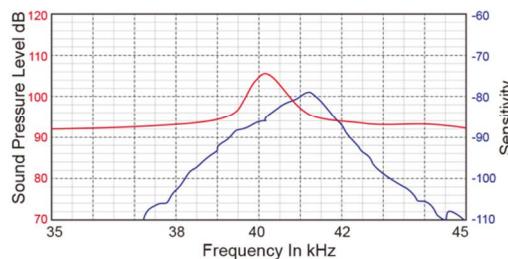
*All above parameters were measured at 25°C .

*Actual properties are depending on drive circuit.

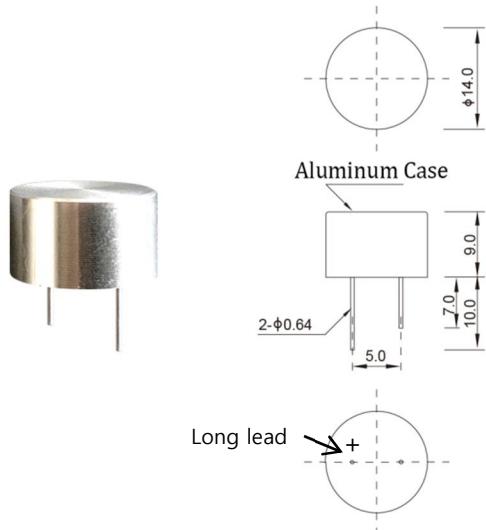
Impedance Magnitude / Phase



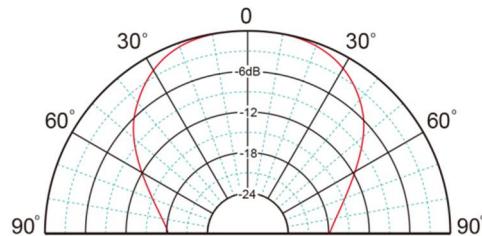
Sound Pressure Level & Sensitivity



Appearance & Dimensions



Directivity





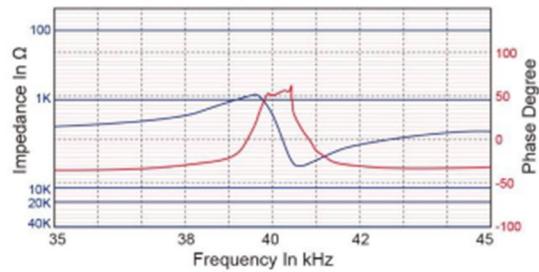
V40AW16B

Specifications:

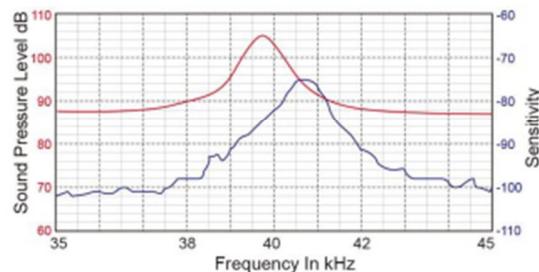
- Operating Frequency: 40 kHz ± 2%
- Transmitting Sensitivity: 103 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -80 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2000 pF ± 20%
- Ringing: 1.2 ms Max.
- Typical Directivity: 80°
(-6dB)
- Max Driving Voltage: 120 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

*All above parameters were measured at 25°C.
*Actual properties are depending on drive circuit.

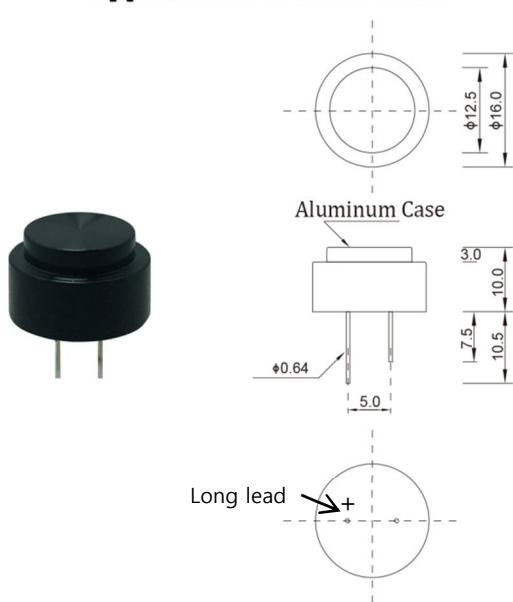
Impedance Magnitude / Phase



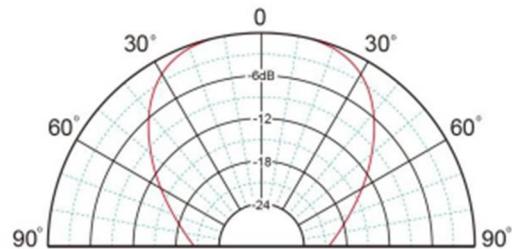
Sound Pressure Level & Sensitivity



Appearance & Dimensions



Directivity





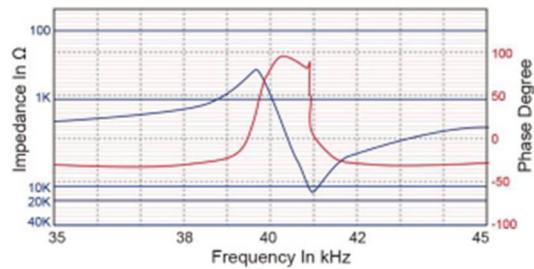
V40AW18B

Specifications:

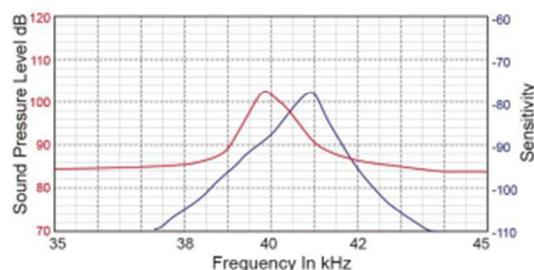
- Operating Frequency: 40 kHz ± 2%
- Transmitting Sensitivity: 98 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 20 uBar)
- Receiving Sensitivity: -82 dB Min.
(at 40Khz 10Vp-p/30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: 2000 pF ± 20%
- Ringing: 1.2 ms Max.
- Typical Directivity: 100°
(-6dB)
- Max Driving Voltage: 150 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

*All above parameters were measured at 25°C.
*Actual properties are depending on drive circuit.

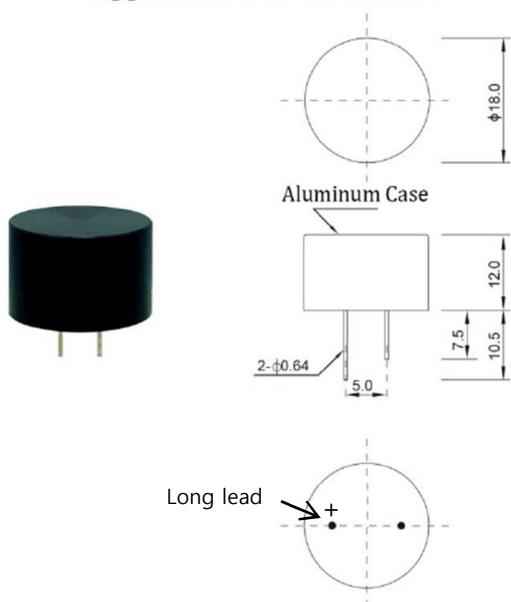
Impedance Magnitude / Phase



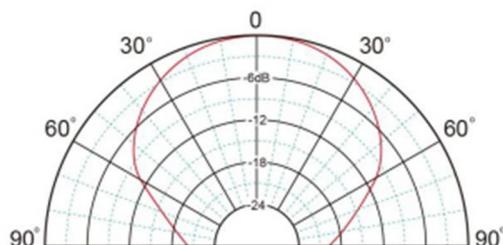
Sound Pressure Level & Sensitivity



Appearance & Dimensions



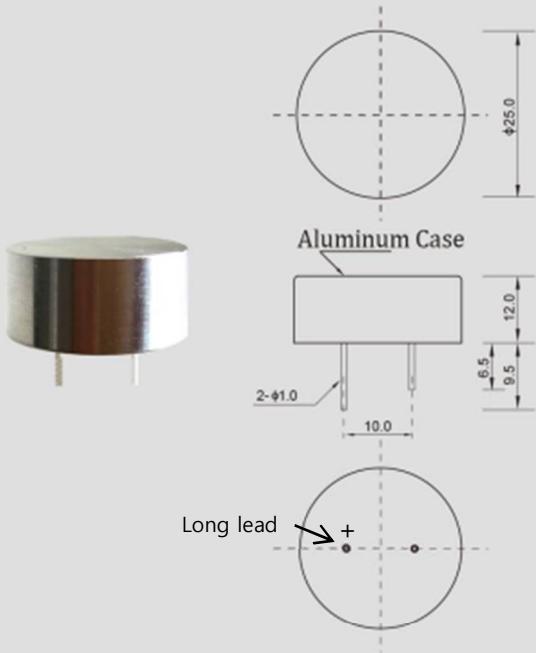
Directivity





V40AW25B

Appearance & Dimensions



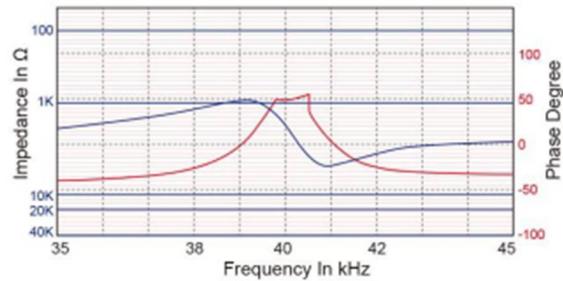
Specifications:

- Operating Frequency: $40 \text{ kHz} \pm 2\%$
- Transmit Sensitivity: 106 dB Min.
(at 40Khz 30cm 0dB = 20 uBar)
- Receiving Sensitivity: -78 dB Min.
(at 40Khz 30cm 0dB = 10V/Pa)
- Capacitance at 1 kHz: $2000 \text{ pF} \pm 20\%$
- Ringing: 1.2 ms Max.
- Typical Directivity: 35°
(-6dB)
- Max Driving Voltage: 120 Vp-p
(Impulse wave)
- Operating Temperature: $-30 \sim 80^\circ \text{C}$
- Housing: Aluminum

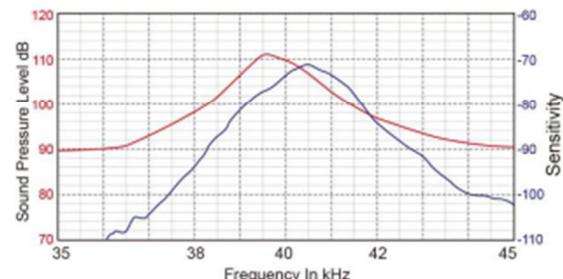
*All above parameters were measured at 25°C.

*Actual properties are depending on drive circuit.

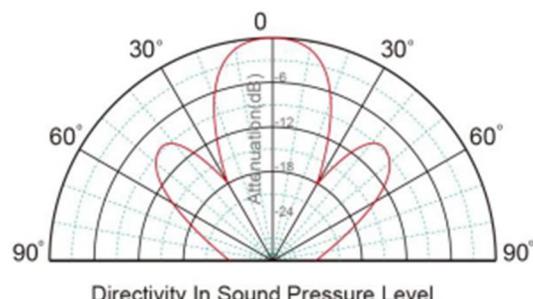
Impedance Magnitude / Phase



Sensitivity & Sound Pressure Level



Directivity



Directivity In Sound Pressure Level



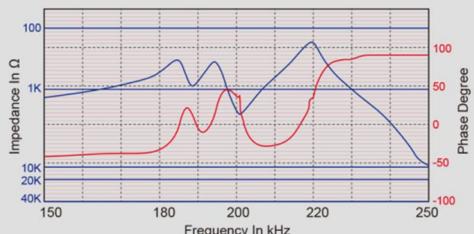
V200AW19B

Specifications:

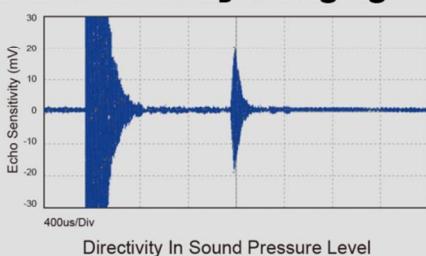
- Operating Frequency: 200 kHz \pm 2%
- Echo Sensitivity: -65 dB Min.
(0dB = 100Vpp 10 Bursts/20cm)
- Capacitance at 1 kHz: 385 pF \pm 20%
- Ringing: 0.6 ms Max.
- Typical Directivity: 8°
(-6dB)
- Max Driving Voltage: 150 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

*All above parameters were measured at 25°C .
*Actual properties are depending on drive circuit.

Impedance Magnitude / Phase



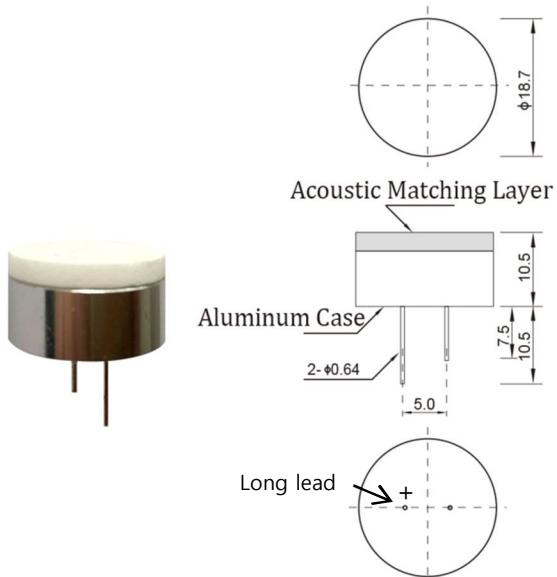
Echo Sensitivity & Ringing



Directivity



Appearance & Dimensions



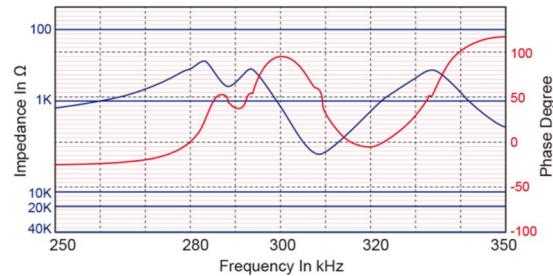
Specifications:

- Operating Frequency: 300 kHz \pm 2%
- Echo Sensitivity: -75 dB Min.
(0dB = 100Vpp. 10Bursts /10cm)
- Capacitance at 1 kHz: 270 pF \pm 20%
- Distance of Detection: 0.1 ~ 0.8m
- Typical Directivity: 8°
(-6dB)
- Max Driving Voltage: 100 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

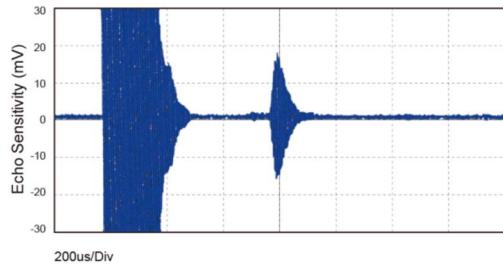
*All above parameters were measured at 25°C .

*Actual properties are depending on drive circuit.

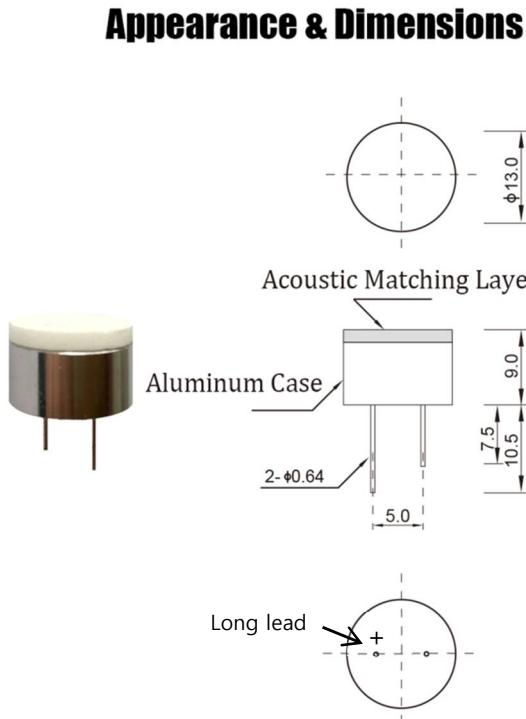
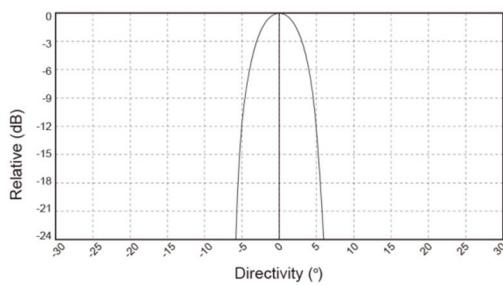
Impedance Magnitude / Phase



Echo Sensitivity & Ringing



Directivity





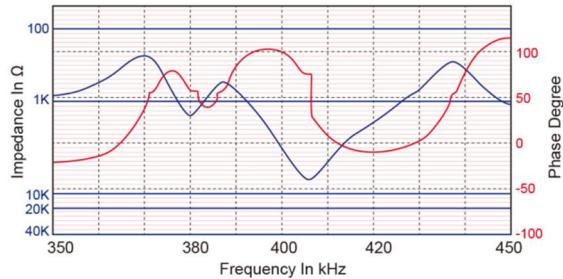
V400AW11B

Specifications :

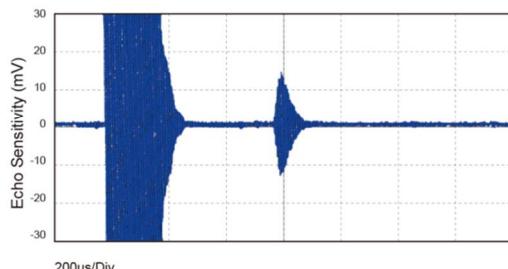
- Operating Frequency: 400 kHz \pm 2%
- Echo Sensitivity: -80 dB Min.
(0dB = 100Vpp. 10Bursts/10cm)
- Capacitance at 1 kHz: 170 pF \pm 20%
- Distance of Detection: 0.1 ~ 3.0m.
- Typical Directivity: 7°
(-6dB)
- Max Driving Voltage: 100 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: Aluminum

*All above parameters were measured at 25°C .
*Actual properties are depending on drive circuit.

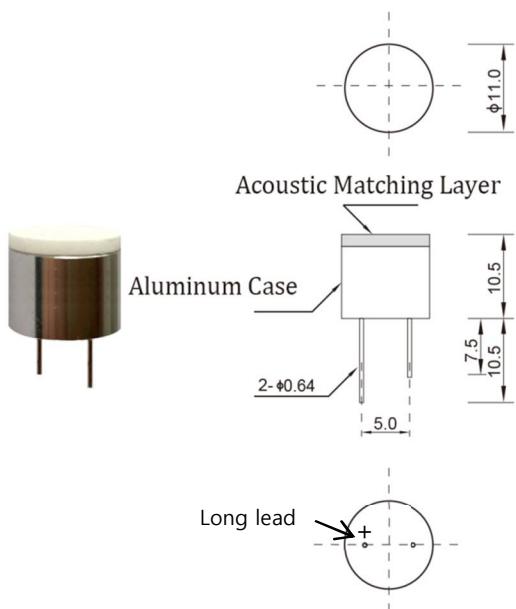
Impedance Magnitude / Phase



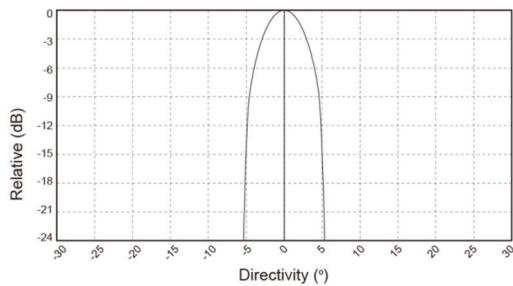
Echo Sensitivity & Ringing



Appearance & Dimensions



Directivity





V1000PW21B

Specifications:

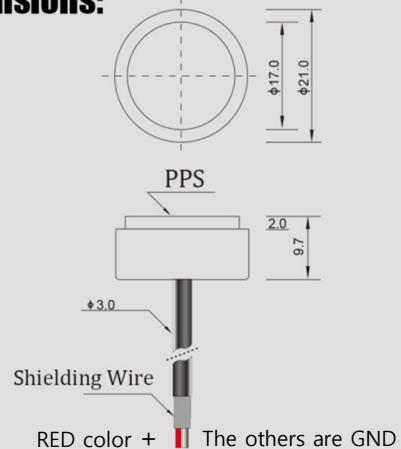
- Operating Frequency: 1 MHz \pm 5%
- Echo Sensitivity: -30 dB Min.
(0dB = 6.0Vpp. 10Bursts/5cm)
- Capacitance at 1 kHz: 1200 pF \pm 20%
- Distance of Detection: 0.1 ~ 5.0m.
- Typical Directivity: 7°
(-6dB)
- Max Driving Voltage: 100 Vp-p
(Impulse wave)
- Operating Temperature: -30 ~ 80 °C
- Housing: PPS

*All above parameters were measured at 25°C.
*Actual properties are depending on drive circuit.

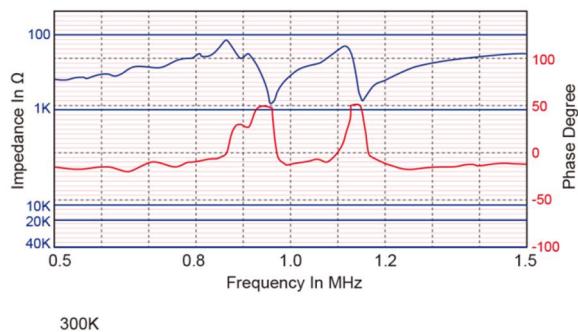
Appearance:



Dimensions:

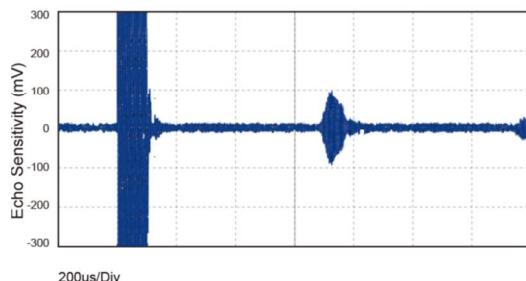


Impedance Magnitude / Phase

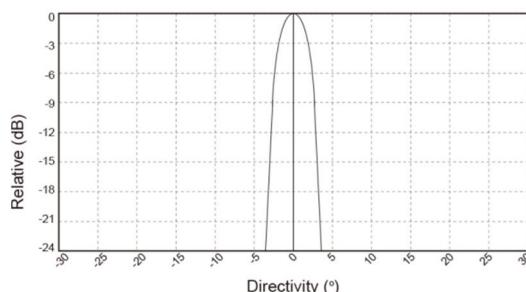


300K

Echo Sensitivity & Ringing



Directivity





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