



GENERATIONS AHEAD IN SONAR & ULTRASONIC TECHNOLOGY

Model TR-2445/210 Plastic Ultrasonic Transducer

The Massa Model TR-2445/210 is an ultrasonic air transducer that operates in the 210 kHz frequency region. It is encased in a solid plastic housing, which results in a robust package with a completely sealed face.

The transducer is typically used in non-contact echo ranging applications where either a single TR-2445/210 is used to first transmit a short duration acoustic signal, and then receives the echo reflected from a target; or two separate transducers are used, one to transmit and one to receive. The two curves below show how these transducers operate in these types of echo ranging systems.

The System Echo Response Curve shows the typical voltage as a function of frequency produced on the receiving transducer by an echo from a flat target at a distance of 30 cm. The sound pulse was generated by applying a 1 Volt electrical signal to the transmitting drive voltage.

The System Directional Response shows the relative reduction in the received voltage produced by the echo as the target rotates to different bearing angles. The maximum system response is at the bearing perpendicular to the face of the transducer.

For more information on ultrasonics, including using these curves showing the system responses and the individual transducer response curves shown on the reverse side of this data sheet, visit our Web Site at www.massa.com, or call a Massa Applications Engineer at 781-749-4800.



(Photograph of transducer is approximately actual size.)

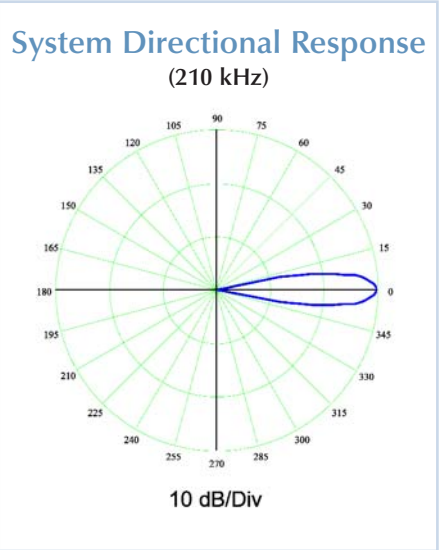
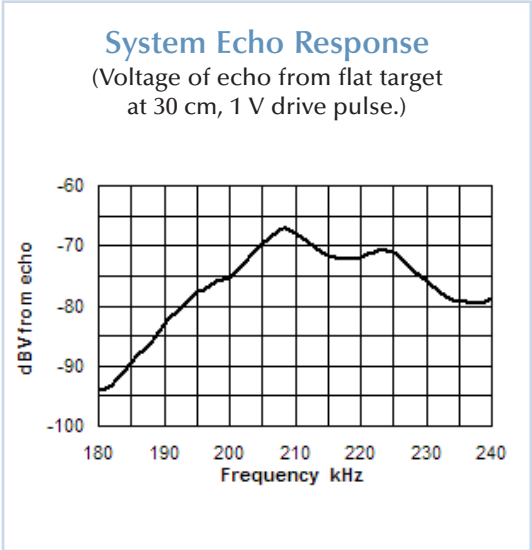
FEATURES

- Plastic Housing
- Sealed Transducer Face
- Operates in Adverse Environments
- Less Performance Variation With Temperature Than Typical Echo Ranging Transducers
- No Minor Lobes

APPLICATIONS

- Proximity Detection
- Robotics
- Level Measurement
- Mechanical Positioning
- Roll Diameter Measurement
- Web Loop Monitoring
- High Speed Counting
- Thickness Control

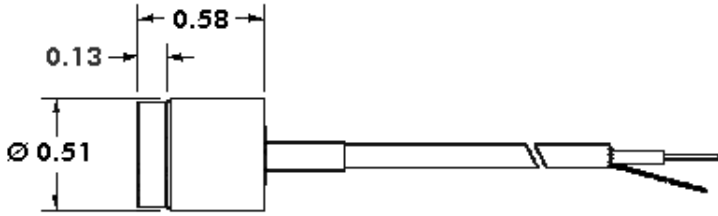
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Model TR-2445/210

OUTLINE DIMENSIONS

(inches)



SPECIFICATIONS

(Typical at 22° C and 50% RH)

SYSTEM RESPONSE

(Same transducer used to transmit a sound pulse then receive an echo.)

Frequency of Peak Response: 210 kHz

Bandwidth: -3 dB 8 kHz
-6 dB 27 kHz

Peak System Sensitivity: -67 dBV
(Voltage of echo from flat target at 30 cm, 1 V drive pulse.)

System Total Beam Angle: -3 dB 10°
-6 dB 12°

TRANSDUCER RESPONSE at 210 kHz

Transmitting Sensitivity: 110 dB
(dB re 1 μ Pa/V at 30 cm)

Receiving Sensitivity: -171 dB
(dB re 1V/ μ Pa)

Impedance Magnitude: 5K Ω

Transducer Total Beam Angle: -3 dB 12°
-6 dB 18°

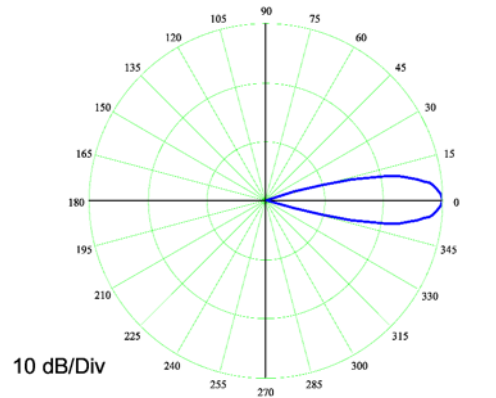
OTHER SPECIFICATIONS

Operating Temperature: -40° to 85°C

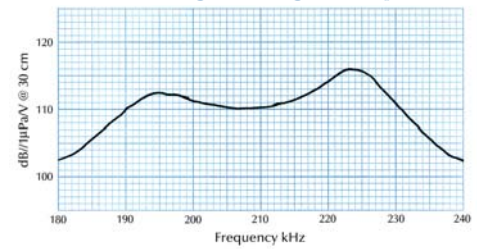
Relative Humidity: 0% to 90%
(non-condensing)

All Specifications subject to change without notice.

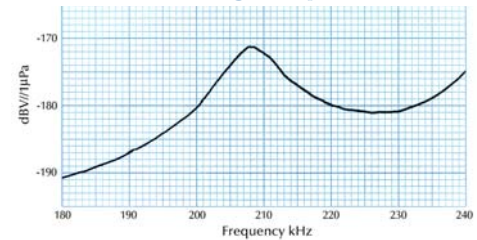
Transducer Directional Response (210 kHz)



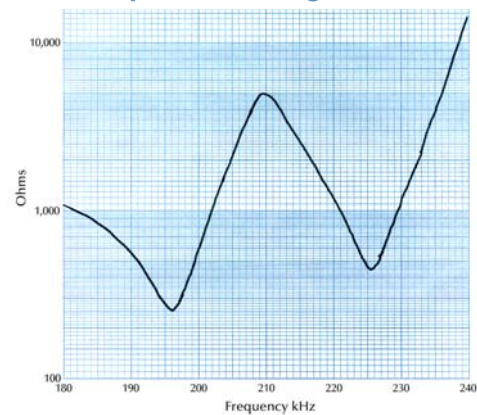
Transmitting Voltage Response



Receiving Response



Impedance Magnitude



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