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# Series 9000 Transducer

SensComp's Series 9000 Piezoelectric transducer is specifically intended for operation in air at ultrasonic frequencies.

## Features

- 45 kHz Piezoelectric Transducer
- Asymmetrical Beam Angle of 17° by 35° (at -6 dB)
- Rugged Construction
- Suited for Harsh Environments
- Specifically Intended for Operation in Air at Ultrasonic Frequencies

## Part No.

PID# 618417LF – Series 9000 Transducer  
 (RoHS Compliant)

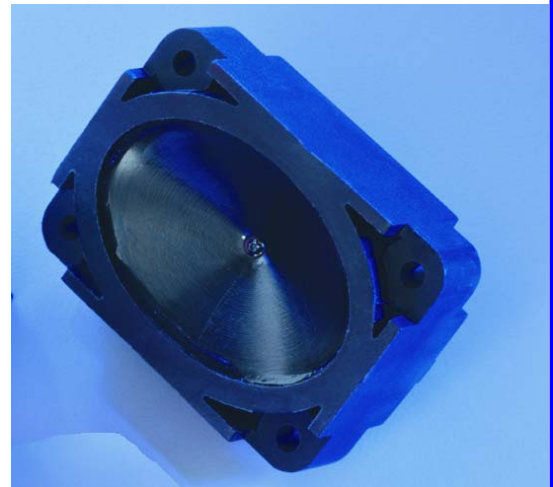
## Benefits

- Meets or Exceeds SAE Specification J1455 for Heavy-duty Trucks
- Withstands Demands of Automotive Exteriors

## Applications

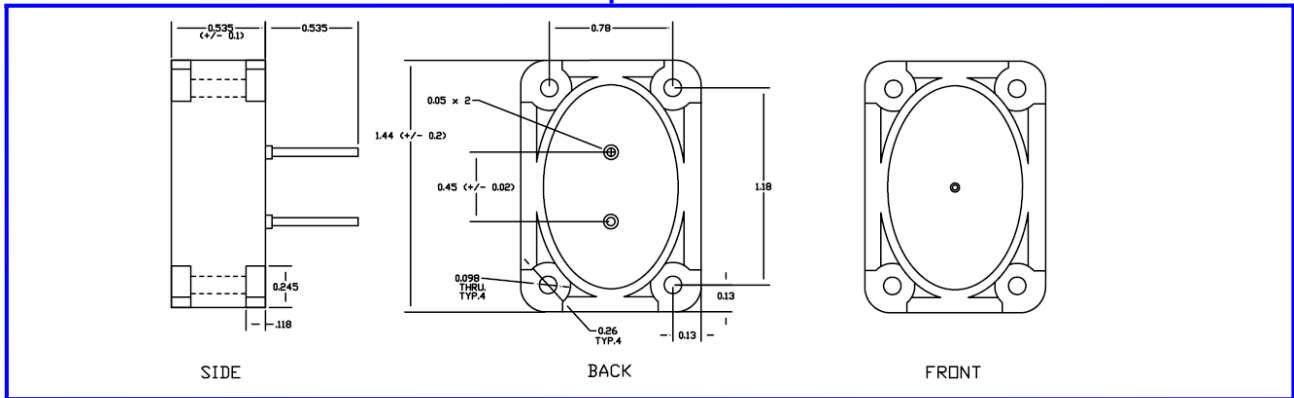
- Level Measurement, Proximity Detection, Presence Detection, Robotics, Educational Products
- Operation in Outdoor Environments

## Specifications



## Description

The Piezoelectric based Series 9000 transducer is specifically intended for operation in air at ultrasonic frequencies. Its rugged construction and unique asymmetrical beam pattern make it an ideal choice to withstand the rigorous demands of the automotive exterior and other harsh environments. This transducer design is intended to meet or exceed the guidelines set forth in SAE specification J1455 for heavy-duty trucks.



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**Series 9000 Specifications**

**Usable Frequency Range**

**Transmitting** ..... See Graph

**Receiving** ..... See Graph

**Beam Pattern** ..... See Graph

Asymmetrical  $17^\circ \pm 2^\circ \times 35^\circ \pm 3^\circ$

**Transmitting Sensitivity** ..... 108 dB min

0dB re 0.0002  $\mu$ bar at 30 cm,

10 Vrms, at 45 kHz

**Receiving Sensitivity** ..... -75 dB min

at 45 kHz; 0dB = 1 volt/ $\mu$ bar

**Suggested AC Driving Voltage** ..... 10-120Vp-p

**Driving Voltage** (10% duty cycle) ..... 140Vp-p max

**Operating Frequency** ..... 45 KHz -2/+3 kHz

**Impedence** ..... 1260 ohms  $\pm 10\%$

At Resonant Frequency 45 kHz

**Capacitance** (typical) ..... 2700 pf

**Construction**

**Outer Housing** ..... Valox Plastic

**Cone** ..... Anodized Aluminum

**Dimensions** in inches ..... See Drawing

Specifications subject to change without notice

**Operating Temperature** ..... -40 to +185° F

**Storage Temperature** ..... -40 to +250° F

**Relative Humidity** (non condensing) ..... 98% at 100° F

**Salt Spray** ..... 5% @ 95% Rh

**Altitude**

**Operating** ..... 12,000 feet

**Non-Operating** ..... 40,000 feet

**Dust, Sand, Gravel Bombardment** .....

1 quart #50 Abrasive Sand, 3.6 ft. drop,

(20) Repetitions

**Mechanical Vibration**

10 G Random Triaxial Vibration,

50 Hz – 2 KHz for 1 hour

**Mechanical Shock**

Survives a 3 foot drop on concrete floor

**Steam Cleaning**

**Input Pressure**

4.5 bf/in<sup>2</sup> min at 200° F

**Pressure Wash**

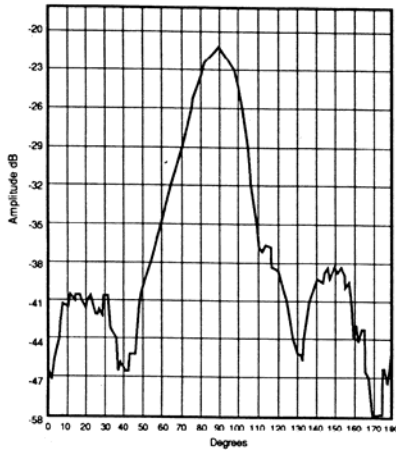
102 lb/ in<sup>2</sup> at 104° F at 150 gal/minute

**Chemical Exposure**

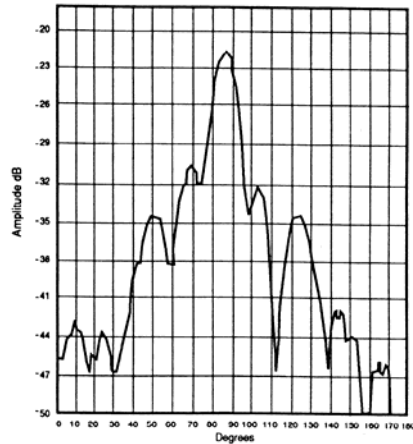
Gasoline, Solvent, Cleaners, Lubricants

**Series 9000 Steady State Electrical Characteristics**

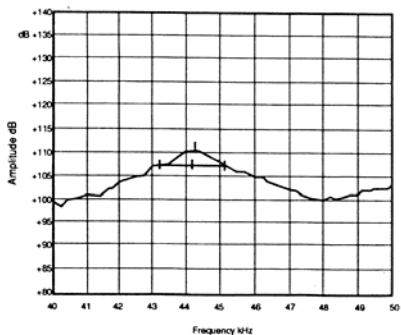
Voltage Variations able to withstand a 15 KV pulse from a 300 pf capacitor through a 5K $\Omega$  lead exposed to the surface, SAE J1211.



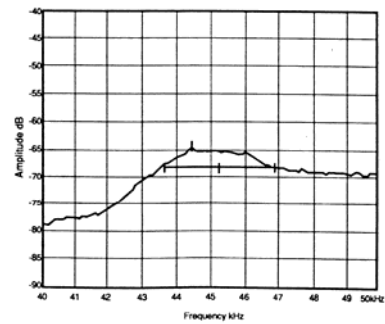
Wide Beam Pattern



Narrow Beam Pattern



Typical Transmit Response



Typical Receive Response

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