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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# 618417 – Series 9000 Piezoelectric Transducer

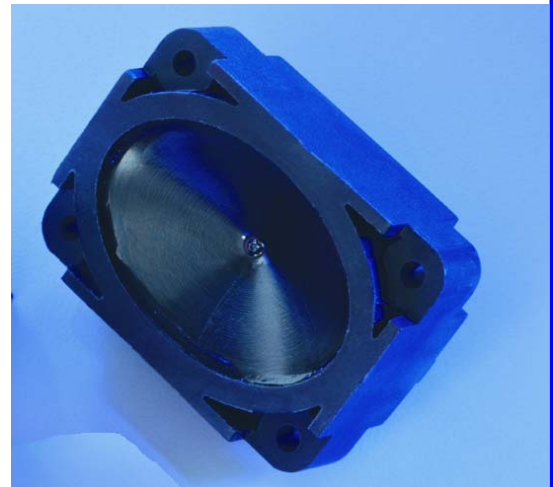
Benefits

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

Applications

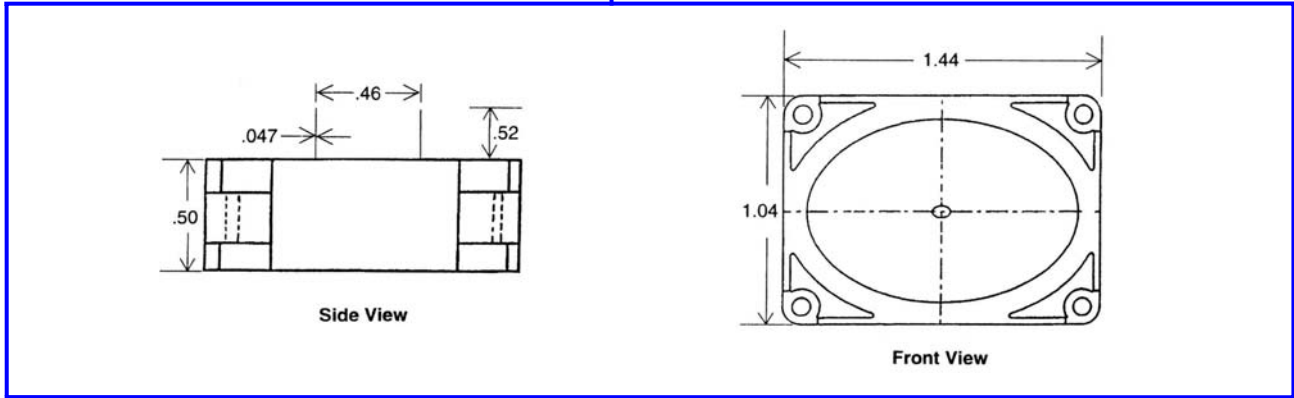
- Level Measurement, Proximity Detection, Presence Detection, Robotics, Educational Products
- Operation in Outdoor Environments

Specifications



Description

The Piezo based 9000 Series 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.



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 μ bar at 30 cm,

10 Vrms, at 45 kHz

Receiving Sensitivity -75 dB min

at 45 kHz; 0dB = 1 volt/ μ 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/in² min at 200° F

Pressure Wash

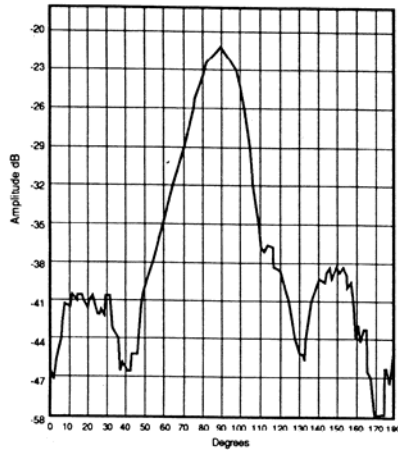
102 lb/ in² at 104° F at 150 gal/minute

Chemical Exposure

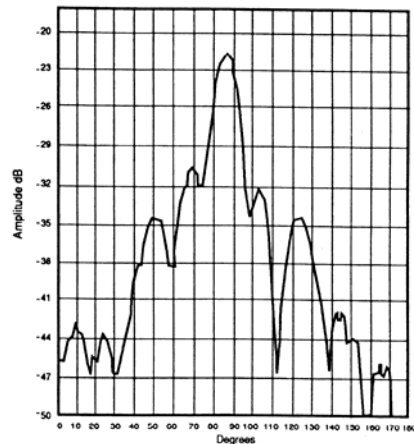
Gasoline, Solvent, Cleaners, Lubricants

Series 9000 Steady State Electrical Characteristics

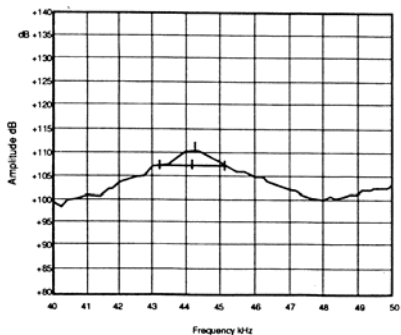
Voltage Variations able to withstand a 15 KV pulse from a 300 pf capacitor through a 5K Ω lead exposed to the surface, SAE J1211.



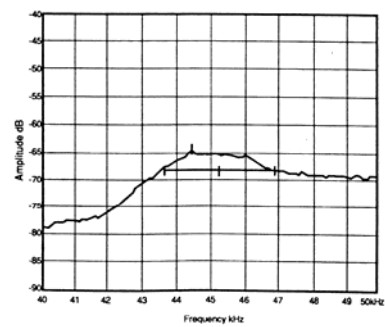
Wide Beam Pattern



Narrow Beam Pattern



Typical Transmit Response



Typical Receive Response