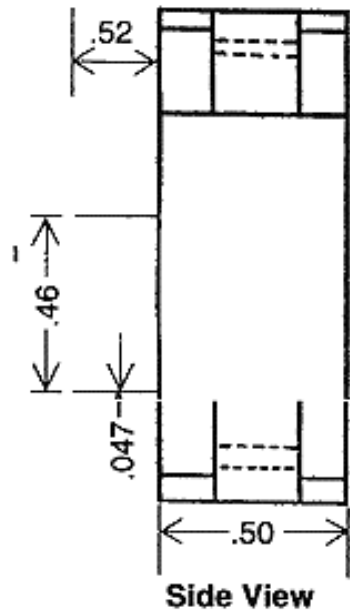
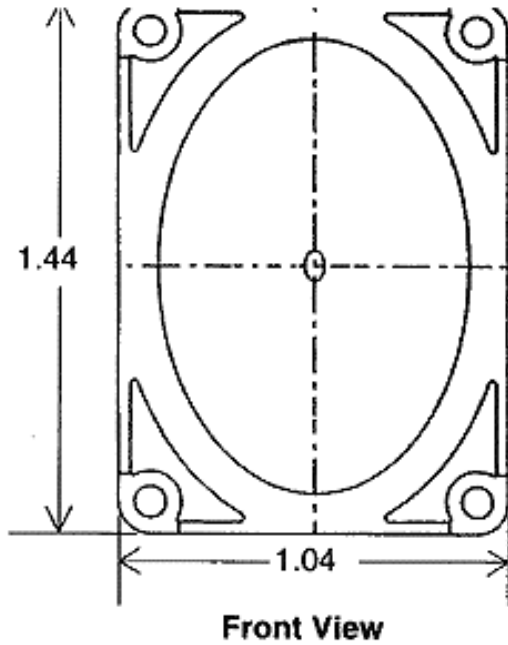


**Part #618416 -Minimum order 10, increments of 10**

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.

**Specifications:**

Usable Transmitting Frequency Range	See Graph
Usable Receiving Frequency Range	See Graph
Beam Pattern: Asymmetrical $17^{\circ} \pm 2^{\circ} \times 35^{\circ} \pm 3^{\circ}$	See Graph
Minimum Transmitting Sensitivity at 45 kHz Ref. 0.0002 microbars at 30 cm, 10 Vrms	108 dB
Minimum Receiving Sensitivity at 45 kHz Ref. 0 dB = 1 V/microbar	-75 dB
Suggested AC Driving Voltage	10-120 Vp-p
Maximum Driving Voltage	140Vp-p 10% Duty Cycle
Operating Frequency	45 kHz +3/-2 kHz
Impedence at Resonate Frequency 45 kHz	1260 ohms $\pm$ 10%
Capacitance	2.7nf Typical
Construction	
Outer housing	Valox Plastic
Cone	Anodized Aluminum
Dimensions in inches	See Drawing



**Environmental Characteristic:**

Operating Conditions

Temperature	40°F to 185°F
Storage Temperature	40°F to 250°F
Humidity	98% at 100°F
Salt Spray	5% at 95% Rh
Altitude to	12,000 ft
Non Operating to	40,000 ft
Dust, Sand, Gravel Bombardment	1 Qt. # 50 Abrasive Sand 3.6 Ft. Drop (20) Repetitions
Mechanical Vibration	10g's Random Triaxial Vibratic from 50 to 2 kHz for 1 hour
Mechanical Shock	Survives a 3 ft drop on concrete floor
Steam Cleaning	
Input Pressure Min.	4.5 bf/in at 200°F
Pressure Wash	102 lb/in at 104°F at 150 gal/min

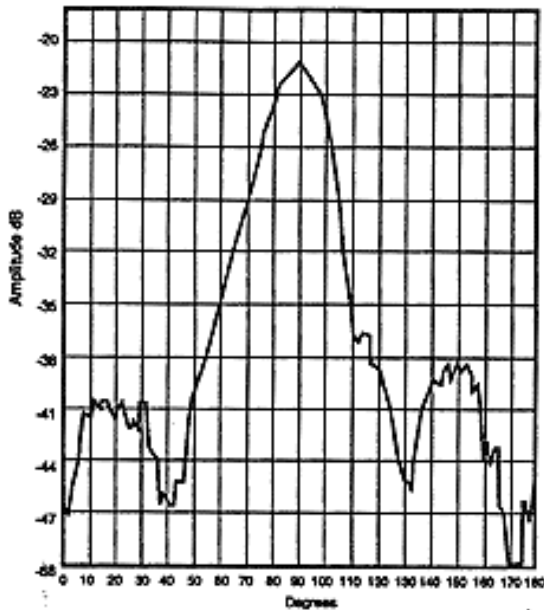
## Chemical Exposure

Gasoline, Solvent, Cleaners, Lubricants

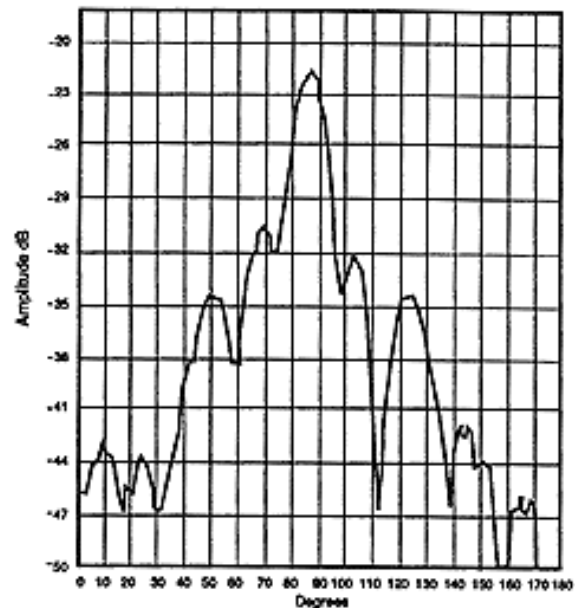
## Steady State Electrical Characteristics:

Voltage Variations able to withstand a 15 Kv pulse from 300 pf capacitor through a 5K ohm load exposed to the surface, SAE J 1211.

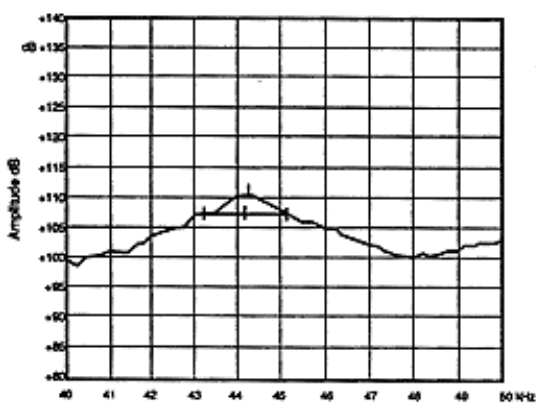
*These specifications are preliminary and may be changed/modified in the course of sensor development.*



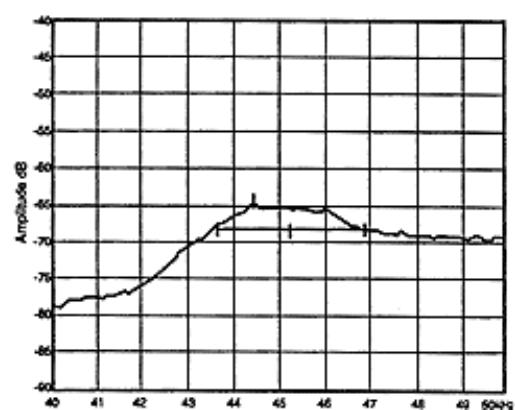
WIDE BEAM PATTERN



NARROW BEAM PATTERN



Frequency kHz  
TYPICAL TRANSMIT RESPONSE



Frequency kHz  
TYPICAL RECEIVE RESPONSE

**Note:** Curves are representative only. Individual response may differ

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