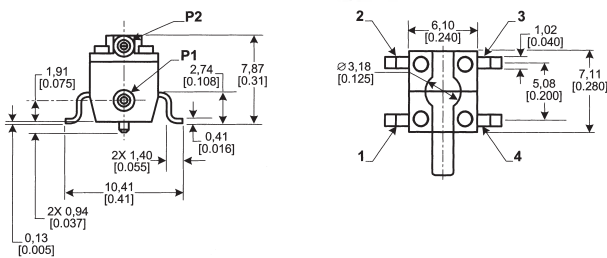




## 22PC SERIES PRESSURE SENSORS GAGE/UNAMPLIFIED-NONCOMPENSATED

**FEATURES:** Lowest prices pressure sensor. Miniature package. Can be used to measure with vacuum or positive pressure. Operable after exposure to frozen conditions. 2 mA constant current excitation significantly reduces sensitivity shift over temperature. Type of seal: fluorosilicone excitation voltage: 10VDC (12VDC max.). Operating temperature: -40°C to +100°C (-40°F to +185°F).

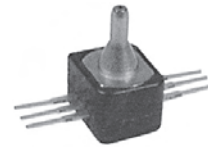
Cat. No.	Pressure Range psi	Sensitivity psi	Type of Port	Overpressure Psi, Max.	Net Price
22PCAF6G	1.0	42mV	Straight	20	\$13.39
22PCAFJ2G	1.0	42mV	Needle	20	13.39
22PCCFA6D	15	15	Straight	45	13.39
22PCCFB6G	15	15	Barbed	45	13.39



## 24PC SMT AND 26PC SMT SERIES MICROSTRUCTURE PRESSURE SENSORS

**FEATURES:** Alignment pins for position accuracy. Small package size (less than one half the size of the 24PC and 26PC) and compact surface mount profile. 3, 18 mm (0.125 in) diameter pick-up feature for use in pick and place machines. Max peak reflow temperature of 260°C (500°F). Gage, vacuum gage, differential, wet/wet differential sensing available in one package. True wet/wet differential sensing. Proven elastomeric interconnections of the 20PC family. Port style: straight, 1.88 mm (0.74 in). Temperature compensated from 0°C to 50°C (32°F to 122°F) (26PC SMT only). Null and full-scale output are calibrated (26PC SMT only). Sensor consists of only five components. Elastomer construction. Wide operating temperature range -40°C to 85°C (-40°F to 185°F). Recommended excitation voltage: 10VDC (10VDC max.). **APPLICATIONS:** Blood glucose monitors. Oxygen conservers. Infusion pumps. Ventilators. Continuous positive airway pressure equipment. Residential fuel cells.

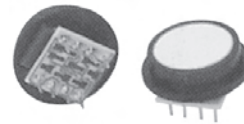
Cat. No.	Pressure Range	Net Price
<b>24PC SMT</b>		
24PC01SMT	0-1 psi	\$10.91
24PC05SMT	0-5 psi	10.91
24PC15SMT	0-15 psi	10.91
<b>26PC SMT</b>		
24PC01SMT	0-1 psi	10.91
24PC05SMT	0-5 psi	10.91
24PC15SMT	0-15 psi	10.91



## 40PC SERIES PRESSURE SENSORS MINIATURE SIGNAL CONDITIONED

**FEATURES:** Small amplified sensor package. Minimum PCB space. Fully signal conditioned. Silicon piezoresistive technology. Monolithic design. 6 pin DIP package. Port designed for O-ring interface. Excellent media compatibility. Accuracy of 0.2%. Supply voltage: 5VDC ±0.25. Supply current: 10mA max. Operating temperature: -45°C to +125°C (-49°F to +257°F).

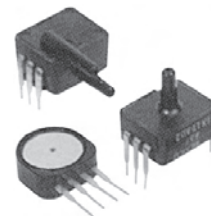
Cat. No.	Pressure Range psi	Pressure Type	Lead Style	Net Price
40PC001B1A	±50 mm Hg	Bi-directional	1-unformed	\$44.20
40PC015G1A	0-15	Gage	1-unformed	44.20
40PC100G1A	0-100	Gage	1-unformed	44.20
40PC150G1A	0-150	Gage	1-unformed	44.20



## 1865 SERIES FORCE/PRESSURE TRANSDUCER

The model 1865 is a high-performance transducer specifically designed to address the needs of medical and specialized OEM applications. Offering laser-trimmed compensation, the model 1865 may be specified to operate with either a constant current or voltage supply. Employs a solid state piezoresistive pressure transducer mounted in a plastic package. Precision height silicone diaphragm provides long life. **FEATURES:** Force measurement for infusion pump applications. Pressure measurement for liquid media. 8-pin DIP electrical connection. Ambient temperature: 27°C ± 1°C (80°F ± 2°F). Dimensions: .675" L x .300" H. **APPLICATIONS:** Infusion pumps. Anesthesia monitors. Non-corrosive, non-pressurized media-level sensors. Ventilation systems. Blood pressure equipment. Syringe pumps. Drug delivery systems.

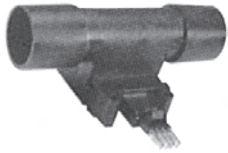
Cat. No.	Pressure range	Pressure Type	Net Price
1865-01G-LDN	0-5 psi	1.5mA	\$170.00
1865-02G-LDN	0-10 psi	1.5mA	170.00
1865-03G-LDN	0-15 psi	1.5mA	170.00
1865-05G-LDN	0-25 psi	1.5mA	170.00
1865-07G-LDN	0-30 psi	1.5mA	170.00
1865-01G-KDN	0-5 psi	10 VDC	170.00
1865-02G-KDN	0-10 psi	10 VDC	170.00
1865-03G-KDN	0-15 psi	10 VDC	170.00
1865-05G-KDN	0-25 psi	10 VDC	170.00
1865-07G-KDN	0-30 psi	10 VDC	170.00



## SLP SERIES LOW PRESSURE SENSOR

The SLP series of pressure sensors provides the lowest cost components for measuring very low pressures. These low pressure range devices were specifically designed to accurately measure differential and gage pressures of 0 inches to four inches of H<sub>2</sub>O. They are meant for use with non-corrosive and non-ionic media, such as air, dry gases, and other like gases. These differential devices allow application of pressure to either side of the diaphragm and can be used for gage or differential pressure measurements. **FEATURES:** High impedance bridge. Low noise. Low power consumption for battery operation. Supply voltage: 7.5VDC. Operating temperature: 0°C to 50°C (32°F to 122°C).

Cat. No.	Pressure Range	Net Price
<b>SENSOR IN BUTTON PACKAGE</b>		
SLP004D	0 in H <sub>2</sub> O to 4.0 in H <sub>2</sub> O and 10.0 in H <sub>2</sub> O	\$150.00
<b>SENSOR IN DIP PACKAGE</b>		
SLP004DD4	0 in H <sub>2</sub> O to 4.0 in H <sub>2</sub> O and 10.0 in H <sub>2</sub> O	150.00



## AWM700 SERIES MASS AIRFLOW SENSORS

AWM700 series microbridge mass airflow sensors provide in-line flow measurement with a specially designed bypass flow housing. The sensors measure flow as high as 200 standard liters per minute (SLPM) while inducing a pressure drop of 1 inch H<sub>2</sub>O, typically. The AWM700 has a high flow range capability in a small package. The AWM700 has a 6 millisecond response time, requires a 10VDC supply, but consumes only 60mW of power. The compact plastic package withstands overpressures of 25 psi without compromising performance. The snap-in AMP compatible connector provides reliable connection. The sensor is also well suited in portable devices and battery-powered applications. Developed primarily for the medical ventilation market, meets the high performance requirements of many medical and analytical instrumentation applications. Operating temperature: -25°C to +85°C (-13°F to +185°F). Recommended excitation voltage: 10VDC (10VDC max.). Signal conditioning: amplified (1VDC to 5VDC). Dimensions: 1.45" H x 1.33" W.

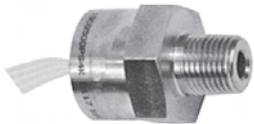
Cat. No.	Flow Range (Full Scale)	Port Style	Net Price
<b>AWM720P1</b>	+200 SLPM	Tapered, 22 mm	<b>\$198.05</b>



## FS SERIES PRESSURE SENSORS FORCE SENSORS

The FS01/FS03 sensors are special low cost, piezoresistive-based force sensors. These high-level voltage output, calibrated, and temperature compensated sensors give an accurate and stable output over a 5°C to 50°C (41°F to 122°F) temperature range. They offer simple operation from a single 5.0VDC supply. Operation from any DC supply voltage, up to 12.0VDC, is acceptable. The FS01/FS03 sensors feature an integrated circuit sensor element and laser trimmed thin film ceramic in a small plastic housing. Their extremely small size enables the use of multiple sensors in limited available space. This package also provides excellent corrosion resistance and isolation to external package stress. **FEATURES:** 0 to 1.5 pounds and 0 to 3.0 pound ranges. Calibrated zero and span. Low noise. Operating temperature: 0°C to 70°C (0°F to 158°F). Supply voltage, V<sub>s</sub>: 12.0VDC. **APPLICATIONS:** Medical infusion pumps. Ambulatory noninvasive pump pressure. Occlusion detection. Kidney dialysis machines. Load and compression sensing. Variable tensions control.

Cat. No.	Operating Force	Maximum Force	Full Scale Span		Net Price
			Typ.	Max.	
<b>FS01</b>	0 lbs to 1.5 lbs	7 lbs	3.0VDC	3.15VDC	<b>\$148.33</b>
<b>FS03</b>	0 lbs to 3.0 lbs	7 lbs	3.0VDC	3.15VDC	<b>148.33</b>



## 13MM SERIES LOW COST, ISOLATED PRESSURE SENSORS

These SenSym ICT 13 mm stainless steel devices are designed for high pressure applications that involve measurement of hostile media in harsh environments. This series uses SenSym ICT's proven piezoresistive semiconductor sensor chip in an oil isolated housing with or without an integral ceramic for temperature compensation and calibration. This design has proven to be highly reliable, stable, and accurate. These sensors feature a weld ring collar and special back support ring for high cycle life capability as they are designed for further package integration in OEM applications. **FEATURES:** Rugged—isolated stainless steel package. Reliable semiconductor technology. Calibrated and

temperature compensated. Voltage or current supply option. Absolute and sealed gauge pressures. Operating temperature: -40°C to +125°C. Life: 1 million cycles min. Insulation resistance: 1000MΩ at 50VDC. **APPLICATIONS:** Industrial controls. Hydraulic controls. Tank pressure. Transmitter.

Cat. No.	Pressure Range psi	Output	Pressure Connection	Net Price
<b>13C1000PS1L</b>	0-1000	1.5mA	Ring with back support	<b>\$150.00</b>
<b>13C3000PS1L</b>	0-3000	1.5mA	Ring with back support	<b>150.00</b>
<b>13C5000PS1L</b>	0-5000	1.5mA	Ring with back support	<b>150.00</b>



## ECLIPSE SERIES PRESSURE TRANSDUCERS

The EC pressure transducer is designed for OEM's who require a reliable pressure transducer for industrial or heavy-duty applications. The EC features our proven all wetted stainless steel design, rugged packaging, internal signal amplifications, and price which make it an ideal sensor for a variety of applications. **FEATURES:** Voltage or current output. Weather proof type connector. Reverse polarity protection. Low excitation voltage. Current: 4.0mA. Voltage: 1.0VDC. Supply current: 15.0mA typical (17.0mA max.). Response time: <500 microseconds. Compensated operating and storage temperature range: -40°C to 105°C (-40°F to 221°F). **BENEFITS:** Flexibility for the designer. Suitable for many applications. Ready for Europe. High reliability in tough environments. Not damaged by reversed excitation. Suitable for ORV or marine use. Complete environmental protection for electronics. **APPLICATIONS:** Hydraulic/pneumatic controls. Air compressors. Energy management. Process control systems. Engine controls and monitors.

Cat. No.	Pressure Range psi	Output	Termination	Pressure Connection	Net Price
<b>EC200PS1PC</b>	200	0.5-4.5VDC	Packard	1/8 27 NPT	<b>\$439.00</b>
<b>EC300PS1PC</b>	300	0.5-4.5VDC	Packard	1/8 27 NPT	<b>439.00</b>
<b>EC500PS1PC</b>	500	0.5-4.5VDC	Packard	1/8 27 NPT	<b>439.00</b>
<b>EC02KPS1PC</b>	02K	0.5-4.5VDC	Packard	1/8 27 NPT	<b>439.00</b>



## ML SERIES PRESSURE TRANSDUCERS

The ML pressure transducer combines the latest in ASIC technology with our proven stainless steel design. This digitally compensated transducer offers an unparalleled value and performance combination making it the ideal pressure sensing solution for demanding automotive and industrial applications. Fully temperature compensated, calibrated, and amplified, the ML is available in 100 to 5000 PSIS pressure ranges. The ML has three standard output options: 0.05 to 4.50VDC ratiometric output from 5VDC excitation, a 1.0 to 6.0VDC regulated output from 7-35VDC excitation, and a 4-20mA current from 9-35VDC excitation. **FEATURES:** High value and outstanding performance. No internal elastomeric seals. Amplified outputs. Reverse polarity protection. Less than 500 microseconds response time. Designed to meet IP65 standards with appropriate mating connector, (Packard #12065287). Exceeds CE heavy industrial EMC. **BENEFITS:** Excellent OEM value. Eliminates O-Ring compatibility issues. Eliminates cost of external amplifiers. Not damaged by reversed excitation. Accurate high speed measurements. Protected from harsh environments. **APPLICATIONS:** Diesel engines. Refrigeration and HVAC systems. Hydraulic fluid pressures. General industrial pressure. Off road vehicles.

Cat. No.	Pressure Range psi	Output	Termination	Pressure Connection	Net Price
<b>ML100PS1PC</b>	100	0.5-4.5VDC	Packard	1/8 27 NPT	<b>\$220.62</b>
<b>ML100PS1PG</b>	100	4-20 mA	Packard	1/8 27 NPT	<b>220.62</b>
<b>ML01KPS1PC</b>	01K	0.5-4.5VDC	Packard	1/8 27 NPT	<b>220.62</b>

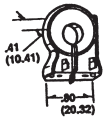


FIG. 1



FIG. 2

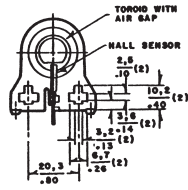


FIG. 3

### CSLA SERIES LINEAR OUTPUT CURRENT SENSORS

CSLA series solid-state sensors provide output voltage directly proportional to current flow. AC or DC sensing. 8-16VDC supply for series CSLA1. 6-12VDC supply for series CSLA2. Series CSLA2 feature temperature compensation circuitry. Offset voltage:  $V_s/2$ . Output voltage swings from 25% of  $V_s$  to 75% of  $V_s$ . NOTE: Thru-hole design does not require electrical connection to sensed current. Max. sensed current is only limited by the conductor size.

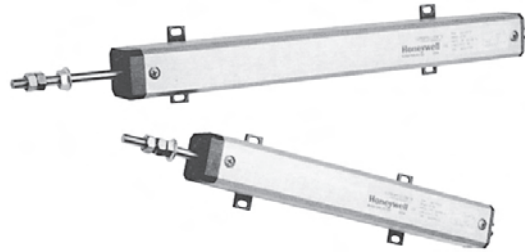
Cat. No.	Fig.	Sensed Current	Sensitivity mV/NI	Net Price
CSLA1CD	1	57A	*49.6 (Nom.)	<b>\$19.03</b>
CSLA1CF	1	100A	*29.7 (Nom.)	<b>21.14</b>
CSLA1DJ	2	225A	*13.2 (Nom.)	<b>21.14</b>
CSLA1EL	3	625A	*13.2 (Nom.)	<b>34.05</b>
CSLA2CD	1	72A	**32.7 (Nom.)	<b>15.44</b>
CSLA2CE	1	92A	**26.1 (Nom.)	<b>15.44</b>
CSLA2EJ	3	310A	**7.6 (Nom.)	<b>35.37</b>
CSLA2EL	3	550A	**4.3 (Nom.)	<b>35.37</b>

\*At 12VDC supply.  
\*\*At 8VDC supply.

### CSN NULL-BALANCE CURRENT SENSORS

CSN series solid-state sensors measure AC, DC, and impulse currents. Operation based on the Hall-effect principle and the null-balance or zero magnetic flux method (feedback system). The magnetic field on the sensor is constantly controlled at zero. The amount of current required to balance zero flux is the measure of primary current flowing through conductor multiplied by the ratio of the primary to secondary windings.  $\pm 0.5\%$  accuracy. Response time:  $1\mu\text{sec}$ . NOTE: Thru-hole design does not require electrical connection to the sensed current. Max. sensed current is only limited by the conductor size.

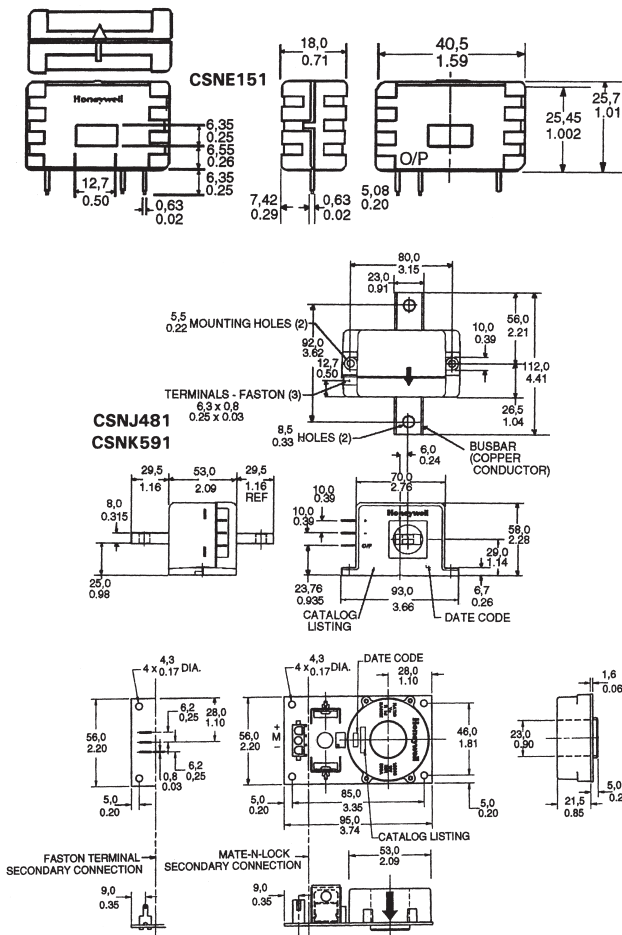
Cat. No.	Current Range Amps	Supply Voltage VDC $\pm 5\%$	Measuring Resistance (@ $I_{nom}$ )	Net Price
CSNE151	$\pm 5$ -36	$\pm 15$	100 to $320\Omega$	<b>\$22.30</b>
CSNJ481	$\pm 600$	$\pm 12$ to 18	0 to $70\Omega$	<b>115.13</b>
CSNK591	$\pm 1200$	$\pm 15$ to 24	0 to $130\Omega$	<b>136.74</b>
CSNL181	$\pm 600$	$\pm 12$ to 18	0 to $120\Omega$	<b>100.74</b>



### LFII SERIES LONGFELLOW II LINEAR POSITION TRANSDUCERS

The Longfellow II incorporates design innovations to increase transducer life and provide greater resistance to vibration, while providing a smooth high quality signal for demanding factory control applications. It has a solid stainless steel shaft, long front-end bearings, a vibration-free damped element, a spring-loaded ball joint, and a high precision metal wiper. Carrier guides are extruded the full length of the housing to ensure smooth operation even under severe side load conditions. The newly designed internal components provide improvements based on worldwide testing and field experience. **FEATURES:** Mechanical life: 1 billion dither operations. Approvals: CE, NEMA 4—water resistant. Housing: anodized aluminum. Supply voltage (max.): 30VDC. Linearity:  $\pm 0.1\%$ . Total resistance: 5000 ohms. Wiper current:  $< 1\mu\text{A}$ . Resolution: infinite. Shaft: 1/4 in., stainless steel. Termination: connector, binder series 681. Housing length: =Electrical travel +3.19 in (81.02 mm). Mechanical travel: =Electrical travel +0.09 in (2.29 mm).

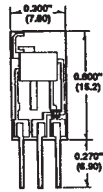
Cat. No.	Electrical Travel in (mm)	Net Price
LF2S06N5KB6A	6.0 (152.4)	<b>\$520.00</b>
LF2S12N5KB6A	12.0 (304.8)	<b>555.00</b>
LF2S14N5KB6A	14.0 (355.6)	<b>639.00</b>
LF2S24N5KB6A	24.0 (609.6)	<b>839.00</b>



CSNL181

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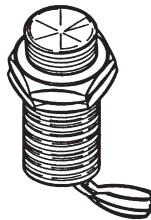


## SOLID-STATE SENSORS SS94 SERIES LINEAR HALL-EFFECT TRANSDUCERS

Operated by a magnetic field, the output voltage varies proportionally to the field strength. All sensors feature temperature compensation circuitry. SS94A2 features silver back for improved noise immunity. Gauss range of -500 to +500 except SS94A1F all -100 to +100. SS94A1F—High sensitivity.

Cat. No.	Supply VDC	Supply mA	MV/Gauss Output @ 25°C*	Linearity % of Span	Net Price
<b>SS94A1</b>	6.6-12.6	30.0	5.000	1.5% max	<b>\$15.02</b>
<b>SS94A1B</b>	4.5-8.0	17.5	1.875	1.5% max	<b>15.60</b>
<b>SS94A1F†</b>	6.6-12.6	30.0	25.000	1.5% max	<b>17.55</b>
<b>SS94A2</b>	6.6-12.6	30.0	5.000	1.5% max	<b>18.71</b>

\*Nominal at 8 VDC Supply except SS94A1B at 5VDC.  
†High sensitivity.



## SR4 SERIES MAGNETICALLY-OPERATED SENSORS

SR4 magneto resistive position sensor is completely sealed in a threaded plastic bushing and meets NEMA 3, 3R, 3S, 4, 4X, 12 and 13. The 15 gauss typical operate point at 25°C allows sensing distances of 0.5 inches with the standard 102MG11 and over 1 inch with slightly stronger magnets. Can be operated with either the North or South magnetic pole.

Cat. No.	Supply VDC	Supply mA	Output VDC	Net Price
<b>SR4P2-A1</b>	6 to 24	13.5	0.4	<b>\$26.51</b>



FIG. 1



FIG. 2

## TYPES SS4/SS5 MAGNETICALLY OPERATED, SMALL-SIZE SENSORS

Position sensors have digital current sink output. Types SS4 are for through hole TO92 PC board mounting. Types SS1 have SOT89 package for surface mount. SS400 and SS100 series feature temperature compensation. Operating speed: 0 to over 100kHz. Supply voltage: 3.8-24VDC. Output voltage: 0.4V max. Dimensions: PC board packages are 0.160 × 0.118" (4.06 × 3.00); surface mount packages are 0.177 × 0.136 × 0.059" (4.50 × 3.45 × 1.50). Type SS19 is SOT89 package for surface mount.

Cat. No.	Fig.	Magnetics	Supply Current	Gauss Level @ 25°C		Net Price
				OP	RP	
<b>PC BOARD</b>						
<b>SS41</b>	1	Bipolar	8.7mA	40	-40	<b>\$1.53</b>
<b>SS411A</b>	1	Bipolar	10.0mA	60	-60	<b>1.95</b>
<b>SS443A</b>	1	Unipolar	10.0mA	180	75	<b>1.63</b>
<b>SS441A</b>	1	Unipolar	10.0mA	115	20	<b>1.95</b>
<b>SS461A</b>	1	Latch	10.0mA	85	-85	<b>1.95</b>
<b>SS466A</b>	1	Latch	10.0mA	180	-180	<b>1.69</b>

<b>SURFACE MOUNT</b>						
<b>SS511AT</b>	2	Bipolar	10.0mA	60	-60	<b>2.06</b>
<b>SS543AT</b>	2	Unipolar	10.0mA	—	—	<b>2.06</b>
<b>SS561AT</b>	2	Latch	10.0mA	85	-85	<b>2.06</b>
<b>SS566AT</b>	2	Latch	10.0mA	—	—	<b>2.06</b>

## MINIATURE LINEAR PC BOARD SENSORS

Cat. No.	Supply VDC	Supply mA	Sensitivity* MV/Gauss	Net Price
<b>SS19</b>	4-10	4.0	0.9	<b>\$1.69</b>
<b>SS49</b>	4-10	4.0	0.9	<b>1.48</b>
<b>SS495A</b>	4.5-10.5	7.0	3.125±0.125	<b>2.74</b>
<b>SS495A1</b>	4.5-10.5	7.0	3.125±0.094	<b>3.43</b>

\*Nominal @ 5.0VDC supply.



2SSP



SS2

Feature magneto-resistive sensor with digital current sink output. Can be operated with either north or south magnetic pole, 3-pin, in-line PC board terminals on 0.100" (2.54) mounter centres. For SS21 and SS22 output voltage: 0.4V max. Typical OP @ 25°C: 15 gauss. Typical RP @ 25°C: 11 gauss. 0.3" × 0.3" (7.62 × 7.62), with epoxy chip protection. Type 2SSP 0.18" × 0.18" (4.57 × 4.57) plastic package.

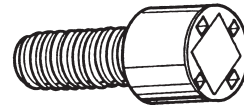
Cat. No.	Operate Gauss	Supply Voltage	Supply Current	Net Price
<b>SS21PE</b>	15	4.5-5.5VDC	10mA	<b>\$7.64</b>
<b>SS22PE</b>	15	6-24VDC	13.5mA	<b>7.64</b>



101 MG7



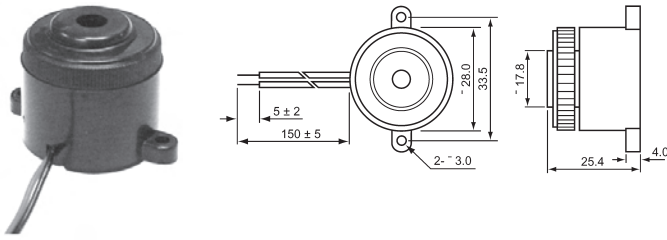
102 MG11  
(8-32 ALUMINUM THREAD)



106 MG10  
(1/4-20 PLASTIC THREAD)

Bar magnets are ideal for sensors with unipolar magnetic characteristics. Gauss level @ 25°C: 470. Gap distance: 0.100" (2.54). Other threaded bushing, bar, ring magnets, and ring magnets with alternate North and South poles for use with bipolar magnetic sensors are available.

Cat. No.	Dimensions		Gauss Level @		Net Price
	Length	Outside Dia.	0.050"	0.100"	
<b>101MG7</b>	0.25" (6.35)	0.25" (6.35)	755	470	<b>\$4.32</b>
<b>102MG11</b>	0.67" (17.02)	0.31" (7.87)	755	205	<b>7.80</b>
<b>106MG10</b>	0.93" (23.62)	0.40" (10.16)	1600	940	<b>11.23</b>



## SERIES XL-450, XL-451, AND XL-453 PIEZO CERAMIC AUDIO INDICATORS

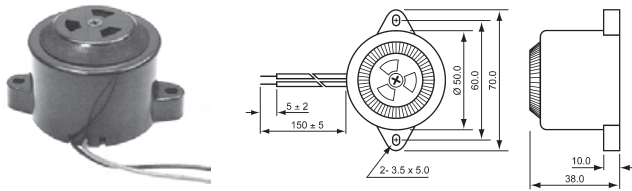
**FEATURES:** Continuous, slow, or fast pulsing tones. Flange and panel mounting (fits .75" dia. opening). Two voltages available: 3-28 and 4-28VDC. 3500 Hz frequency. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.529 oz. (15 grams). Wire: AWG No. 26, stranded. Wire Colour Code: red (+), black (-).

### ELECTRICAL

Parameter	Conditions	XL-450	XL-451	XL-453	Units
Supply Voltage		3-28	4-28	4-28	VDC
Rated Current (max.)	V <sub>cc</sub> =12V	10	10	6	mA
Fundamental Frequency	V <sub>cc</sub> =12V	3500 ±500	3500 ±500	3500 ±500	Hz
Sound Pressure Level @ 10cm (min.)	V <sub>cc</sub> =12V	100	95	97	dBA
Pulse Rate (typ.)	V <sub>cc</sub> =12V		3.0	1.2	Hz
Temperature Range:					
● Operating			-20° to +60°		°C
● Storage			-30° to +70°		°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
<b>XL-450</b>	<b>\$5.94</b>
<b>XL-451</b>	<b>8.06</b>
<b>XL-453</b>	<b>8.06</b>



## SERIES XL-960 AND XL-980 PIEZO CERAMIC AUDIO INDICATORS

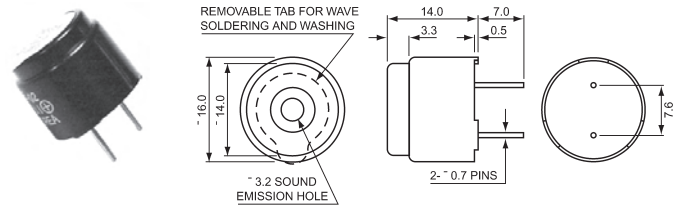
**FEATURES:** Very clear continuous and high-low tones. 2500 Hz frequency. Flange mounting with wire leads. Vane volume control (volume level can be changed up to 15 dBA between "open" and "closed" positions). **SPECIFICATIONS:** Case: ABS, black. Weight: **XL-960:** 1.23 oz. 935 grams), **XL-980:** 1.69 oz. (48 grams). Wire: AWG No. 24, stranded. Wire Colour Code: red (+), black (-).

### ELECTRICAL

Parameter	XL-960	XL-980	Units
Supply Voltage	3-16	3-16	VDC
Rated Voltage	12	12	VDC
Current Consumption (max.)	58	120	mA
Resonant Frequency	2500 ±500	1100-2800	Hz
Sound Pressure Level @ 10cm (min.) (Volume control open)	110	110	dBA
Tone	Continuous	High/Low	
Temperature Range:			
● Operating	-30° to +80°	-30° to +80°	°C
● Storage	-40° to +80°	-40° to +80°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
<b>XL-960</b>	<b>\$11.77</b>
<b>XL-980</b>	<b>22.24</b>



## SERIES AT-02 AND AT-03 MINIATURE ELECTRO-MECHANICAL TRANSDUCERS

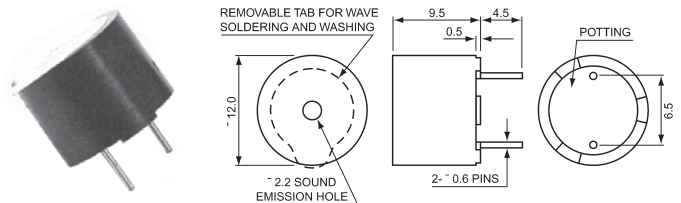
**FEATURES:** P.C. board mounting. Wave solderable and washable. 2048 Hz resonant frequency. 6 and 12 voltage ratings available. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.16 oz. (4.5 grams). P.C. Pins: tin-plated brass. Unit has potted base and removable tab for wave soldering and washing.

### ELECTRICAL

Parameter	AT-02	AT-03	Units
Rated Voltage	6	12	Vp-p
Operating Voltage	4-8	9-15	Vp-p
Rated Current (max.)	40		mA
Frequency Range	1000-5000		Hz
Resonant Frequency	2048		Hz
Sound Pressure Level @ 10cm (min.)	85		dBA
Temperature Range:			
● Operating	-20° to +70°		°C
● Storage	-30° to +80°		°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
<b>AT-02</b>	<b>\$1.72</b>
<b>AT-03</b>	<b>2.04</b>



## SERIES AT-08 AND AT-09 ELECTRO-MECHANICAL AUDIO TRANSDUCERS

**FEATURES:** P.C. board mounting. Wave solderable and washable. 2400 Hz resonant frequency. Two voltages available: 5V and 12V. **SPECIFICATIONS:** Case: Noryl SE1-GFN2J. Weight: 0.17 oz. (2 grams). P.C. Pins: tin-plated copper.

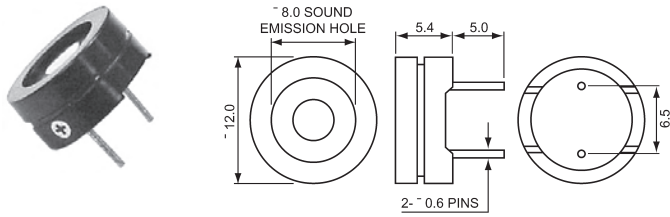
### ELECTRICAL

Parameter	AT-08	AT-09	Units
Rated Voltage	5	12	Vp-p
Operating Voltage	3-8	6-15	Vp-p
Rated Current* (max.)	40	40	mA
Coil Resistance ±20%	47	140	Ohm
Resonant Frequency	2400		Hz
Sound Pressure Level @ 10cm (min.)	85		dBA
Temperature Range:			
● Operating	-20° to +70°		°C
● Storage	-30° to +80°		°C

**NOTE:** All data at 25°C unless otherwise specified.

\*Value at rated voltage (2400 Hz, 1/2 duty, Square Wave).

Cat. No.	Net Price
<b>AT-08</b>	<b>\$1.38</b>
<b>AT-09</b>	<b>1.67</b>



## SERIES AT-101Z ELECTRO-MECHANICAL AUDIO TRANSDUCER

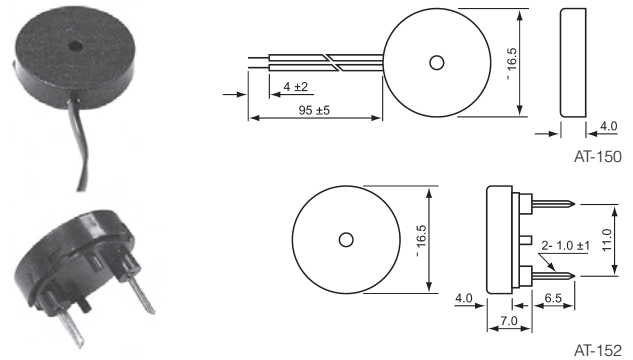
**FEATURES:** P.C. board mountable. 2048 Hz resonant frequency. Voltage range (1-3V). Low profile/compact configuration. **SPECIFICATIONS:** Case: Noryl SEI-J. Weight: 0.07 oz. (2 grams). P.C. Pins: tin-plated copper.

### ELECTRICAL

Parameter	AT-101Z	Units
Rated Voltage	1.5	Vp-p
Operating Voltage	1-3	Vp-p
Rated Current* (max.)	10	mA
Coil Resistance $\pm 30\%$	50	Ohm
Coil Impedance**	140	Ohm
Resonant Frequency	2048	Hz
Sound Pressure Level @ 10cm (min.)	73	dBA
Temperature Range:		
• Operating	-20° to +70°	°C
• Storage	-30° to +80°	°C

**NOTE:** All data at 25°C unless otherwise specified.  
\*Value applying rated voltage (2,048 Hz, 1/2 duty, Square Wave).  
\*\*Value applying (2,048 Hz Sine Wave, measuring current 60 Micro A).

Cat. No.	Net Price
AT-101Z	\$ .87



## SERIES AT-150 AND AT-152 PIEZO CERAMIC AUDIO TRANSDUCERS

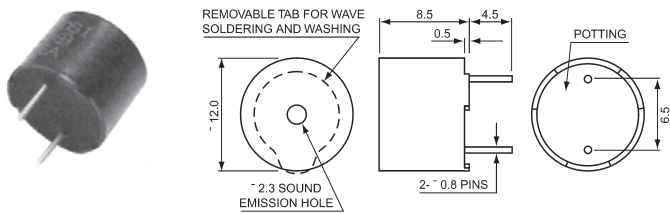
**FEATURES:** P.C. board or surface mounting with wire leads. Wave solderable. Voltage range: 1-30V. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.04 oz. (1 gram). P.C. Pins: tin plated brass. Wire: AWG no. 30 wire colour code: red (+), black (-).

### ELECTRICAL

Parameter	AT-150 and AT-152	Units
Input Voltage (max.)	15	Vp-p
Rated Current (max.)	11	mA
Frequency Range	3000-5000	Hz
Sound Pressure Level @ 10cm (typ.)	80 @ 4KHz (3 Vp-p square wave)	dBA
Capacitance	21,000	
Temperature Range:		
• Operating	-20° to +60°	°C
• Storage	-30° to +70°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-150	\$1.33
AT-152	1.56



## SERIES AT-10SI AND AT-10Z ELECTRO-MECHANICAL AUDIO TRANSDUCERS

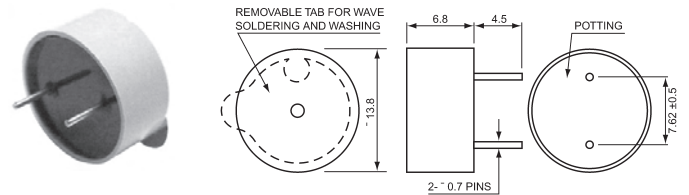
**FEATURES:** P.C. board mounting. Wave solderable and washable (AT-10SI only). Removable tab and epoxy sealed based (AT-10SI only). Voltage range: 1-3V. **SPECIFICATIONS:** Case: Noryl SEI-J. Weight: 0.07 oz. (2 grams). P.C. Pins: tin-plated copper.

### ELECTRICAL

Parameter	AT-10SI	AT-10Z	Units
Rated Voltage	1.5	1.5	Vp-p
Operating Voltage	1-7	1-3	Vp-p
Rated Current (max.)	40	10*	mA
Coil Resistance $\pm 30\%$	16	42	Ohm
Coil Impedance**		140	Ohm
Resonant Frequency	2800	2048	Hz
Sound Pressure Level @ 10cm (min.)	85		dBA
Temperature Range:			
• Operating	-30° to +70°		°C
• Storage	-40° to +85°		°C

**NOTE:** All data at 25°C unless otherwise specified.  
\*Value applying rated voltage (2,048 Hz, 1/2 duty, Square Wave).  
\*\*Value applying (2,048 Hz Sine Wave, measuring current 60 Micro A).

Cat. No.	Net Price
AT-10SI	\$1.64
AT-10Z	.98



## SERIES AT-17 SUB-MINIATURE PIEZO CERAMIC AUDIO TRANSDUCER

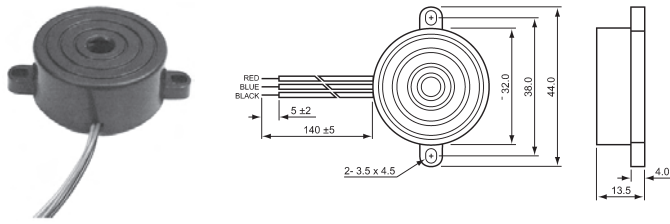
**FEATURES:** 3800 Hz resonant frequency. Voltage range: 1-20V. P.C. board mounting. Wave solderable and washable. **SPECIFICATIONS:** Case: Noryl SEI grey. Weight: 0.0353 oz. (1 gram). P.C. Pins: copper covered iron with tin plating.

### ELECTRICAL

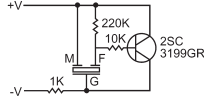
Parameter	AT-17	Units
Operating Voltage	1-20	Vp-p
Rated Current (max.)	1	mA
Capacitance	13,000 $\pm 30\%$	pF
Sound Pressure Level @ 10cm (min.)	80	dBA
Resonant Frequency	3800	Hz
Temperature Range:		
• Operating	-30° to +80°	°C
• Storage	-30° to +80°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-17	\$2.60



The current consumption and the sound pressure level are measured by using the recommended driving circuit shown at right.



### SERIES AT-173 PIEZO CERAMIC AUDIO TRANSDUCER

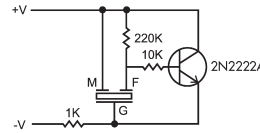
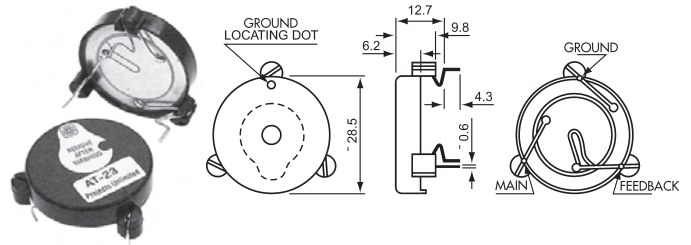
**FEATURES:** Flange mounting. 3700 Hz frequency. Low power consumption. Feedback connection. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.261 oz. (7.4 grams). Wire: AWG no. 28. Wire Colour Code: red (+), black (-), blue (feedback connection).

#### ELECTRICAL

Parameter	AT-173	Units
Rated Voltage	12	VDC
Operating Voltage	3-28	VDC
Resonant Frequency	3700±500	Hz
Rated Current (max.)	7	mA
Sound Pressure Level @ 10cm (min.)	100	dBA
Temperature Range:		
● Operating	-30° to +85°	°C
● Storage	-40° to +95°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-173	\$2.17



The AT-23 has a feedback connection for use in oscillator circuits. (See feedback in mechanical drawing.) If feedback is not utilized, feedback can be jumpered to the ceramic element designated as main.

### SERIES AT-23 PIEZO CERAMIC AUDIO TRANSDUCERS

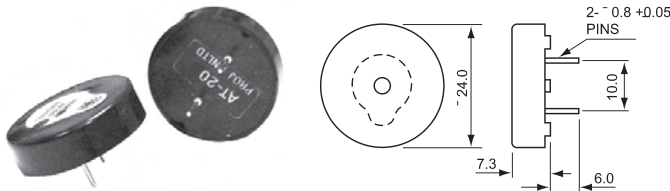
**FEATURES:** P.C. board mounting. Wave solderable and washable. 3100 Hz frequency. Voltages range: 1-28V. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.113 oz (3.2 grams). P.C. Pins: tin-plated copper.

#### ELECTRICAL

Parameter	AT-23	Units
Frequency Resonant	3000	Hz
Maximum Voltage	28	Vp-p
Temperature Range:		
● Operating	-30° to +80°	°C
● Storage	-40° to +80°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-23	\$2.84



### SERIES AT-20 MINIATURE PIEZO CERAMIC AUDIO TRANSDUCERS

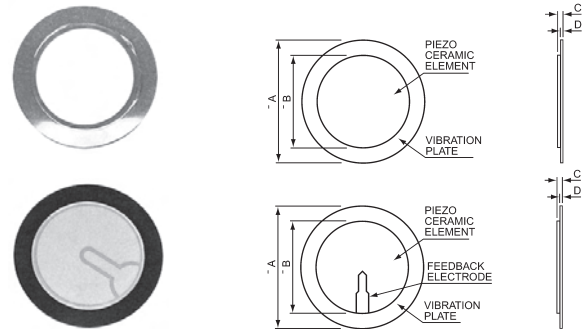
**FEATURES:** P.C. board mounting. Wave solderable and washable. 4000 Hz frequency. Voltages range: 1-30V. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.11 oz. (3.2 grams). P.C. Pins: tin-plated brass.

#### ELECTRICAL

Parameter	AT-20	Units
Resonant Frequency	4.0±0.5	KHz
Sound Pressure Level @ 10cm (typical)	85 @ 4Kz (3 Vp-p sine wave)	dBA
Rated Current (typ.)	1.0 max.	mA
Capacitance	21,000±30%	pF
Maximum Input	30	Vp-p
Temperature Range:		
● Operating	-20° to +60°	°C
● Storage	-30° to +70°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-20	\$1.56



### PIEZO CERAMIC BENDERS

**FEATURES:** Low power consumption. Reliable and lightweight. Direct TTL or CMOS drive. Can be supplied with leads or in housing. Operating temperature range: -20° to +60°C.

#### DIMENSIONAL

Cat. No.	Dimensions in Millimeters			
	A	B	C	D
AB1548B	15.0±0.1	8.9±0.1	0.21±0.05	0.09±0.02
AB2020A	20.0±0.1	15.0±0.3	0.13±0.05	0.05±0.03
AB2036AF	20.0±0.1	15.0±0.3	0.21±0.05	0.10±0.02
AB2038BF	20.0±0.1	15.0±0.5	0.28±0.10	0.15±0.03
AB2040B	20.0±0.1	15.0±0.5	0.28±0.10	0.15±0.10
AB2065B	20.0±0.1	15.0±0.3	0.41±0.07	0.20±0.02
AB2720B	27.0±0.1	20.0±0.5	0.23±0.10	0.10±0.03
AB2720BF	27.0±0.1	20.0±0.3	0.23±0.10	0.10±0.05
AB2728B	27.0±0.1	20.0±0.5	0.33±0.10	0.15±0.03
AB2734B	27.0±0.1	14.6±0.5	0.53±0.10	0.30±0.05
AB2737BF	27.0±0.1	20.0±0.4	0.41±0.05	0.20±0.02
AB2745BF	27.0±0.1	20.0±0.4	0.51±0.07	0.25±0.02
AB2746B	27.0±0.1	20.0±0.3	0.51±0.07	0.25±0.02
AB3526B	35.0±0.1	25.0±0.5	0.53±0.10	0.25±0.05
AB3529BF	35.0±0.1	25.0±0.5	0.58±0.10	0.30±0.05
AB4406B	44.0±0.1	25.0±0.4	0.23±0.10	0.10±0.03

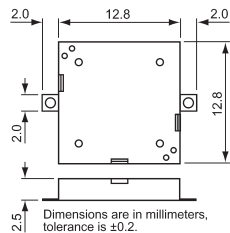
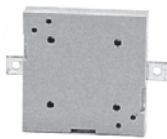
**NOTE:** All data at 25°C unless otherwise specified.

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## ELECTRICAL

Cat. No.	Resonant Frequency (KHz)	Res. Resist. (Ohm max.)	Electro. Capacit. (nF) ( $\pm 30\%$ )	Shape	Net Price
AB1548B	4.8 $\pm$ 0.5	2000	7.5	A	\$1.03
AB2020A	2.0 $\pm$ 0.5	300	90	A	.64
AB2036AF	3.7 $\pm$ 0.5	500	20	B	1.03
AB2038BF	3.8 $\pm$ 0.5	350	17	B	.95
AB2040B	4.0 $\pm$ 0.5	350	25	A	.24
AB2065B	6.5 $\pm$ 1.0	300	14	A	.24
AB2720B	2.0 $\pm$ 0.5	300	45	A	1.46
AB2720BF	2.0 $\pm$ 0.5	500	35	B	1.86
AB2728B	2.8 $\pm$ 0.5	300	30	A	1.30
AB2734B	3.4 $\pm$ 0.5	1000	13	A	1.17
AB2737BF	3.7 $\pm$ 0.5	400	20	B	1.22
AB2745BF	4.5 $\pm$ 0.5	500	16	B	.90
AB2746B	4.6 $\pm$ 0.5	250	16	A	.78
AB3526B	2.6 $\pm$ 0.5	300	30	A	1.46
AB3529BF	2.9 $\pm$ 0.5	500	25	B	1.51
AB4406B	0.6 $\pm$ 0.3	1000	70	A	2.04

NOTE: All data at 25°C unless otherwise specified.



### SERIES SMT-1325 PIEZO CERAMIC AUDIO TRANSDUCERS

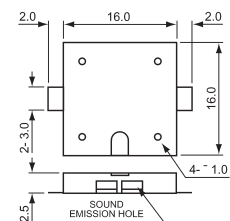
**FEATURES:** Surface mounting. Compatible with convection, IR, and vapour phase. 4100 Hz resonant frequency. 2.5mm low profile miniature case configuration.

## ELECTRICAL

Parameter	SMT-1325	Units
Operating Voltage (max.)	25	Vp-p
Rated Voltage	5	Vp-p
Rated Current (max.)	3	mA
Resonant Frequency	4100	Hz
Sound Press. Level @ 10cm (min.)	76	dBA
Capacitance @ 1KHz	16 $\pm$ 30%	nF
Temp. Range: Operating/Storage	-20° to +70° / -30° to +80°	°C

NOTE: All data at 25°C unless otherwise specified.

Cat. No.	Net Price
SMT-1325	\$2.47



### SERIES SMT-1625 PIEZO CERAMIC AUDIO TRANSDUCERS

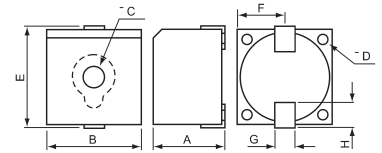
**FEATURES:** Surface mounting. Compatible with convection, IR, and vapour phase. 4000 Hz resonant frequency. 2.5mm low profile miniature case configuration.

## ELECTRICAL

Parameter	SMT-1625	Units
Operating Voltage (max.)	25	Vp-p
Rated Voltage	5	Vp-p
Rated Current (max.)	3	mA
Resonant Frequency	4000	Hz
Sound Press. Level @ 10cm (min.)	70	dBA
Capacitance @ 1KHz	14 $\pm$ 30%	nF
Temp. Range: Operating/Storage	-20° to +70° / -30° to +80°	°C

NOTE: All data at 25°C unless otherwise specified.

Cat. No.	Net Price
SMT-1625	\$2.17



### SERIES SMT-2114A AND SMT-2118 PIEZO CERAMIC SMD TRANSDUCERS

**FEATURES:** SMD mounting. Compatible with convection, IR, and vapour phase. Sealed for washing. 4300 Hz and 3000 Hz frequencies. Two voltages available: 1-20 and 1-30 Vp-p. Available in tubes of 35 pieces (SMT-2114A) and 25 pieces (SMT-2118). **SPECIFICATIONS:** Case: ABS, black. Weight: 0.11 oz. (3.2 grams). P.C. Pins: tin-plated brass.

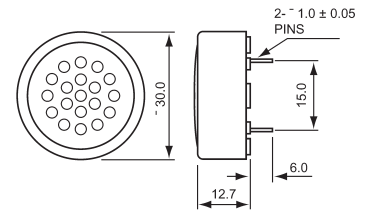
## ELECTRICAL

Parameter	SMT-2114A	SMT-2118	Units
Rated Voltage	5	5	Vp-p
Operating Voltage	3-20	3-30	Vp-p
Rated Current (max.)	8	7	mA
Resonant Frequency	3300	3700	Hz
Sound Pressure Level @ 10cm (typ.)	90	90	dBA
Temp. Range: Operating/Storage	-20° to +70° -30° to +80°		°C

NOTE: All data at 25°C unless otherwise specified.

Cat. No.	Dimensions								Net Price
	A	B	C	D	E	F	G	H	
SMT-2114A	10.7	14.2	3.0	1.5	14.8	7.1	3.0	4.2	\$3.79
SMT-2118	11.9	17.9	2.7	1.5	18.4	9.0	3.0	4.2	\$3.84

NOTE: Dimensions are in millimeters, tolerance is  $\pm 0.3$ .



### SERIES AT-41 SPEAKER AUDIO TRANSDUCERS

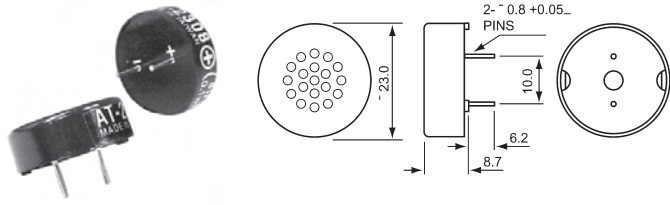
The AT-41 was designed to satisfy the need for a small, P.C. board-mountable speaker transducer for use in keyboards. It has a low profile and a sound output suitable for an office-type environment. Additional impedance and frequency outputs are available. Contact Electro Sonic for details. **FEATURES:** P.C. board mounting. 8 Ohms impedance—32 and 100 Ohms available. 1400 Hz frequency—800 and 1400 available. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.35 oz. (10 grams). P.C. Pins: tin-plated copper.

## ELECTRICAL

Parameter	AT-41	Units
Power Input (nom.)	0.15	Watt
Power Input (max.)	0.20	Watt
Impedance	8	Ohm
Operating Temperature Range	-40° to +70°	°C

NOTE: All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-41	\$1.80



## SERIES AT-2308 SPEAKER AUDIO TRANSDUCERS

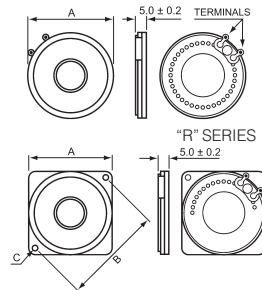
The AT-2308 has been designed for a wide variety of applications where small size is important. Its low profile and broad frequency range make it an ideal choice for keyboard, hand-held devices, and other miniaturized systems. **FEATURES:** P.C. board mounting, Mylar cone, 8 Ohm standard impedance. Wave solderable. Low Profile. **SPECIFICATIONS:** Case: ABS, black. Weight: 0.11 oz. (3.2 grams.).

### ELECTRICAL

Parameter	AT-2308	Units
Rated Input	.08	Watt
Maximum Input	0.15	Watt
Frequency Range	600-2000	Hz
Resonant Frequency	1500	Hz
Impedance	8±20%	Ohm
Operating Temperature Range	-20° to +60°	°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Net Price
AT-2308	\$5.03



## SERIES FS-30, FS-40, AND FS-50 SUPER THIN FLAT SPEAKERS

**FEATURES:** Super thin profile. Stainless steel diaphragm. Broad frequency range. Excellent temperature and humidity characteristics. **NOTES:** Square speakers can be mounted by conventional methods, taking care not to distort the speaker frame. If resonance occurs, the unit should be mounted on rubber or similar material. Round speakers can be mounted by using double-faced tape or an adhesive. Care should be taken not to deform the diaphragm when handling as this can effect performance.

### ELECTRICAL

Parameter	All Models, except as noted
Rated Input, Watt	0.4
Max. Input, Watt	0.8
Impedance Ohm @ 1 KHz	8*
Sound Pressure Level @ 10cm, dB	70
Frequency Response, KHz	FS-30: 13-10,000 FS-40: 12-6000 FS-50: 9-4000
Distortion, KHz	FS-30: 10% max./4 FS-40: 10% max./3 FS-50: 10% max./2
Temperature Range:	
• Operating	-20° to +55°
• Storage	-40° to +80°
Humidity @ 40°C	90% RH

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Dimensions (mm)			Weight	Net Price
	A	B	C		
FS-30R	30 (tol. +0.3,-0)			7 grams	\$2.46
FS-40R	40 (tol. +0.4,-0)			9 grams	2.46
FS-50R	50 (tol. +0.5,-0)			12 grams	2.77
FS-30S	30 (tol. +0.3,-0)	36 (tol. +0,-0.3)	2.5	7 grams	2.46
FS-40S	40 (tol. +0.4,-0)	47 (tol. +0,-0.3)	3.0	10 grams	2.60
FS-50S	50 (tol. +0.5,-0)	59 (tol. +0,-0.3)	3.5	13 grams	2.51



PAPER CONE/MYLAR CONE  
BOTH UNITS HAVE METAL CASE

## SERIES AT-38008 THIN DYNAMIC SPEAKERS

**FEATURES:** Variety of sizes and impedances. Low profile. Paper or mylar cone. Light weight.

### ELECTRICAL

Parameter	AT-38008 AT-38008M	AT-40008 AT-40008M	AT-45008 AT-45008M	AT-50008 AT-50008M	AT-57008 AT-57008M	Units
Rated Input	0.1	0.1	0.1	0.2	0.25	Watt
Frequency Range			F <sub>0</sub> -4000			Hz
Lowest Resonant Freq. (F <sub>0</sub> )	700±50	700±50	500±80	450±80	400±60	Hz
Impedance	8±15% @ 1KHz					Ohm
Temp. Range:						
• Operating	-20° to +60°					°C
• Storage	-30° to +70°					°C

**NOTE:** All data at 25°C unless otherwise specified.

Cat. No.	Dimensions					Net Price
	A	B	C	D	E	
AT-38008M	38.0	34.0	8.0	5.0	2.0	\$8.62
AT-40008M	40.0	36.0	8.0	5.5	2.0	8.30
AT-45008M	45.0	40.0	8.3	5.8	2.5	8.62
AT-50008M	50.0	45.0	9.0	6.5	2.5	8.00
AT-57008M	57.0	52.0	9.6	7.3	2.5	8.62
AT-38008	38.0	34.0	8.0	5.0	2.0	8.35
AT-40008	40.0	36.0	8.0	5.5	2.0	8.35
AT-45008	45.0	40.0	8.3	5.8	2.5	6.39
AT-50008	50.0	45.0	9.0	6.5	2.5	5.96
AT-57008	57.0	52.0	9.6	7.3	2.5	8.00

**NOTE:** Dimensions are in millimeters, tolerance is ±0.3.



Part's indicated with a leaf are considered RoHS July 2006 compliant based on the manufacturer's confirmation at the time of publishing. For additional information please contact Electro Sonic.

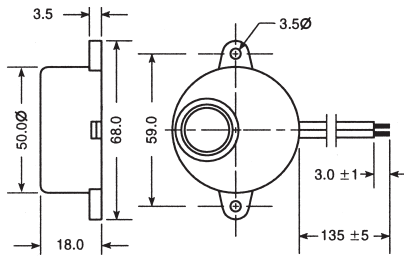


FIG. 13

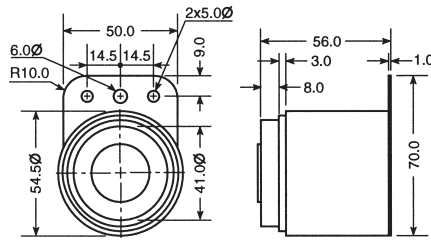


FIG. 14

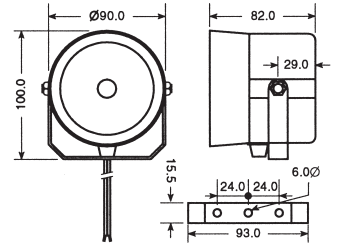


FIG. 15

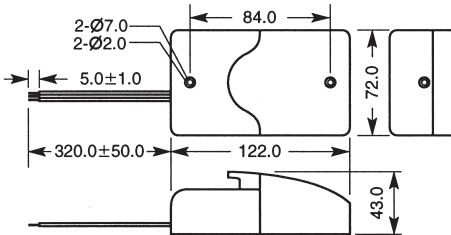


FIG. 16

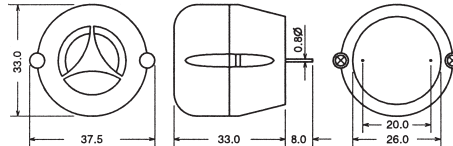


FIG. 19

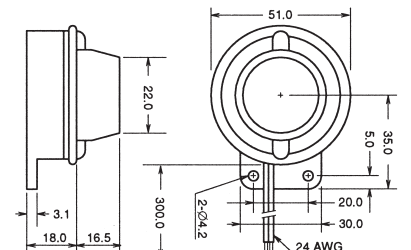


FIG. 20

All dimensions are in millimeters

## MOUNTED PIEZO TRANSDUCERS

Cat. No.	Resonant Frequency (KHZ±0.5)	dB (Min) @ Res. Freq. 10cm, 5 V square wave	Operating Voltage (Max Vp-p)	D×H	Fig.	Mounting & Features	Net Price
<b>EXTERNAL DRIVE—NO FEEDBACK</b>							
PT-1540P	4.0	80	25	17.0×7.0	1	P.C. Board—2 Pin (10.0MM c/c)	\$1.47
PT-2040P	4.0	90	30	22.0×7.0	1	P.C. Board—2 Pin (10.0MM c/c)	1.33
PT-2130P	3.0	90	25	24.0×9.5	1	P.C. Board—2 Pin (10.0MM c/c)	2.42
PT-1250W	4.8	80	25	13.8×4.0	1	2 Wire	2.20
PT-1550W	5.0	80	25	16.8×4.0	1	2 Wire	1.55
PT-2060W	6.0	95	30	24.0×5.0	2	Flange Mount (29.0 c/c)—2 Wire	1.43
PT-2725W	2.5	90	30	30.0×10.0	2	Flange Mount (35.0 c/c)—2 Wire	2.06
PT-2745W	4.5	90	30	30.0×5.5	2	Flange Mount (35.0 c/c)—2 Wire	1.51

## MOUNTED PIEZO TRANSDUCERS

Cat. No.	Resonant Frequency (KHZ ± 0.5)	dB (Min) @ 30 cm @ 12 VDC	Operating Voltage (VDC)	D×H	Fig.	Mounting & Features	Net Price
<b>SELF DRIVE—WITH FEEDBACK</b>							
PT-2735FP	3.5	88	3-28	30.0×10.0	3	3 blade—3.0mm standoff	\$2.42
PT-3529FP	2.9	90	3-28	42.0×16.0	1	3 pin	3.01
PT-2065FW	6.5	85	3-28	24.0×5.0	2	Flange Mount (29.0 c/c)—2 Wire	1.68
PT-2745FW	4.5	85	3-28	30.0×5.5	2	Flange Mount (35.0 c/c)—2 Wire	1.63
PT-3529FW	2.9	90	3-28	42.0×16.0	2	Flange Mount (50.0 c/c)—2 Wire	2.66

## MOUNTED PIEZO TRANSDUCERS

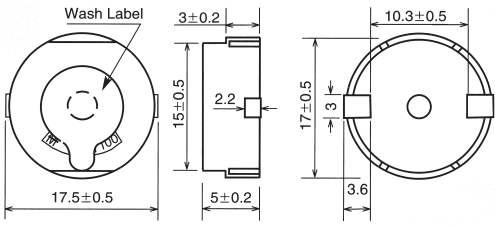
Cat. No.	Resonant Frequency (KHZ ± 0.5)	dB (Min) @ 30	Max. Input (watts)	D×H	Fig.	Mounting & Features	Net Price
<b>MINIATURE SPEAKER—CONE TYPE</b>							
PB-2015W	1500	75 @ 1.0KHz	0.15	23.0×3.2	2	Flange Mount—2 Wire	\$5.16
PB-2712P	1250	85 @ 1.0KHz	0.2	30.0×13.0	1		5.21

## MOUNTED PIEZO TRANSDUCERS

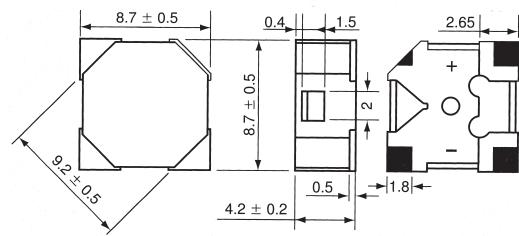
Cat. No.	Resonant Frequency (HZ)	dB (Min) @ Res. Freq. 10cm	Operating Voltage	D×H	Fig.	Mounting	Net Price
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## ELECTRO-MAGNETIC TRANSDUCERS

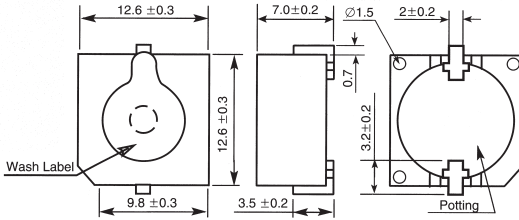
PB-0927P	2731	85 @ 5.0V	5	5.5×9.0	1	2 pin (4.0mm c/c)	\$2.78
PB-1220P	2048	85 @ 1.5V	1.1-1.7	12.0×8.5	1	2 pin (6.5mm c/c)	1.46
PB-1221P	2048	80 @ 1.5V	1.1-1.7	12.0×8.5	1	1 pin (6.5mm c/c)	1.46
PB-1620P	2048	85 @ 1.5V	1.1-3.0	See Figure	6	2 pin (7.6mm c/c)	2.93
PB-1621P	2048	85 @ 5.0V	3-8	See Figure	6	2 pin (7.6mm c/c)	2.93
PB-1622P	2048	85 @ 12V	6-18	See Figure	6	2 pin (7.6mm c/c)	2.93



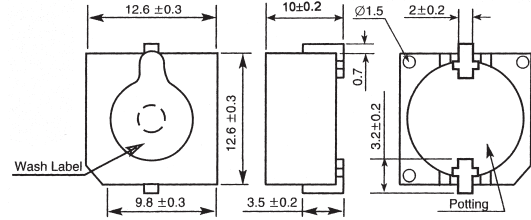
AST100



AST200



AST501  
AST605



ASI301  
ASI401

## SURFACE MOUNT AUDIBLE SIGNAL DEVICES

Surface Mount Audible Signals includes two indicator models with built-in drive circuitry, and four transducer models that can be driven by your specific oscillator circuit. Besides the units having a unique structure and their casing allowing for reflow process soldering such as convection, IR, and vapour phase, some of the units are sealed for washing. The main attraction of the Surface Mount Audible Signal Devices is their small compact size. Therefore, they are generally used in the following applications: pagers, portable telephones, scanners, computer and peripheral units, handheld instruments, and radar detectors.

Cat. No.	Resonant Frequency	Operating Voltage	dB (Min) @ Resistance Frequency 10cm	Case Material and Colour	Net Price
<b>TRANSDUCERS</b>					
AST100	4.0 (kHz±0.5)	15 Vpp	80 @ 5V	PPO - Black	\$2.12
AST200	2731 ±500 Hz	2-5 Vpp	85 @ 3V	PPO - Black	5.21
AST501	2400 ±500 Hz	1-2 Vpp	85 @ 1.5V	PPO - Grey	3.29
AST605	2400 ±500 Hz	4-7 Vpp	87 @ 5V	PPO - Grey	3.19
<b>INDUCTORS</b>					
ASI301	2400 ±300 Hz	4-7 VDC	90 @ 5V	PPO - Grey	3.63
ASI401	2400 ±300 Hz	9-15 VDC	90 @ 12V	PPO - Grey	3.63

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