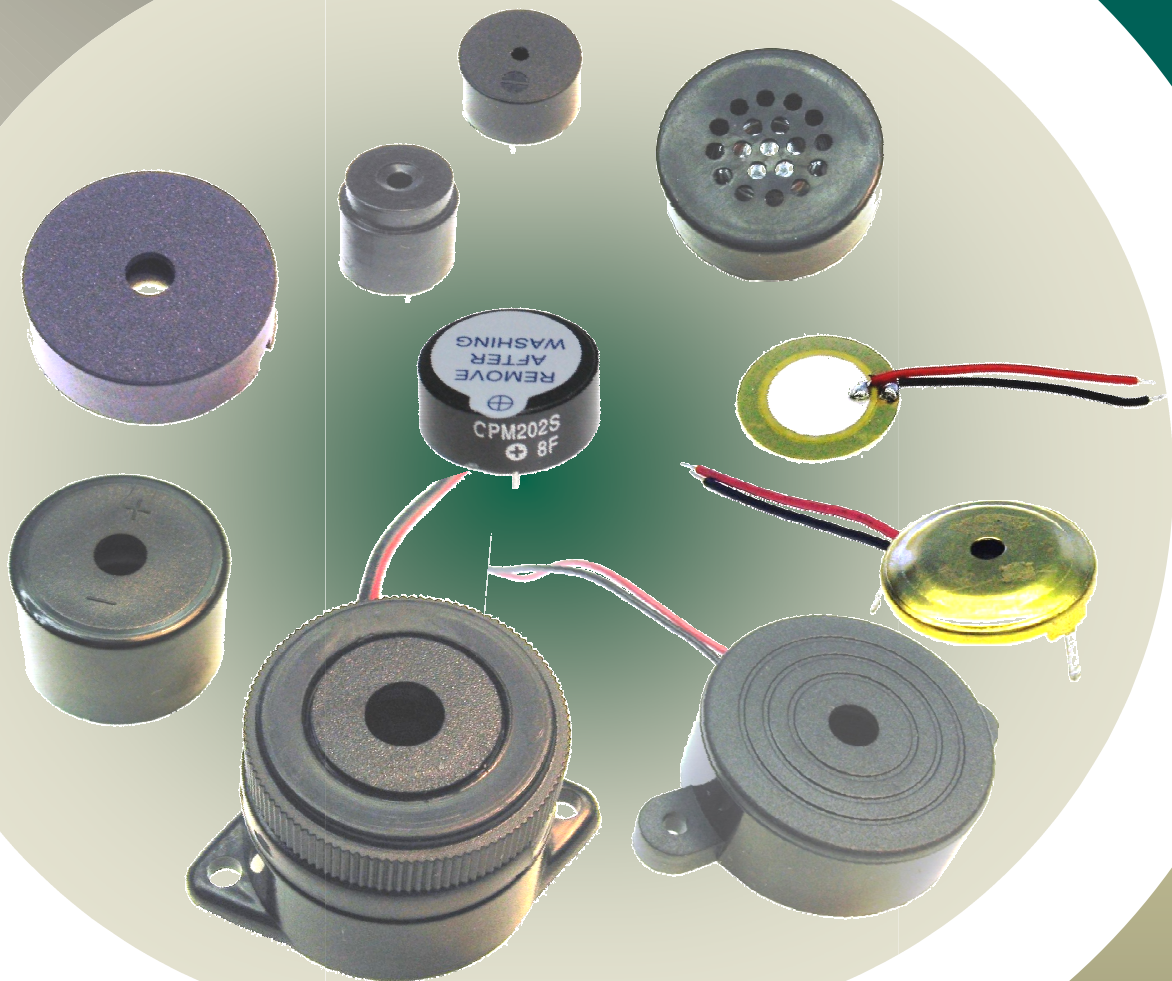


BUZZERS TRANSDUCERS SPEAKERS



ARLIN

SOUND PRODUCTS

A wide variety of sound output devices is available for incorporation in customer equipment, ranging from miniature buzzers to high output sirens.

BUZZERS are devices driven directly from a DC power source, typically of 3 to 24 volts, and contain inbuilt electronics to generate the audio frequency signal.

Piezo Buzzers produce medium to high frequency sound with high efficiency and low input current, using a piezo-electric element as the sound generator.

Magnetic Buzzers use a vibrating metal diaphragm to produce low to medium frequency sound with low voltage.

ALARMS are very loud sound output devices, usually with additional inbuilt electronics to produce pulsating, two-tone alternating, or siren tones.

SOUND TRANSDUCERS are similar to buzzers but without the inbuilt electronics, and thus require an AC or pulsed DC drive of appropriate voltage and frequency. Maximum output is obtained at the resonant frequency of the device, but more than one drive frequency can be used, for example, to indicate a keyboard entry error with a distinct tone.

Piezo Elements are low cost transducers, available bare or enclosed in a case with PCB pins or leadwires. Being a high impedance capacitive device, a piezo element should be actively driven both high and low, with a reasonably high drive voltage. Three terminal feedback type piezo elements can be driven with a simple self oscillating circuit using a minimum of components.

Magnetic Transducers contain a low impedance coil, more easily driven from a lower power supply voltage, down to 1.5 volt, and drawing current only in the high state.

Dynamic Speakers are miniature versions of conventional moving coil loudspeakers, usually with 8 ohm impedance. They provide a much wider frequency response than other sound transducers and can be used for speech or music reproduction.

Most PCB mounting devices in this catalogue are sealed and suitable for wave soldering. The seal should be removed after all processing is complete and before final testing. Unsealed devices are suitable only for hand soldering and must not be immersed or subject to prolonged heating. Panel mount devices are unsealed and are supplied with lead wires for connection to the driving circuit.

All sound devices are rated for short term use, and are not intended to be driven continuously for long periods. Where a device could be operating at full power for an extended time, the supplier should be consulted or samples pre-tested to ensure that overheating and premature failures do not occur.

Specifications in this catalogue are current at time of printing but are subject to change without notice.

CONTENTS

Page

D.C. DRIVEN BUZZERS

Piezo Buzzers 72 – 95 dB, PCB Mount	3.
Piezo Buzzers 86 – 97 dB, Panel Mount	4.
Piezo Buzzer 240V ac driven, 100 dB	4.
Piezo Buzzers 88 – 105 dB, Low Frequency	5.
Alarms and Sirens, 90 – 118 dB	6.
Magnetic Buzzers, Low Frequency, PCB & Panel Mount	7.

A.C. – PULSE DRIVEN TRANSDUCERS & SPEAKERS

Piezo Elements	8.
Piezo Speakers	9.
Piezo Transducer with Leads, Telephone Ringers	9.
Piezo Transducers, PCB Mount	10.
Transducers, Electro-magnetic (Sub-miniature speakers)	11.
Dynamic Speakers	12.
Speakers, PCB Mount	13.

PIEZO BUZZERS

PCB MOUNT



FEATURES:

- * DC OPERATION
- * P.C.B. MOUNT
- * LOW CURRENT DRAIN
- * 'S' TYPE WAVE SOLDERABLE AND WASHABLE
- * PULSED TONE ALSO AVAILABLE
- ASK FOR DATA

Model No.	CPM121S (sealed)	CPM202S (sealed)	CPM212
Nominal Frequency $\pm 500\text{Hz}$	4,000	3,400	3,000
Operating Voltage (VDC)	3 - 15	3 - 30	3 - 20
Sound Pressure Level (db min)	80 at 10cm/12VDC	84 at 30cm/12VDC	95 at 30cm/12VDC
Current Consumption at 12VDC (mA max)	7	12	8
Tone	continuous	continuous	continuous
Operating Temp ($^{\circ}\text{C}$)	-30 - +85	-30 - +85	-20 - +60
<p>TYPICAL VOLTAGE - SOUND PRESSURE CURVE</p> <p>CPM202</p>			

PIEZO BUZZERS

PANEL MOUNT

****240VAC DRIVEN****

Model No.	PBL220	PBL221	PBL300	PBL400
Oscillating Freq. $\pm 500\text{Hz}$	3300	5200	2900	2800
Operating Voltage	1.5 - 24		3 - 20	60 - 250V AC/DC
Sound Pressure Level at 30cm/12VDC dB min	86	90	97	100 (at 220V)
Current Consumption at 12VDC mA max	12	10	12	12 (at 220V)
Tone	continuous		continuous	continuous
Operating Temp °C	-20 to +70		-20 to +70	-20 to +60

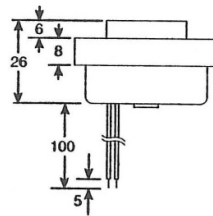
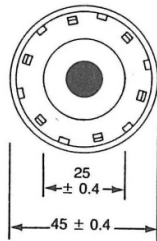
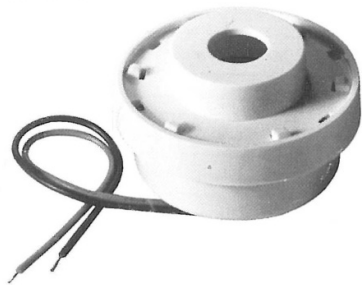
The CPM and PBL ranges of DC buzzers consist of a piezo element mounted in a Helmholtz resonator case, with a built-in drive circuit tuned for maximum output. They accept a wide range of DC voltages and draw very low current. The larger devices offer high dB output at lower frequencies for warning applications. Smaller devices are ideal for keyboard response or other signalling functions in a compact instrumentation.

PIEZO BUZZERS

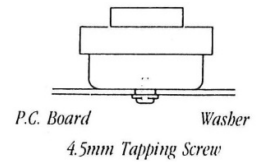
Model Number	SDB 320	PAI240	PAI650
Rated Voltage (VDC)	12	24	12
Operating Voltage (VDC)	1 - 13	1.5 - 28	4 - 28
Sound Output at 30 cm (dB min)	105	95	88
Oscillating Frequency ($\pm 500\text{Hz}$)	2900	3500	2900
Current Consumption (mA max)	35	20	18
Tone *	continuous	continuous	continuous
Operating Temp ($^{\circ}\text{C}$)	-20 - +60	-20 - +60	-20 - +60
Mounting	screw	ring / ears	ring / lugs

(* Pulsed tone versions also available, to special order)

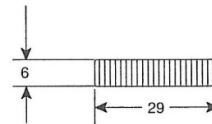
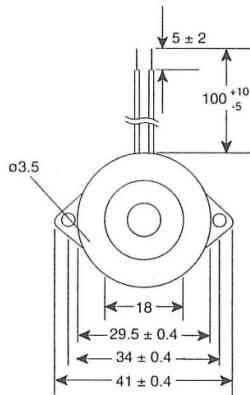
SDB320



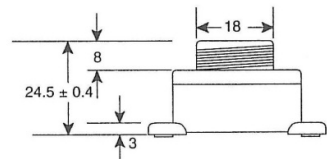
Suggested Method of Mounting



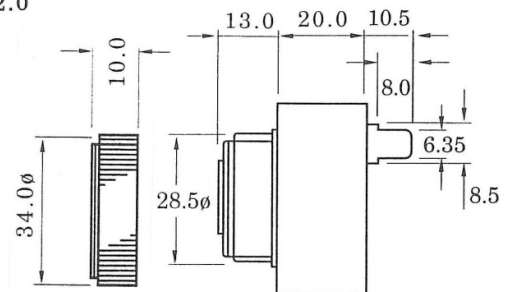
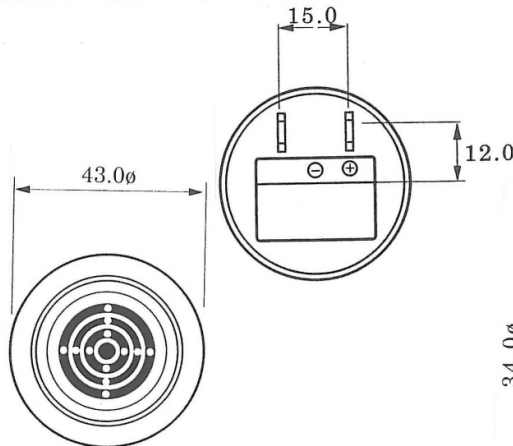
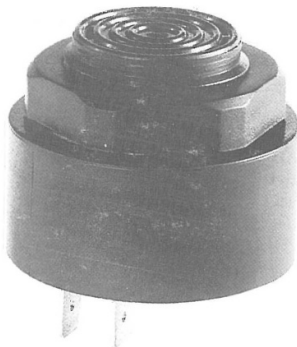
PAI240



Nut



PAI650



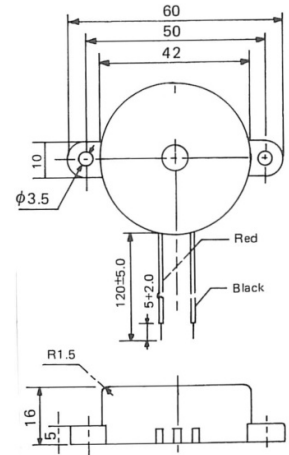
PIEZO ALARMS

PULSE TONE

Model No.	PAP350
Sound Pressure Level	90dB min/100cm/12VDC
Oscillating Frequency	2.8 ± 0.5KHz
Current Consumption	6mA max / 12VDC
Operating Voltage	3 to 30 VDC
Operating Temperature °C	-20 to +70



A high output pulsating tone DC alarm

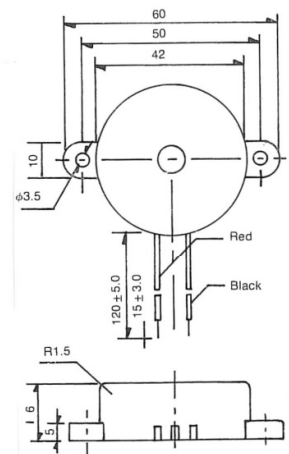


ALTERNATE TONE

Model No.	PAD351
Sound Pressure Level	103dB min/100cm/12VDC
Oscillating Frequency	2.9/2.7 KHz typical
Current Consumption	19mA max / 12VDC
Operating Voltage	5 to 20 VDC
Operating Temperature °C	-20 to +70

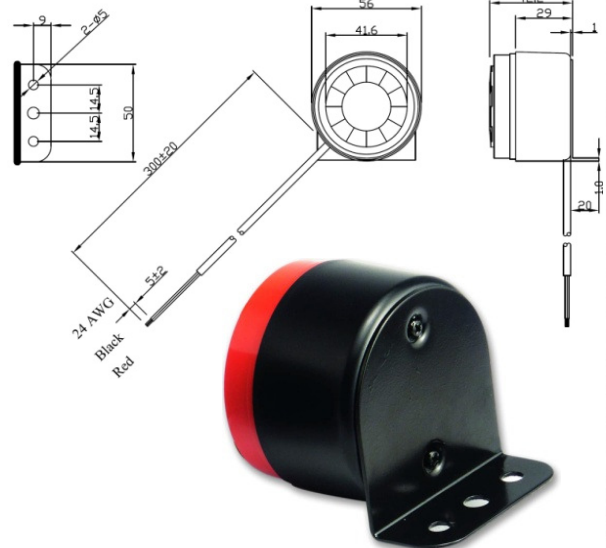


An alternating high/low frequency DC siren



SIREN

Model No.	ASP840
Rated Voltage	24 V DC
Sound Pressure Level	122 dB @ 30 cm
Current Consumption	90mA @ 24VDC
Tone	Siren
Operating Temperature	-10° ~ +60°C
Mounting	Chassis (with leads)

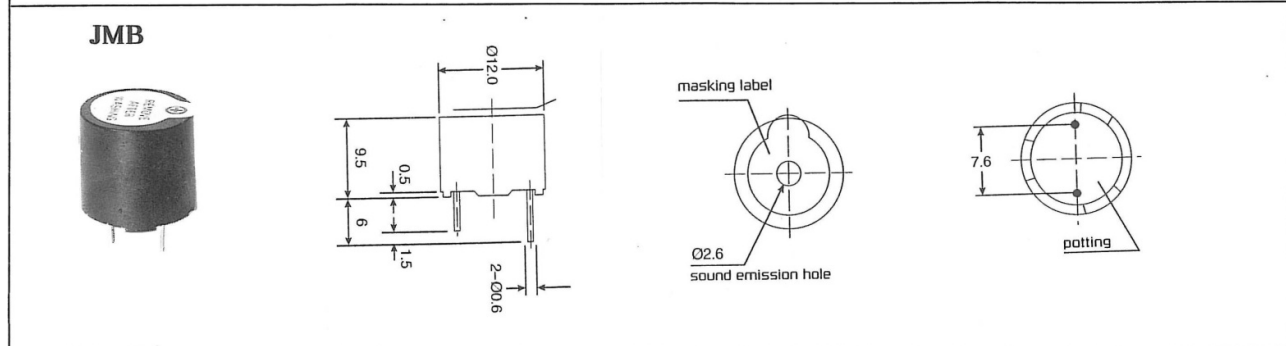
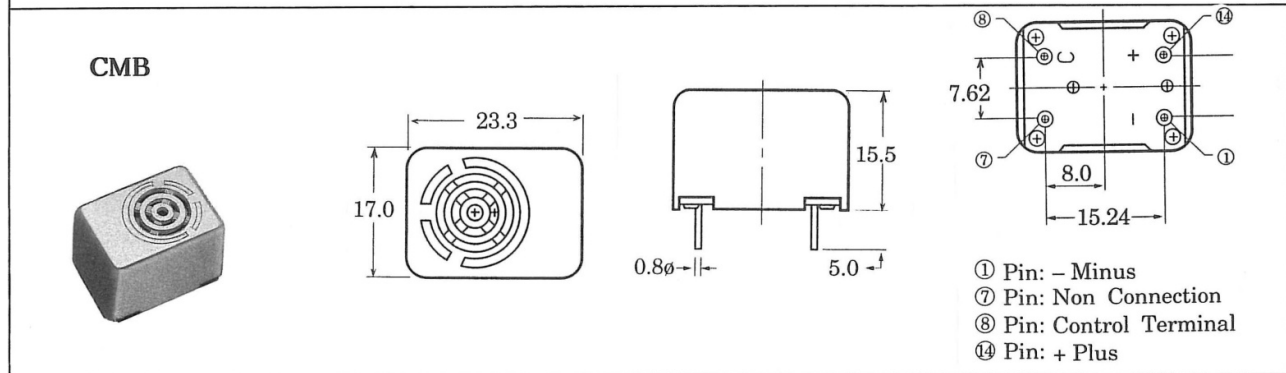
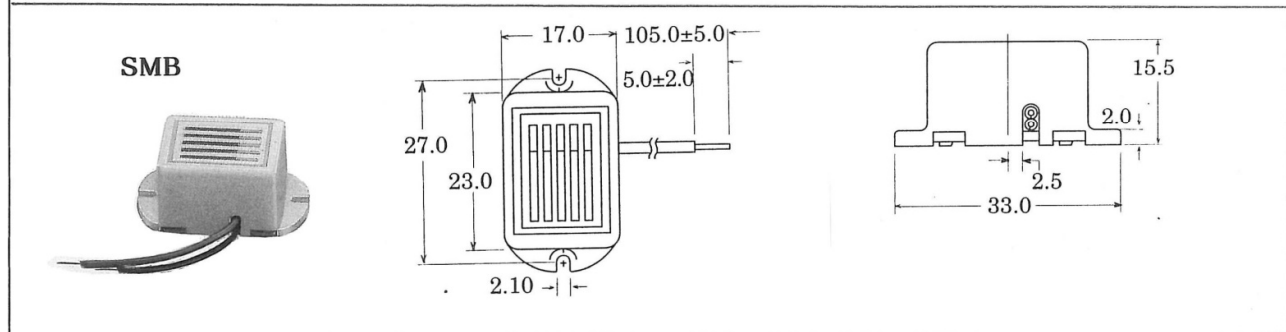


A very loud high efficiency DC siren with true frequency sweep output in a compact enclosure.

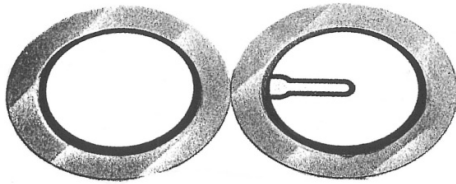
MAGNETIC BUZZERS

Model Number	Operating Frequency ($\pm 100\text{Hz}$)	Rated Voltage (VDC)	Operating Voltage (VDC)	Current Consumption (mA max)	Sound Output at 30c.m. (dB)	Operating Temperature ($^{\circ}\text{C}$)
SMB606	400	6	4-8	20	80	-20 to +60
SMB612	400	12	8-16	25	80	-20 to +60
SMB624	400	24	20-28	20	80	-20 to +60
CMB606	400	6	4-8	20	80	-20 to +60
CMB612	400	12	8-16	22	80	-20 to +60
JMB106S	2300	6	4-7	30	80	-40 to +85
JMB112S	2300	12	8-15	30	80	-40 to +85

SMB and CMB series are solid state electromagnetic buzzers that offer a rich low frequency output in a small case. CMB has a logic input for high impedance control, saving driver components. Connect pins 8 and 14 if this function is not required. JMB is a miniature medium frequency DC buzzer for space-critical applications. JMB is a sealed buzzer and suitable for wave soldering and washing.

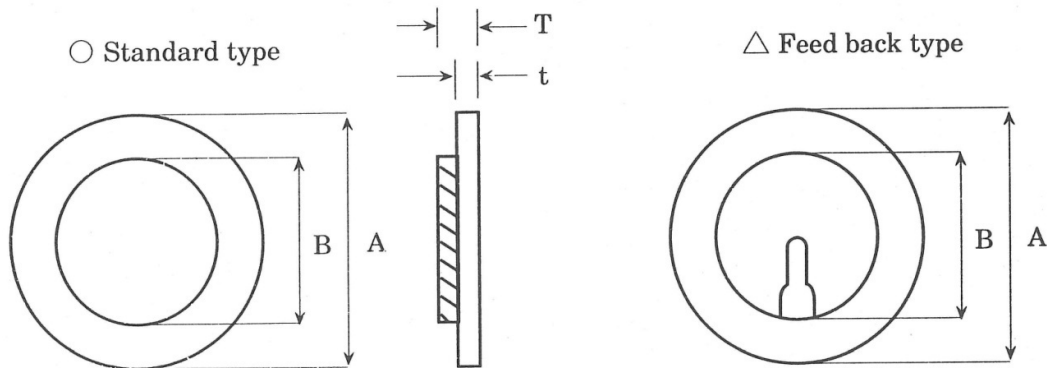


PIEZO ELEMENTS



Sound Transducer Or Shock/Vibration Sensor

Model Number	SPE015	SPE020	SPE027	SPE035
Resonant Frequency (KHz +/-0.5)	5.8	6.4	4.4	2.6
Resonant Resistance (Ohm max.)	600	200	100	200
Electrostatic Capacity (pF +/- 30%)	14000	12000	18000	30000
Material	brass	brass	brass	brass
Dimensions (mm) :	A	15	20	27
	B	12	15	20
	T	0.20	0.43	0.53
	t	0.07	0.20	0.25



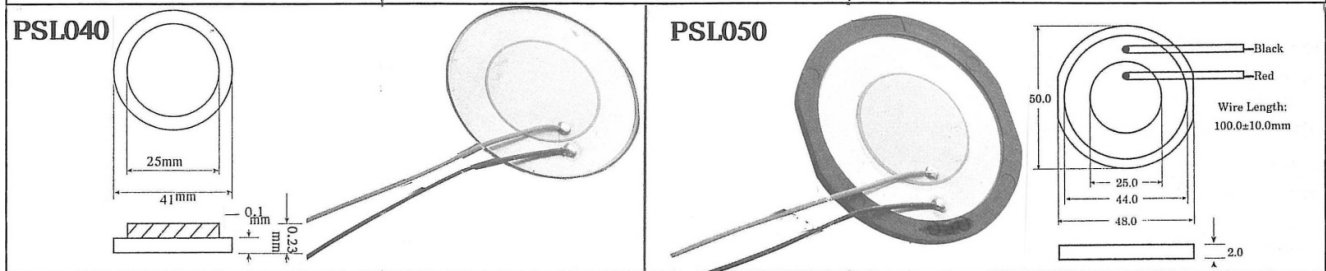
Piezo elements are the basic sound generator in all piezo devices. They are a very economical, super-thin sound transducer, and are also commonly used in reverse, as a shock / vibration sensor in security applications.

Piezo elements can be damaged by overheating, and soldering should be performed with care. Elements with leads fitted can be supplied – add 'L' to the part number.

Feedback type elements for three terminal operation are also available – add 'F' to the part number for feedback version.

PIEZO SPEAKERS

Model No.	PSL040	PSL050
Resonant Frequency Hz	1000 ±500	1000 ±200
Frequency Range Hz		500 to 20000
Input Voltage Vp-p max	30	30
Capacitance NF	70	60
Impedance ohm max	1000	3000
Operating Temp °C	-20 to +85	-20 to +60

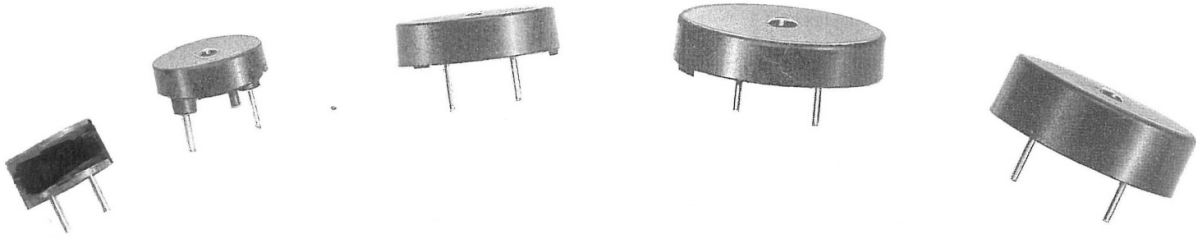


Piezo Speakers are a very slim, high efficiency, high impedance alternative to conventional moving coil loudspeakers, for three to thirty volt peak to peak drive.

PIEZO TRANSDUCERS

	LEADED TRANSDUCER	TELEPHONE RINGERS	
Model No:	PTL110	PTR141	PTR142
Resonant Frequency ±500Hz	4100	1100	750
Operating Voltage Vp-p max	30	30	50
Sound output at 10cm 5V square wave dB min	90 at 4.1 KHz	81 at 1.1 KHz	87 at 750 Hz
Current mA max	1	1.1	1.5
Capacitance ±30% PF	14000	43000	55000
Operating Temp °C	-20 to +60	-20 to +60	-20 to +60

PIEZO TRANSDUCERS



FEATURES:

- * AC / PULSE DRIVE
- * P.C BOARD MOUNTING
- * SMALL SIZE, LIGHTWEIGHT
- * LOW POWER CONSUMPTION
- * EPM121S WAVE SOLDERABLE AND WASHABLE

Model No:	EPM121S	EPM152	EPM156	EPM160
Resonant Frequency $\pm 500\text{Hz}$	4100	4000	4000	2000
Operating Voltage V_{p-p} max	20	25	25	30
Sound output at 10cm 5V square wave dB min	80 at 4.0KHz	80 at 4.0KHz	80 at 4.0KHz	96 at 2.0KHz
Current mA max	2	1	1.5	1
Capacitance $\pm 30\%$ PF	10000	14000	9500	25000
Operating Temp $^{\circ}\text{C}$	-20 to +70	-20 to +70	-20 to +70	-20 to +60

Piezo transducers are high efficiency, low current AC (or pulsed DC) driven devices which can be operated at up to 30V peak to peak for maximum sound level. Output is greatest around the resonant frequency, but reasonable response can be obtained throughout the audio range, allowing multiple tone generation.

ELECTRO MAGNETIC TRANSDUCERS

FEATURES:

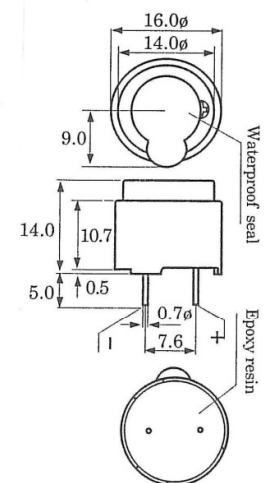
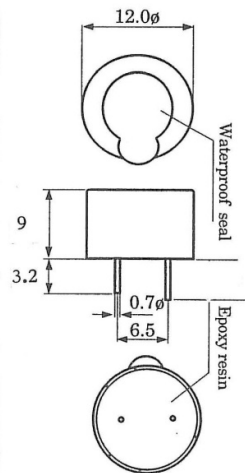
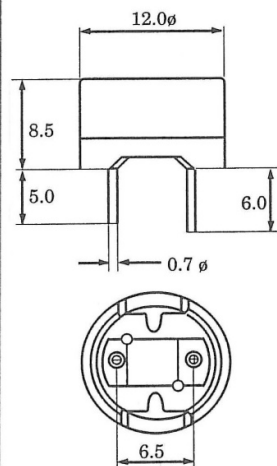
- * P.C. BOARD MOUNTING
- * VERY SMALL SIZE
- * ELECTRO-MAGNETIC TYPE
- * 'S' SERIES WAVE SOLDERABLE AND WASHABLE



QST

QMT-S

Model Number	QMT111	QMT111S	QMT106S	QMT112S	QST106S	QST112S
Resonant Frequency ($\pm 500\text{Hz}$)	2048	2400	2400	2400	2048	2048
Operating Voltage (VDC)	1.1 - 5.0	1.1 - 4.5	3 - 8	6 - 15	4 - 8	6 - 18
Rated Voltage (VDC)	1.5	1.5	5	12	6	12
Sound Pressure level at 10cm (dB min)	80	75	85	85	85	85
Current Consumption (mA max)	15	70	40	40	40	40
DC Resistance ($\pm 10\%$, ohms)	42 \pm 5	6.5	47	140	50	115
Operating Temperature ($^{\circ}\text{C}$)	-20 - 60	-40 - 85	-40 - 85	-40 - 85	-30 - 85	-30 - 85
Storage Temperature ($^{\circ}\text{C}$)	-30 - 70	-40 - 85	-40 - 85	-40 - 85	-40 - 85	-40 - 85



These electromagnetic transducers are really subminiature loudspeakers. Being lower impedance than piezo devices, they offer better sound output at low drive voltages - down to 1.1V peak to peak. Output will be highest at the resonant frequency, but reasonable response over the audio range allows multi tone or low fidelity speech reproduction. The QMT111 is a very popular low cost transducer suitable for 5V square wave operation.

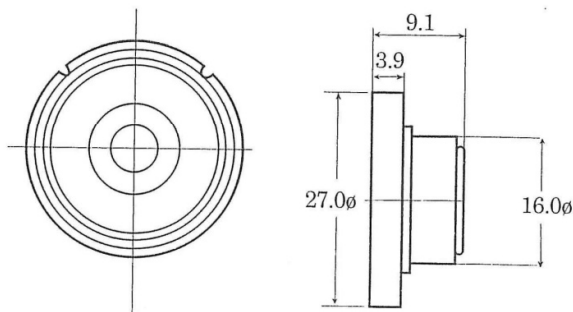
DYNAMIC SPEAKERS



FEATURES

- * SMALL SIZE AND LIGHTWEIGHT
- * WIDE FREQUENCY RANGES
- * VARIOUS IMPEDANCE VALUES ARE AVAILABLE

Model No	Impedance ($\pm 15\%$ OHMS)	Rated Input(mW)	Maximum Input(mw)	Resonant Frequency (± 150 Hz)	Sound Output Level (dB/W.m)	Effective Frequency Band (Hz)	Temperature Range	Weight
DSA27A	8	100	200	600	80 \pm 3	Fo-3,500	-30 $^{\circ}$ ~70 $^{\circ}$	7.5
DSA27B	16	100	200	600				
DSA27C	32	100	200	600	78 \pm 3	Fo-3,500		
DSA27D	45	100	200	600				
DSA27E	64	100	200	550				
DSA27F	100	100	200	550				



These are miniature polymer cone dynamic loudspeakers commonly used in phone or audio equipment monitor situations. They offer good sound fidelity over the stated frequency range and can be driven by low level low impedance signals.

P.C.B. SPEAKERS

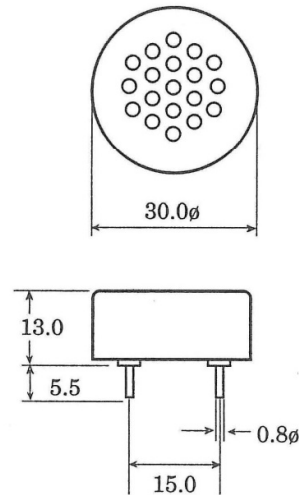


FEATURES:

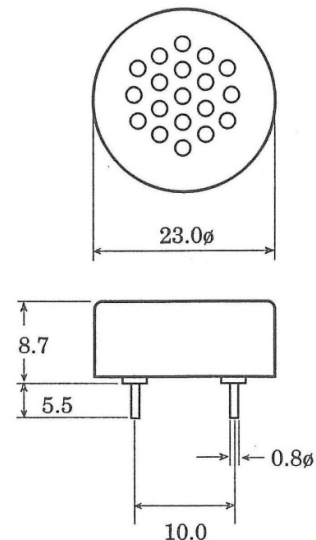
- ▲ P.C. BOARD MOUNTING TYPE
- ▲ WIDE FREQUENCY RANGES
- ▲ SMALL SIZE AND LIGHTWEIGHT

Note: Other impedance value are available upon special request

Model No.	SPC008	SPC100
Rated Input (Watt)	0.15	
Maximum Input (Watt)	0.20	
Impedance (Ohms)	8	100
Frequency Range (Hz)	500 - 4000	
Sound Pressure Level at 10cm 1.0 KHz Sinewave (dB min)	88	83
Operating Temperature (°C)	-20° - 60°	
Storage Temperature (°C)	-30° - 70°	
Weight (Gram)	10.0	



Model No.	SPC108
Rated Input (Watt)	0.08
Maximum Input (Watt)	0.15
Impedance (Ohms)	8
Frequency Range (Hz)	500 - 4000
Resonant Frequency (±200Hz)	850
Sound Pressure Level at 10cm 1.0 KHz Sinewave (db min)	75
Operating Temperature (°C)	-20° - 60°
Storage Temperature	-30° - 70°
Weight (Gram)	3.0



OTHER SOUND TRANSDUCERS

This catalogue contains our regular product range. If these do not meet your requirements, please enquire. Many other products can be supplied to customer order.

Many new products, including surface mount devices, are also available.

PART NUMBER SERIES INDEX

SERIES	PAGE
APS	6
CMB	7
CPM	3
DSA	12
EPM	10
JMB	7
PAD	6
PAI	5
PAP	6
PBL	4
PSL	9
PTL	9
PTR	9
QMT	11
QST	11
SDB	5
SMB	7
SPC	13
SPE	8

All specifications in this catalogue are subject to change without notice.

