

Both the SMA buzzers and the SMAT (Sonitron Multi-Application) transducers are specially developed to meet a wide range of requirements in sound pressure, mounting methods, connection possibilities and dimensions. The transducers do not have a built-in oscillator. The drive frequency must be generated with electronics outside the transducer. Recommended drive circuits are described in this catalogue. Our transducers produce a highly reliable audible tone signal, giving either an extremely clear and penetrating tone or a soft sound for non-aggressive signals. They are available in five sizes: 13mm, 17mm, 21mm, 24mm and 30mm.



### ADVANTAGES & APPLICATIONS

#### ADVANTAGES:

- octagonal form
- models with different pin pitches
- light but solid construction
- not fixed working frequency
- easily mountable
- SMD models with heat resistant labels for protection during re-flow soldering,
- packed in a tray for automatic placing

#### APPLICATIONS:

- audible alarms
- gas detectors
- measuring and weighing equipment
- medical instrumentation
- timers
- instrumentation and control systems
- copiers
- automobiles
- games & toys
- cash registers, etc.

### SPECIFICATIONS

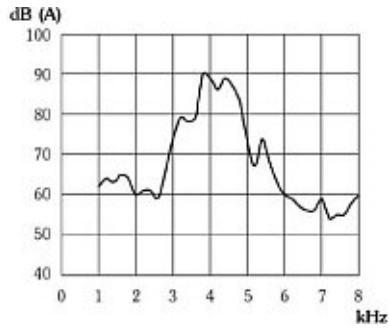
Model	Sound pressure * dB(A)	Frequency range	Capacitance (+/-30%)	Operating voltage	Weight
SMAT 21	See graph page 2	600 - 5000 Hz	12.4 nF	0 to 30 VAC pp	2.5 g

\* All measurements are made in free air at 21°C at 30 cm at 10Vpp square wave.  
 The test buzzer is soldered on a PCB board with dimensions 24 cm x 11 cm.

Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C
Life time (at 21°C)	See expected life time curve in addendum
Case material	ABS (UL rating: 94 HB) for pin-versions PPS (UL rating: 94 V0/5V) for SMD-versions
Standard colour of case	Grey

**ELECTRICAL PARAMETERS**

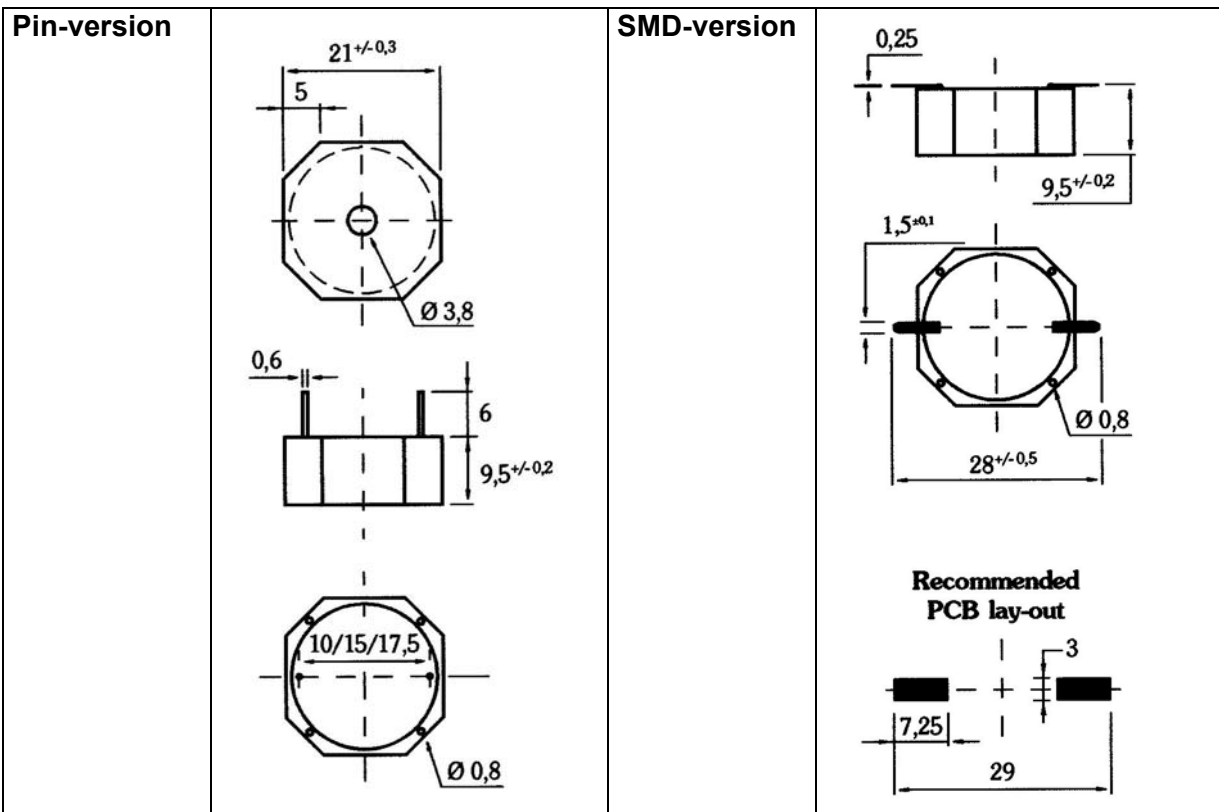
Sound pressure vs. Frequency



Precision of frequency:  $\pm 15\%$   
 Operating voltage: 10V (pp) (square wave)

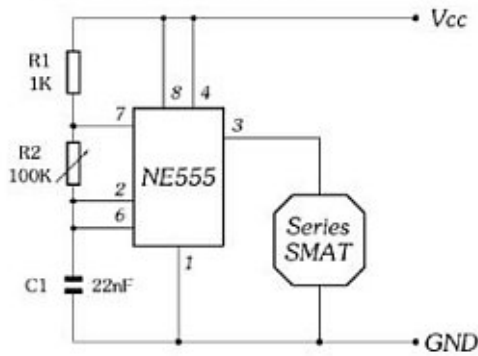
All measurements are made at 30 cm in free air at 21°C.

**DIMENSIONS (All dimensions are in mm)**

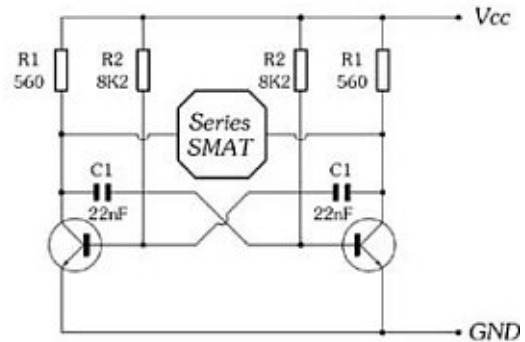


**DRIVE CIRCUITS**

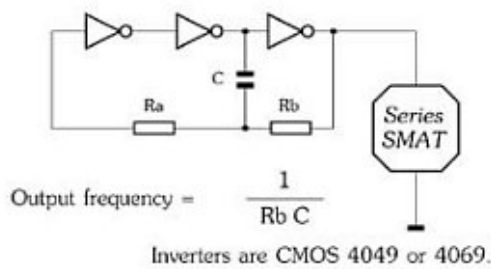
*IC Oscillation Circuit*



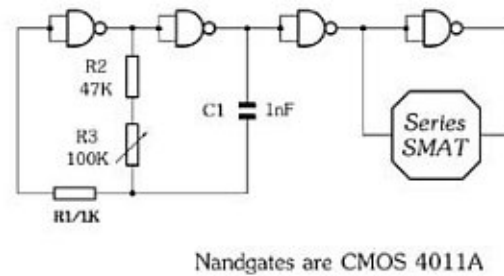
*Multivibrator Circuit*



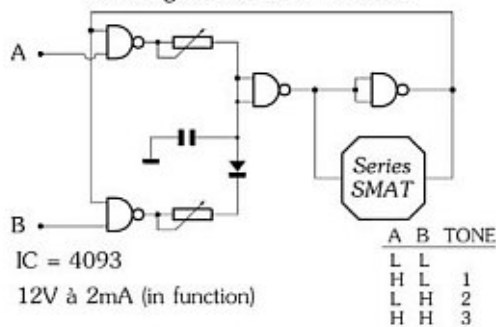
*Inverter Oscillator*



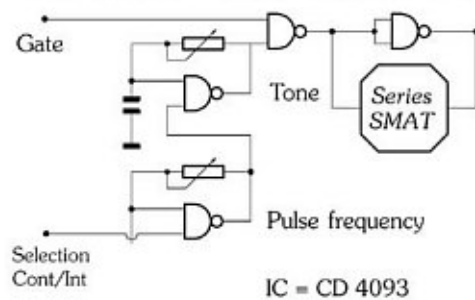
*Nandgate Oscillator*



*5 Nandgate Oscillator - 3 tones*



*Tone Generator - CMOS - Gate Multifunction*



When the transducers are used in a drive circuit at one single frequency, the designer should bear in mind that the precision of the frequency, as mentioned on the graph "sound pressure vs. Frequency" is +/- 15%. We therefore recommend to test the sound pressure level with the transducer connected to the final drive circuit.

**PRODUCT CODIFICATION**

<b>SMA</b>	<b>T</b>	<b>-</b>	<b>21</b>	<b>P10</b>
				<b>P15</b>
				<b>P17.5</b>
	↓			<b>S</b>
	Transducer	↓		
↓			Square diameter (mm)	
Sonitron				↓
Multi-				
Application				
				P : Pin distance (in mm)
				S : SMD terminals

**LIST OF AVAILABLE PRODUCT TYPES**

**SMAT-21 P10**  
**SMAT-21 P15**  
**SMAT-21 P17.5**  
**SMAT-21 S**

A heat protection label in capton material is glued on the SMD model of the SMA buzzer. This enables the user to pick up the buzzer by vacuum.

During the reflow soldering process the heat shield label remains on the buzzer and must be removed after soldering. These heat protection labels are standard for all SMD buzzers.

**MODELS ON REQUEST**

The SMA series can be delivered, upon special request, with the following protection :

- Wash tabs  
A wash tab is glued on the sound emitting hole of the buzzer to protect it from water penetrating into the hole of the cavity. The PCB at the back is also sealed with a silicon film. To order this part, please add WASHTAB to the model number of the SMA series.
- Acryl coating  
For applications in aggressive humid conditions, models containing a membrane with a protective coating are available. The protective coating gives a complementary assurance against smog. Add MC to the model number of the SMA series.