

SMAT SERIES



The SMAT transducers are specifically developed to meet various requirements, such as loud sound pressure level, 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
- SMAT-13 and SMAT-17 for limited space applications
- SMD models with heat resistant labels for protection during re-flow soldering
- Automatic pick & place

APPLICATIONS :

- Alarms
- Gas & metal detectors
- Measuring & weighing equipment
- Medical instrumentation
- Timers & clocks
- Instrumentation & control systems
- Copiers
- Automobiles & trucks
- Games & toys
- Cash registers

SPECIFICATIONS

Model	SPL * (dB(A))	Frequency Range (Hz)	Capacitance (+/-30%) nF)	Operating voltage (VAC pp)	Weight (g)
SMAT-13	See graph	800-5000	7.8	0 to 30	1
SMAT-17	See graph	800-5000	17.5	0 to 30	2
SMAT-21	See graph	600-5000	12.4	0 to 30	2.5
SMAT-24	See graph	400-5000	18.6	0 to 30	4
SMAT-30	See graph	300-5000	25	0 to 30	5

Operating temperature	-20°C to +70°C
Storage temperature	-40°C to +85°C
Life time (@ 21°C)	@12Vpp continuous use at resonance frequency, tested on maximum sound pressure (eg. SMAT-21 @ 3.75 kHz). Life expectations: min.1000 hours. All tests are made @ 20°C mounted on PCB (expected life time curve in addendum).
Case material	ABS (UL rating: 94 HB) for pin-versions, SMAT-13/21/30 PBT (UL rating: 94 HB) for pin versions, SMAT-17/24 PPS (UL rating: 94 V0/5V) for SMD-versions, SMAT-13/17/21/24/30
Standard colour of case	Grey

* All measurements are made in free air @ 21°C @ 30 cm @10 Vpp (square wave). The test buzzer is soldered on a pcb board with dimensions of 24 cm x 11 cm.

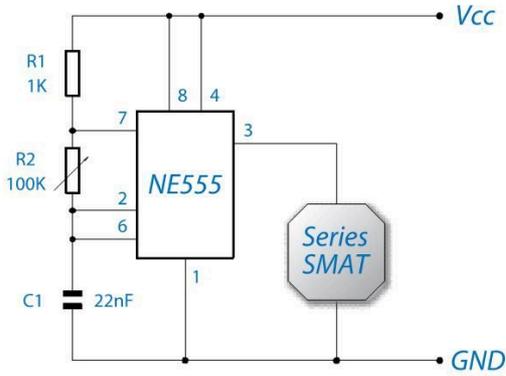
ELECTRICAL PARAMETERS

<p><i>Model</i></p> <p><i>Sound pressure vs. frequency</i></p>	<p>SMAT-13</p> <p>dB (A)</p> <p>kHz</p>	<p>SMAT-17</p> <p>dB (A)</p> <p>kHz</p>
<p><i>Model</i></p> <p><i>Sound pressure vs. frequency</i></p>	<p>SMAT-21</p> <p>dB (A)</p> <p>kHz</p>	<p>SMAT-24</p> <p>dB (A)</p> <p>kHz</p>
<p><i>Model</i></p> <p><i>Sound pressure vs. frequency</i></p>	<p>SMAT-30</p> <p>dB (A)</p> <p>kHz</p>	<p>Peak hold frequency sweep from 1 to 8kHz with a square wave signal of 10Vpp. (precision of frequency: +/- 15%)</p>

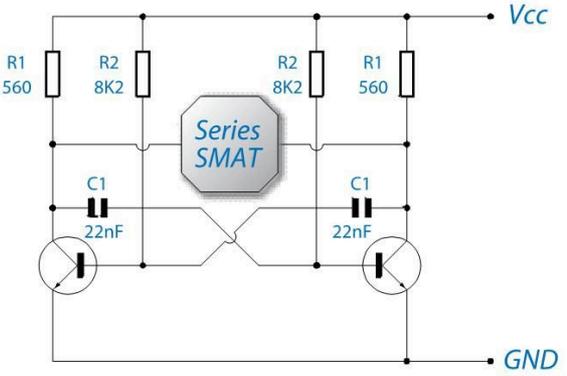
All measurements are made @ 30 cm in free air @ 21°C.

DRIVE CIRCUITS (typical circuits)

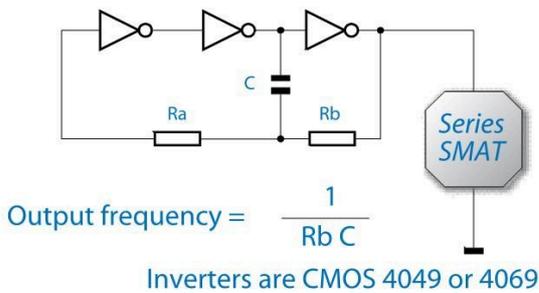
IC Oscillation Circuit



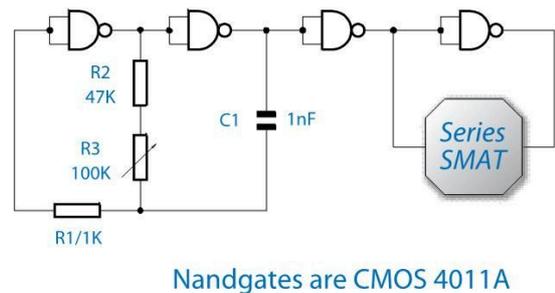
Multivibrator Circuit



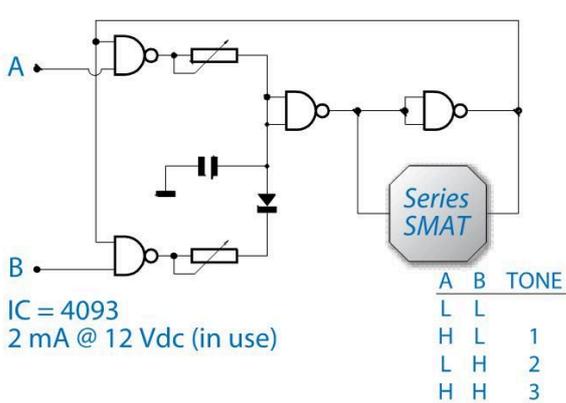
Inverter Oscillator



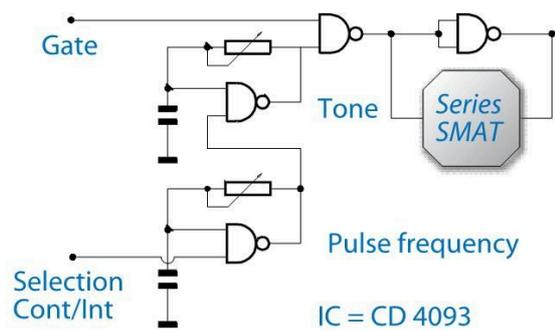
Nandgate Oscillator



5 Nandgate Oscillator - 3 tones



Tone Generator - CMOS - Gate Multifunction



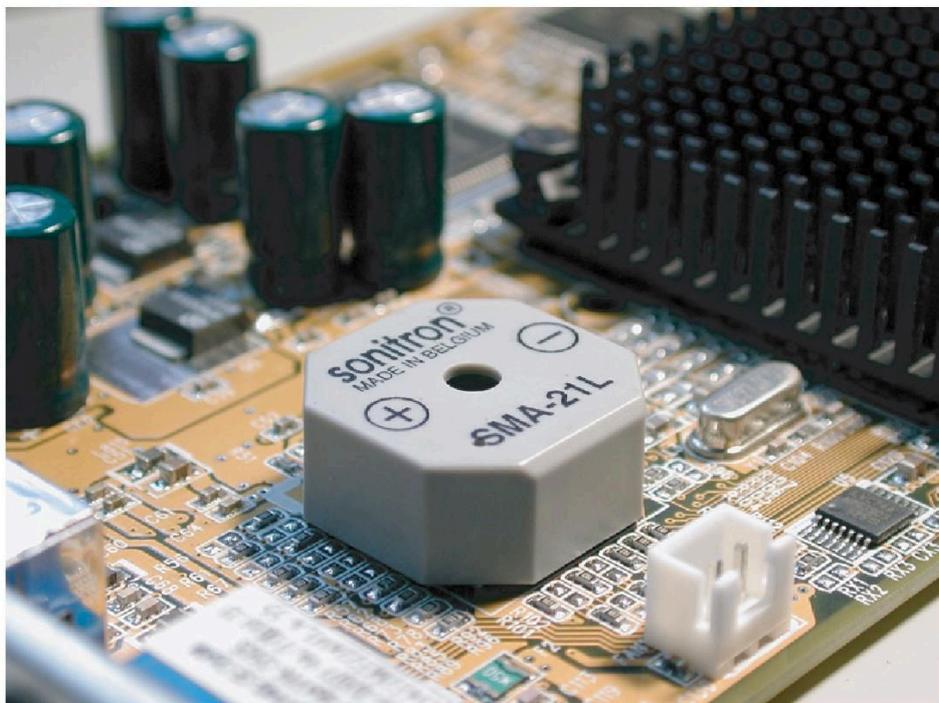
When the transducers are used in a drive circuit at one single frequency, the designer should bear in mind that the precision of the frequency, as mentioned on the graph "sound pressure vs. Frequency" is +/- 15%. We therefore recommend to test the sound pressure level with the transducer connected to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

PRODUCT CODIFICATION

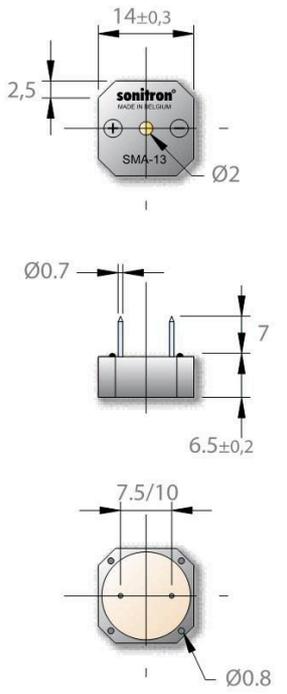
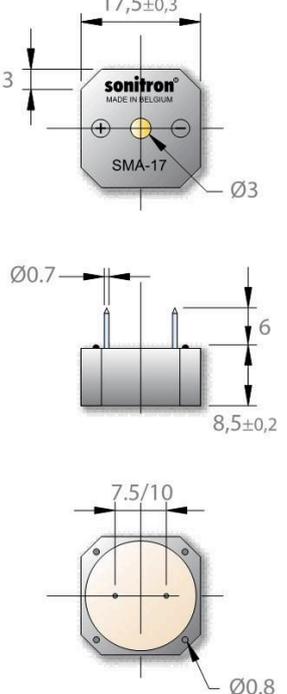
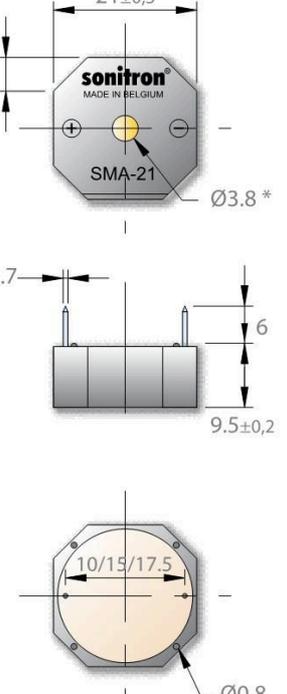
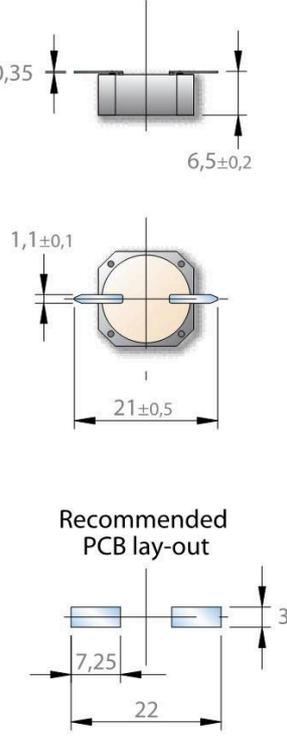
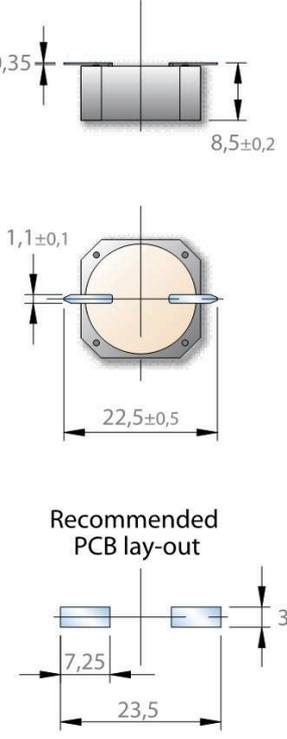
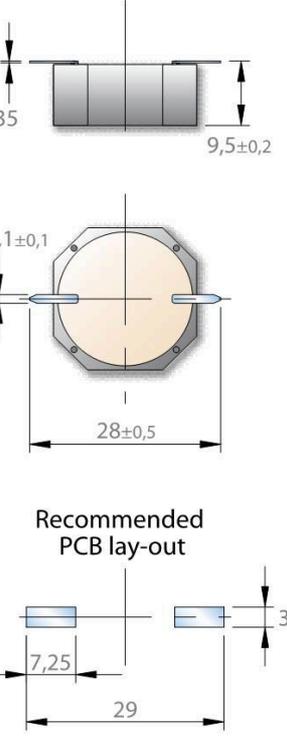
SMA ↓ Sonitron Multi- Application	T ↓ Transducer	13 17 21 24 30 ↓ Square diameter (mm)	P7.5 P10 P15 P17.5 P20.32 S ↓ P: Pin distance (in mm) S: SMD terminals
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LIST OF AVAILABLE PRODUCT TYPES

SMAT-13 P7.5 SMAT-13 P10 SMAT-13 S	SMAT-17 P7.5 SMAT-17 P10 SMAT-17 S	SMAT-21 P10 SMAT-21 P15 SMAT-21 P17.5 SMAT-21 S	SMAT-24 P10 SMAT-24 P15 SMAT-24 P17.5 SMAT-24 P20.32 SMAT-24 S	SMAT-30 P15 SMAT-30 P17.5 SMAT-30 P20.32 SMAT-30 S
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DIMENSIONS SMA & SMAT-SERIES (All dimensions are in mm)

Pin version	SMA(T)-13	SMA(T)-17	SMA(T)-21
			
SMD version			

* The sound hole of SMA-21 LV has a diameter of 3 mm, whereas the other SMA-21 types have a 3,8 mm sound hole.

(All dimensions are in mm)

