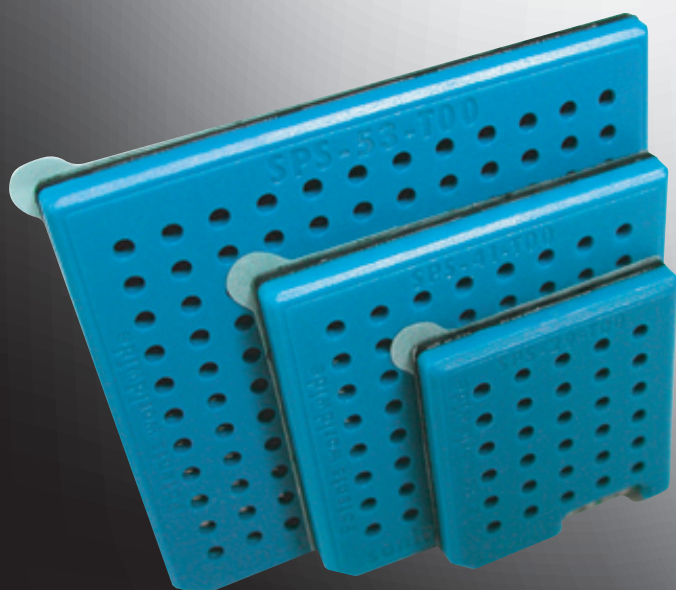


New

SPS-29-T00

SPS-41-T00

SPS-53-T00



louder
broad frequency range
fast and easy mountable
flat and solid construction
dust, water-and shockproof
very small current consumption

SPS-29/41/53-T00 Piezoceramic Audio Speaker

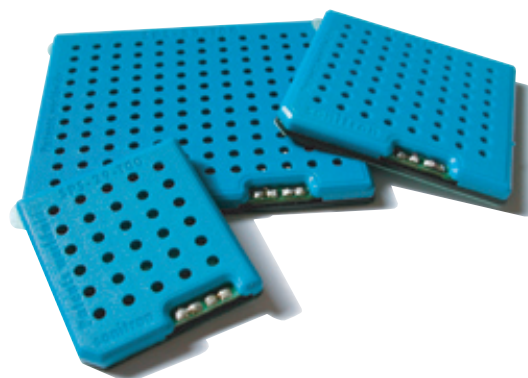
*The **Blue line SPS Piezoceramic speaker series** are designed for a broad range of applications.*

Equipped with a high power adhesive tape and soldering connection pads the speaker is ready for easy mounting and fast production in every application.

These series are reproducing sound signals at very low distortion (below 1%) and broad frequency range. The casing is designed to avoid sound wave reflection in the air outlet.

The power consumption and current drain are extremely low over the entire frequency response range.

Patented technology guarantees a slim line free form factor.



ADVANTAGES & APPLICATIONS

ADVANTAGES :

- very flat and solid construction
- dust, water- and shockproof
- resistant to temperature variations
- broad frequency range in small size
- combined use as speaker/micro
- no electro-magnetic field (EMC)
- little energy required at low frequencies
- less current consumption needed in the leads to the speaker
- 60% higher acoustic output for smaller speakers compared to electrodynamic speakers
- low weight
- low distortion
- high impedance
- can be driven directly by IC

APPLICATIONS :

- GSM, GPS, PDA
- home equipment & domotics
- communication equipment
- talking buzzer & door bell
- computer equipment
- cars, busses and trains
- vending machines
- multimedia equipment
- industrial equipment
- portable voice recorders
- paging systems
- public address systems
- instrumentation
- cellular phone
- car audio system

SPECIFICATIONS (Transducer)

Model	SPS-29-T00	SPS-41-T00	SPS-53-T00
Frequency Range :	1KHz - 20 kHz	450Hz - 20 kHz	300Hz - 20 kHz
Max SPL @ 10 cm, 60 Vpp:	86 dB	90 dB	93 dB
Distortion (%THD):	≤1%	≤1%	≤1%
Capacitance (+/- 20%):	480 nF	880 nF	960 nF
Max. voltage PP, sine wave/RMS:	60Vpp/21.21 (V _{RMS})	60Vpp/21.21 (V _{RMS})	60Vpp/21.21 (V _{RMS})
Weight:	3.1g	5.7g	10.1g
Operating Temperature:	-20°C to 60°C	-20°C to 60°C	-20°C to 60°C
Storage Temperature:	-40°C to 60°C	-40°C to 60°C	-40°C to 60°C
Case material:	PBT and PC	PBT and PC	PBT and PC

Worldwide patented

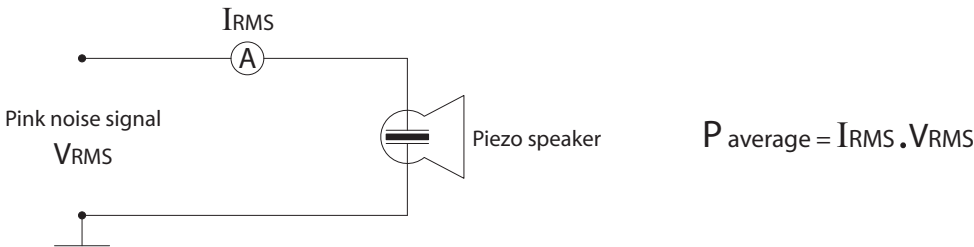
POWER CONSUMPTION

The average power consumption of the new SPS-series can be calculated by multiplying the RMS-voltage and RMS-current.

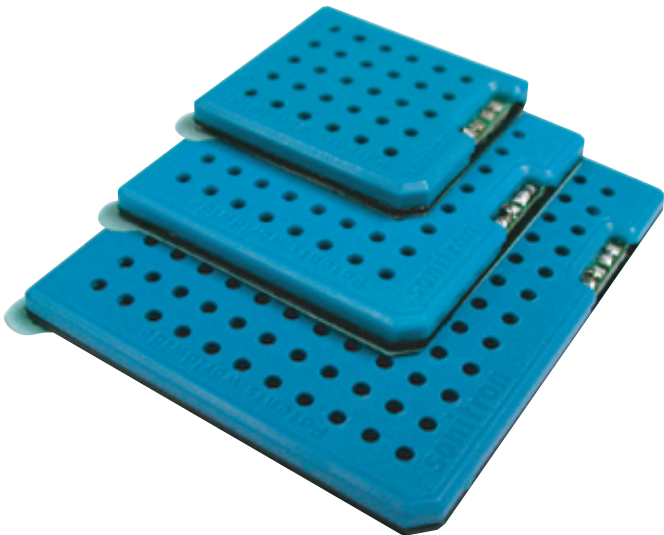
The **RMS-voltage** (V_{RMS}) is defined by the input signal. The used signal is a standard pink noise signal with a value of 10,6/21.21 V_{RMS} . This signal has the same energy as a sine wave of 30/60Vpp.

Pink noise is an electronic signal that carries equal energy in all octaves (or similar log bundles) over the complete audio frequency range.

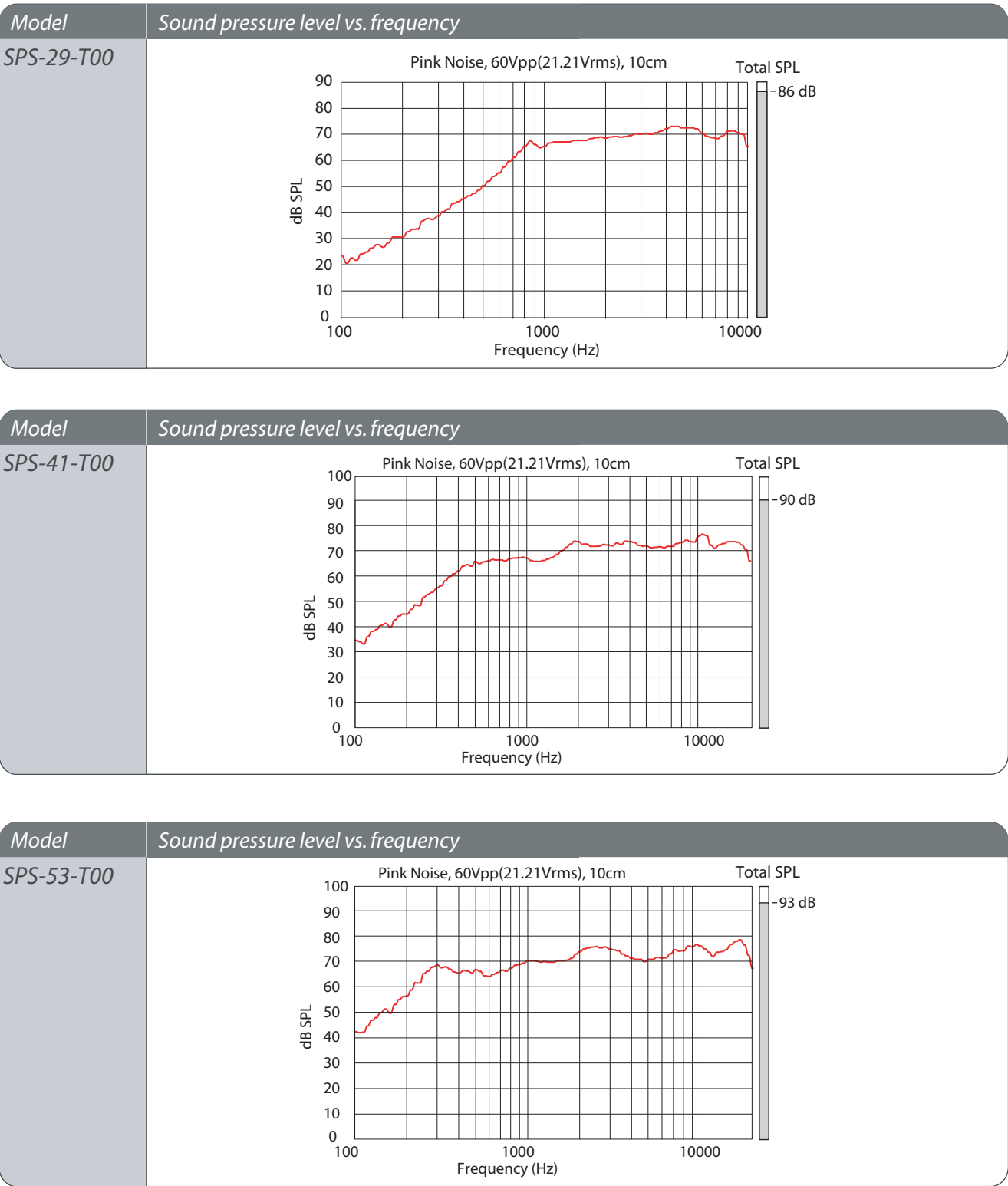
The **RMS-current** (I_{RMS}) is measured with a true rms multimeter (Fluke 87IV) in series with the speaker. A piezo speaker can mainly be seen as a capacitive load and therefore there will be no DC-current consumption. The only current consumption will be of the AC-current component.



Model	10.6 V_{RMS} (30 Vpp sine) $I_{RMS}=mA$	21.21 V_{RMS} (60 Vpp sine) $I_{RMS}=mA$
SPS-29-T00	0,11 Watt (= 10mA.10,6V)	0,47 Watt (= 22mA.21,21V)
SPS-41-T00	0,19 Watt (= 18mA.10,6V)	0,87 Watt (= 37mA.21,21V)
SPS-53-T00	0,37 Watt (= 35mA.10,6V)	1,57 Watt (= 74mA.21,21V)

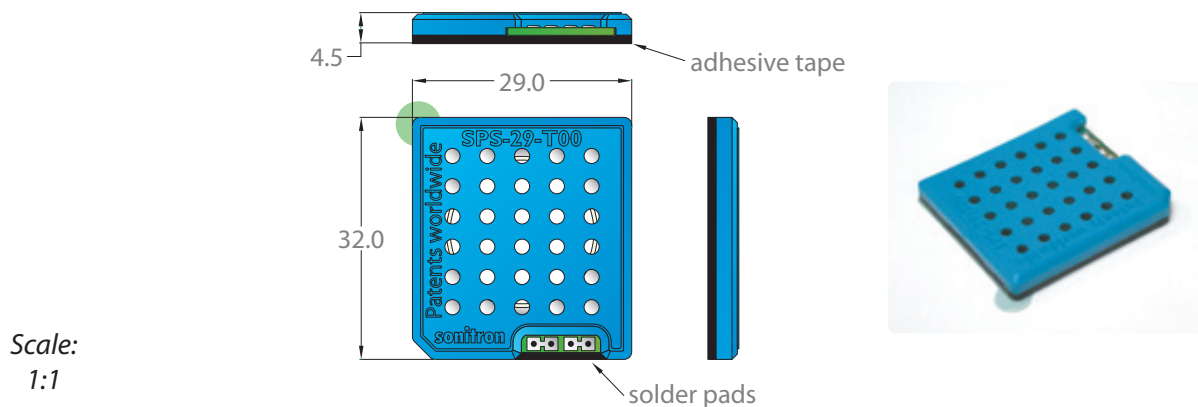


FREQUENCY RESPONSE

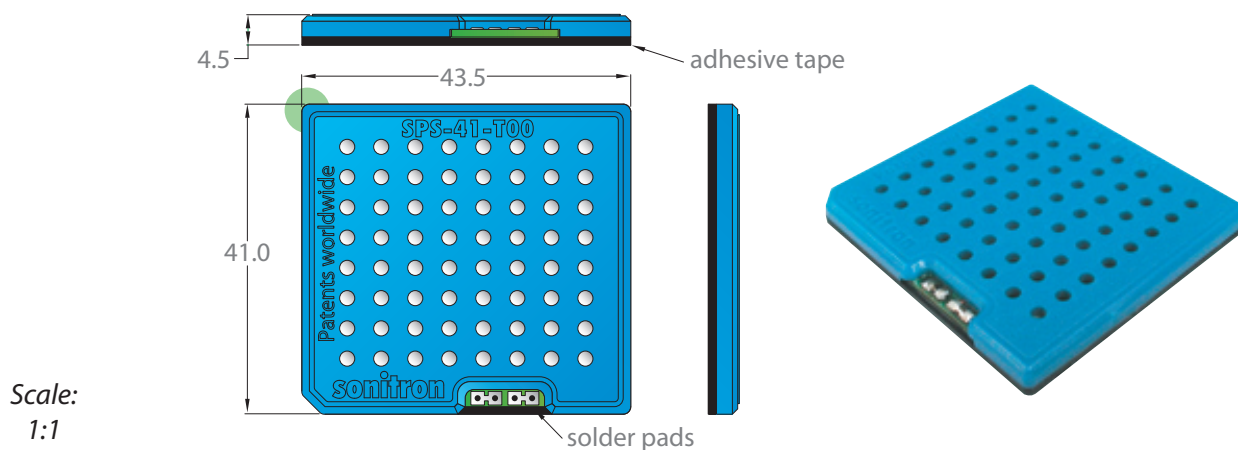


DIMENSIONS

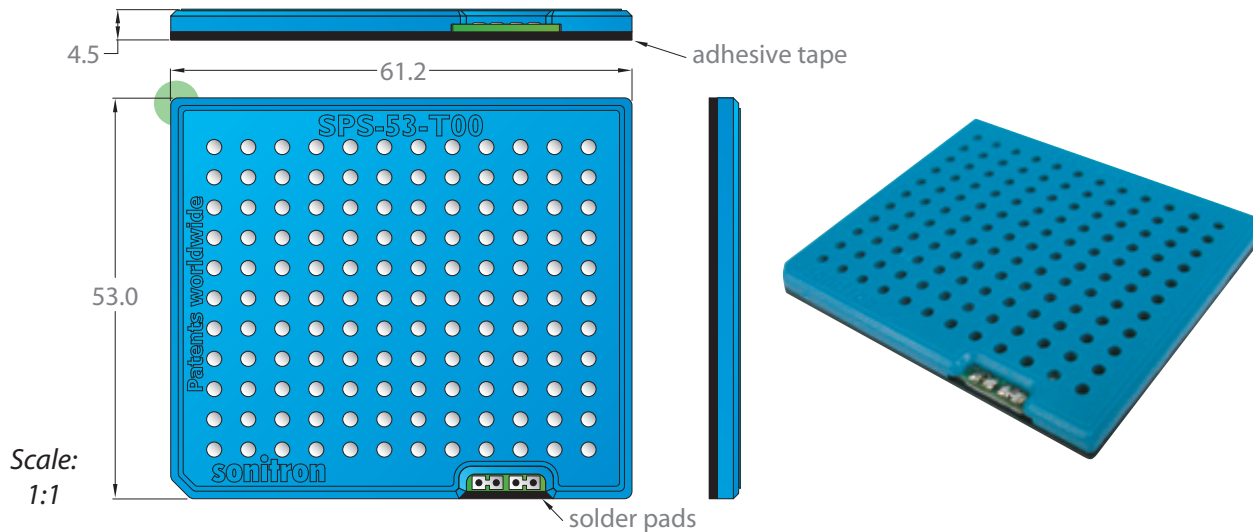
SPS-29-T00



SPS-41-T00



SPS-53-T00

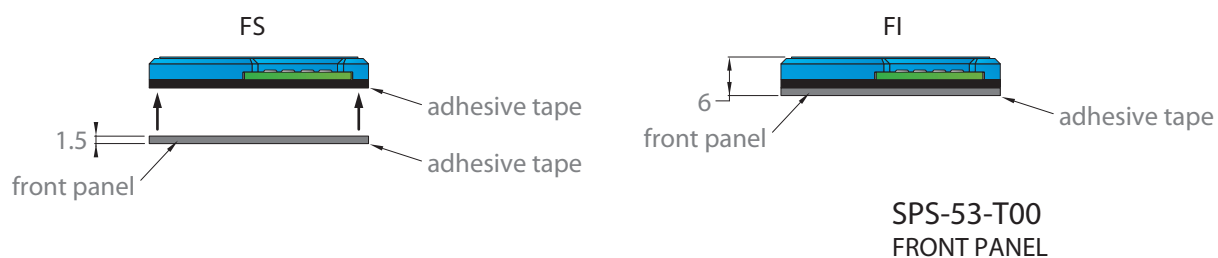


DIMENSIONS optional front

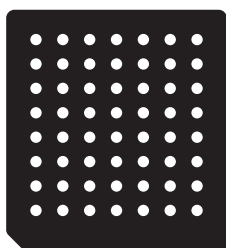
Optional a front panel is available, it is also equipped with adhesive tape for fast assembly to the application. It can be ordered pre-installed (already attached to the speaker) or as a separate part. (Be aware the speaker thickness increases with 1.5 mm.)

To order the speaker with pre-installed front panel add FI to the speaker codification (example: SPS-29-T00-**FI**)

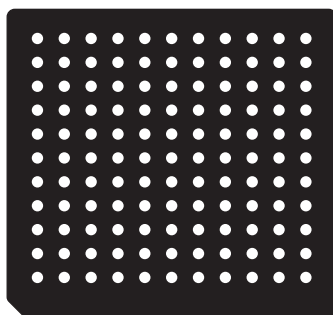
To order the speaker with separate front panel add FS to the speaker codification (example: SPS-29-T00-**FS**)



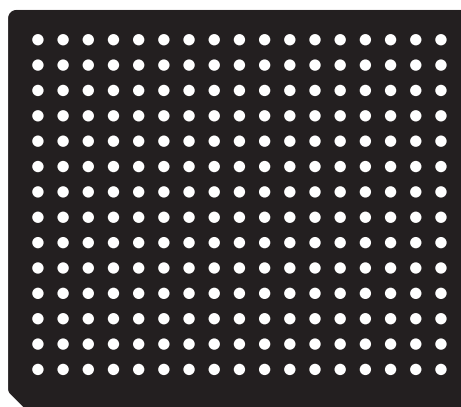
SPS-29-T00
FRONT PANEL



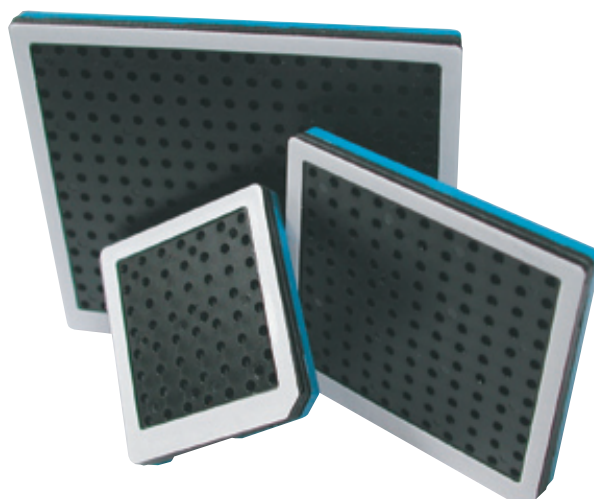
SPS-41-T00
FRONT PANEL



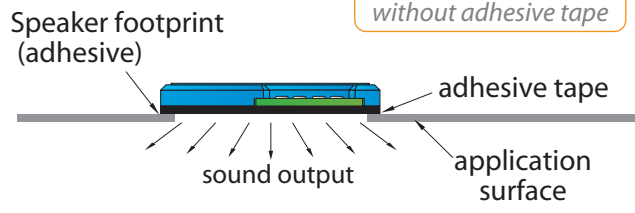
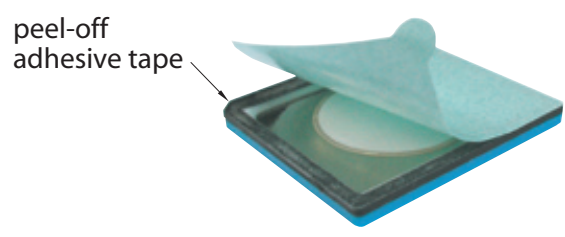
SPS-53-T00
FRONT PANEL



Scale:
1:1

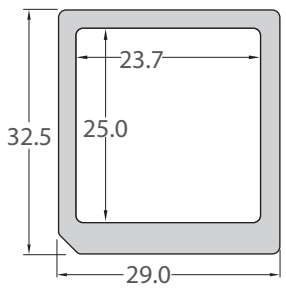


MOUNTING GUIDELINES

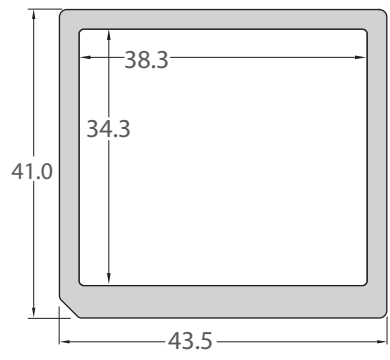


Speaker (adhesive) footprint

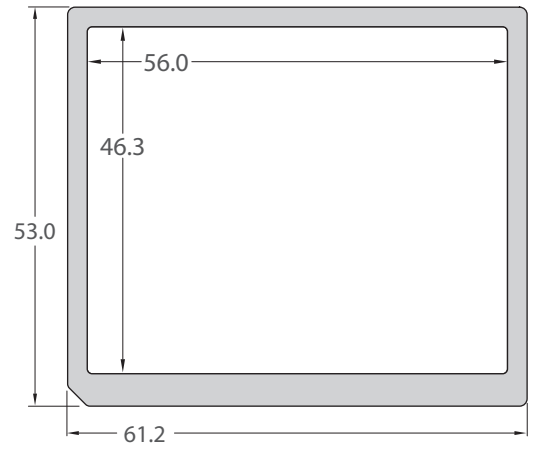
SPS-29-T00



SPS-41-T00



SPS-53-T00



PRODUCT CODIFICATION

SPS -	29 -	T	00 -	F I - F S
↓	↓	↓	↓	↓ ↓ ↓ ↓
Sonitron	Size	Transducer	Version	Front Installed Front Separate
Polymer/metal				
Speaker				

LIST OF AVAILABLE PRODUCT TYPES

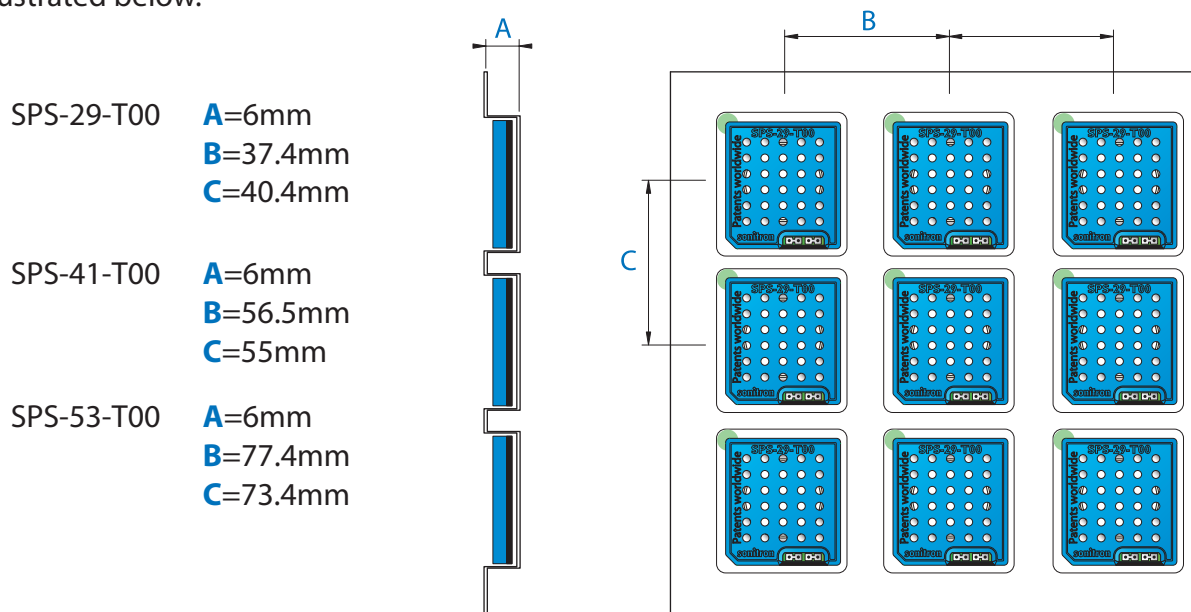
Standard	Optional	Optional
SPS-29-T00	SPS-29-T00-FI	SPS-29-T00-FS
SPS-41-T00	SPS-41-T00-FI	SPS-41-T00-FS
SPS-53-T00	SPS-53-T00-FI	SPS-53-T00-FS

PACKAGING

The SPS-29-T00/41-T00/53-T00 are packed in trays (245 L x 245 W) and sold in boxes with dimensions of 250 L x 250 W x 125 H.

Model	SPS-29-T00	SPS-41-T00	SPS-53-T00
per tray	30	16	9

Dimensions of the tray and position of the SPS-speakers SPS-29-T00/41-T00 and 53-T00 are illustrated below.



RECOMMENDED PIEZO AUDIO AMPLIFIERS

Integrated Circuits

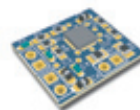
Maxim
 MAX9788

National semiconductor
 LM4960

Texas Instruments
 TPA2100P1

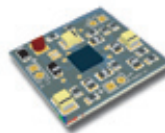
Sonitron production models

20Vpp amplifier



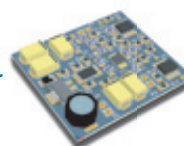
PAA-MAX-9788-01

24Vpp amplifier



PAA-LM4960SQ-02

60Vpp amplifier



PAA-StepUpBTL-01

For more information about PAA-amplifiers, go to "PAA application documents" on our website.

Worldwide patented