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soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-5009



Release | Revision: C/2018

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

93±3dB SPL @0.6, 0.8,1.0 and 1.2KHz in average (0dB SPL=20μPa)
Measuring Condition: 0.1W (Sine wave) 10cm measured with baffler shown in Fig.1.

Frequency Response Curve

As shown in Figure 2

Response Frequency

450±20%Hz @ 1V. (Without Baffler)

Input Power (Nominal and Maximum)

Rated Noise Power 0.5W

Short Term Max Power: 1.0W must be normal at a white noise (1W, FO ~ 20KHz) for one minute

Operation Test

Must be free audible noise (buzzes and rattles)

(300 ~ 8KHz frequency range, input level up to 2.0 Vrms)

Distortion

Less than 10% @1KHz, 0.1M, 0.1W

General Specifications

Operating Temperature Range

-20°C~+55°C

Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

AC Impedance

8±15%Ω (@2KHz 1V) without baffler

Dimension

Ø50.0x8.5mm

IP Level

IP50



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Reliability Tests

After Test

Sound pressure level of speaker difference shall be within $\pm 3\text{dB}$ after test @0.8,1.0,1.2,1.5KHz average.

High Temperature Test

High Temperature $+60\pm 3^\circ\text{C}$

Duration 96 hours

Low Temperature Test

Low Temperature $-20\pm 3^\circ\text{C}$

Duration 96 hours

Humidity Test

Temperature $+40\pm 2^\circ\text{C}$

Relative Humidity 90%~95%

Duration 96 hours

Temperature Cycle Test

Temperature -20°C $+65^\circ\text{C}$

Duration 2 hours 2 hours

Cycle 5

Drop Test

Height 1.5 m

Cycle 12 cycles

Drop Test

Vibration 10Hz ~ 55Hz ~ 10Hz Oct/min

Amplitude 1.5mm

Duration 2 hours in each of 3 axes

Load Test

Speaker mode: White noise (EIA filter) for 96 hours @ 0.5W input power.



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Measuring Method (Speaker Mode)

Standard Test Condition

Temperature 17 ~ 25°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860hpa to 1060hpa

Standard Test Fixture

Input Power 0.1W

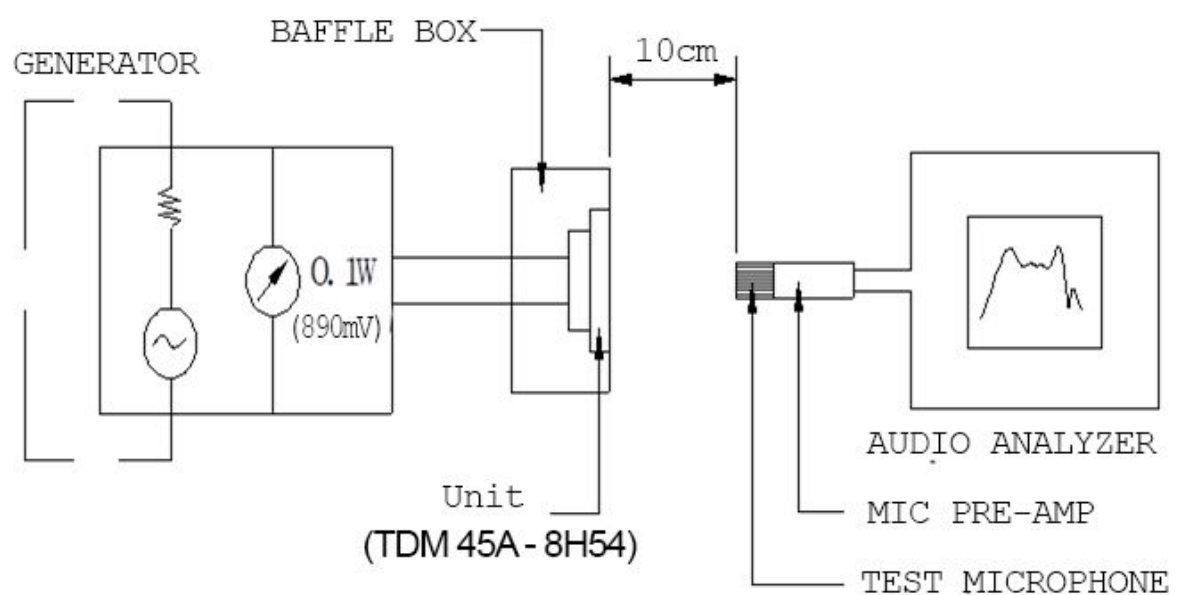
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig. 1)





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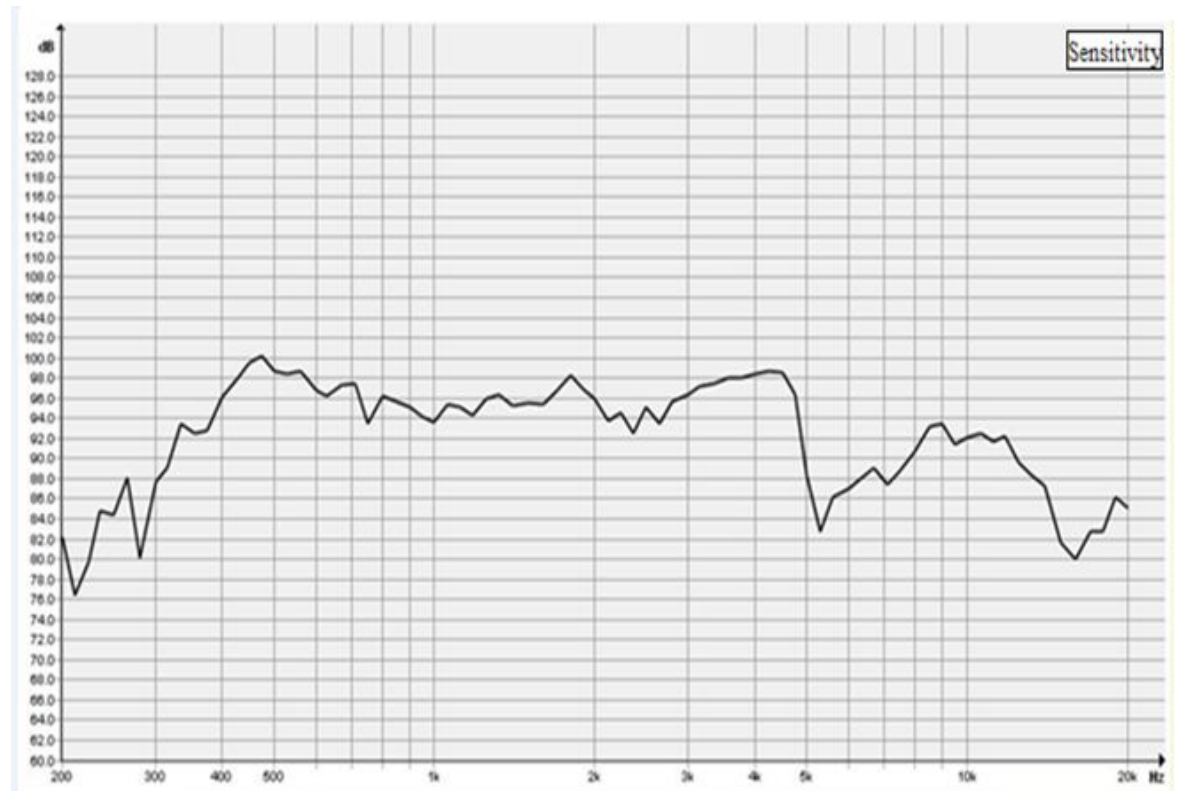
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Frequency Response Curve (Fig. 2)





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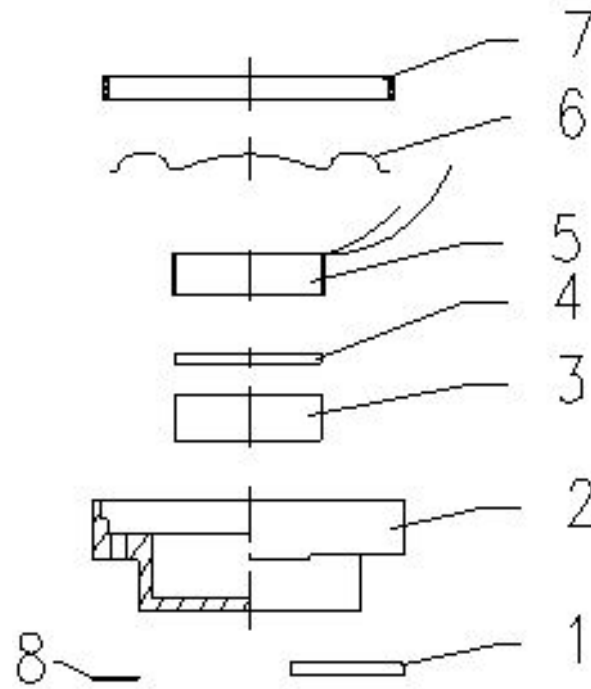
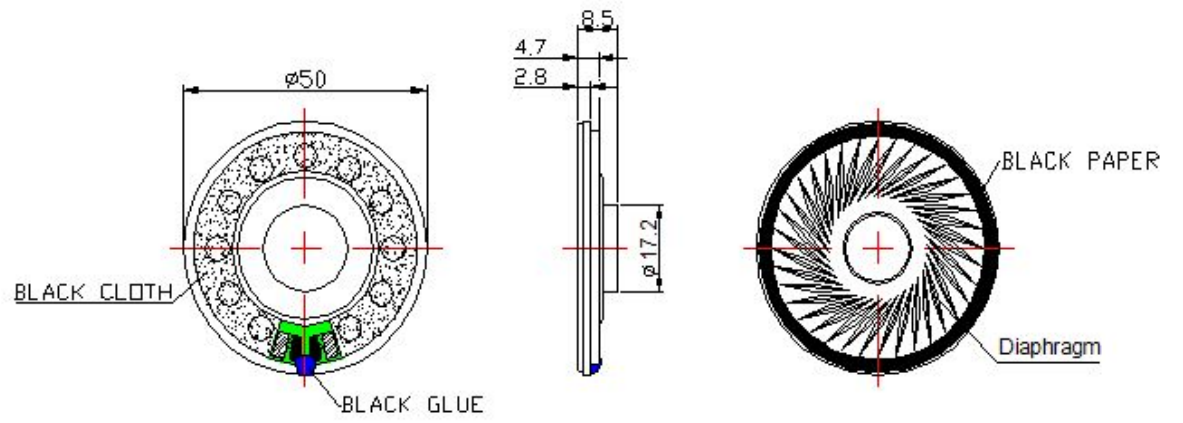
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Dimensions

Tolerance: ± 0.2 (unit: mm)



No.	Part Name	Material	Quantity
1	Diaphragm	PET	1
2	Magnet	12.5-1.5Nd Fe B	1
3	Plate	12.7-0.8SPCC	1
4	Voice Coil	13.3-2.4-7.4 Ω	1
5	Frame	SPCC	1
6	PCB	FR-4	1
7	Gasket	Black Paper	1
8	Silk Screen	Adhesive	1



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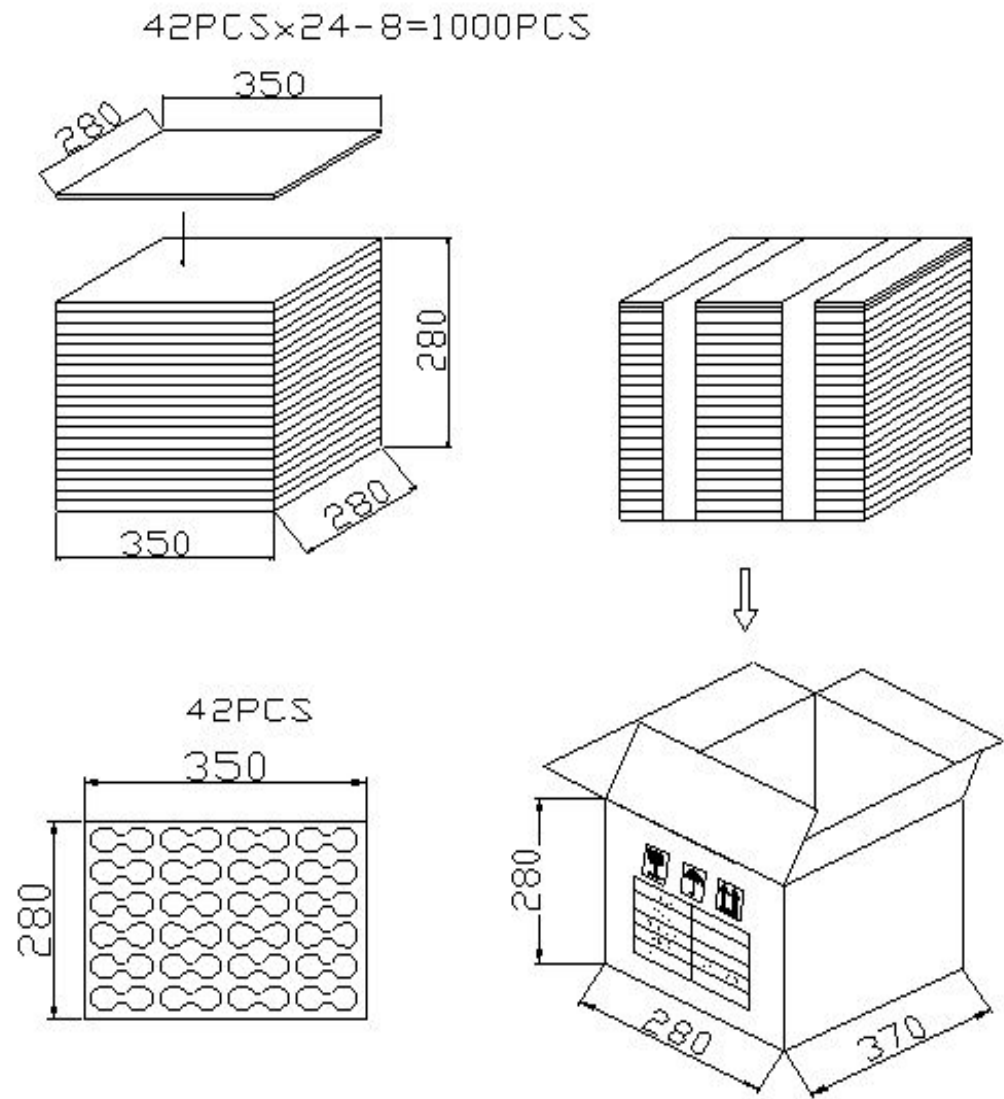
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Packing



Details

42 pcs per box

24 units per box

Total

Amount
1000 pcs per box

Size
37×28×28cm