



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, F0 ~ 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

No rating



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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  $-20^\circ\text{C}$   $+65^\circ\text{C}$

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

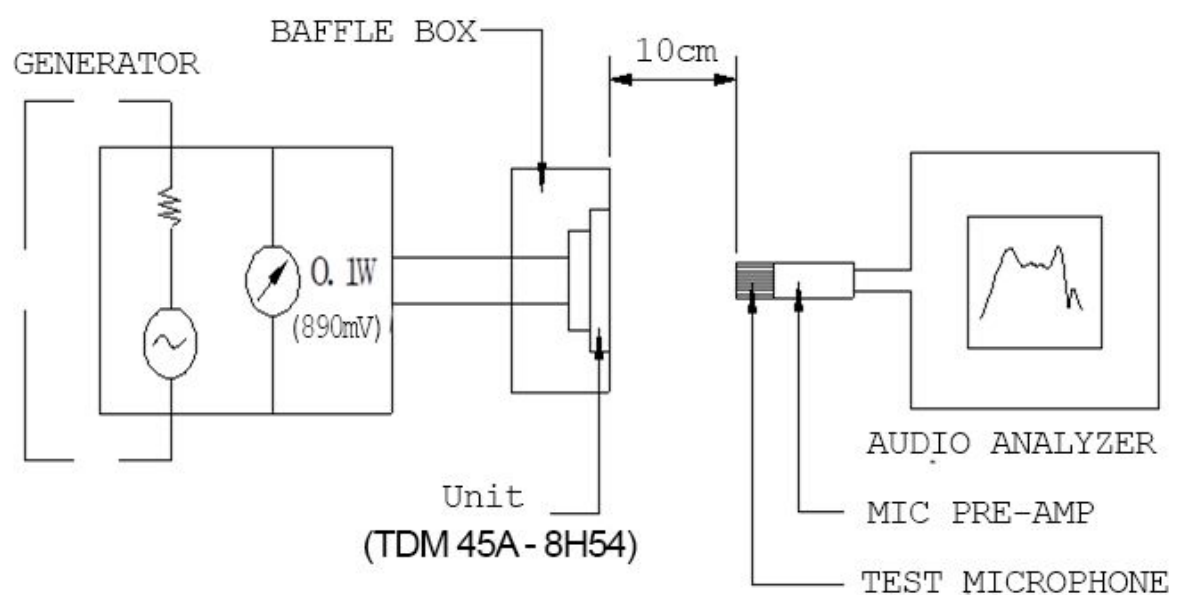
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

## Standard Test Condition of Speaker (Fig. 1)





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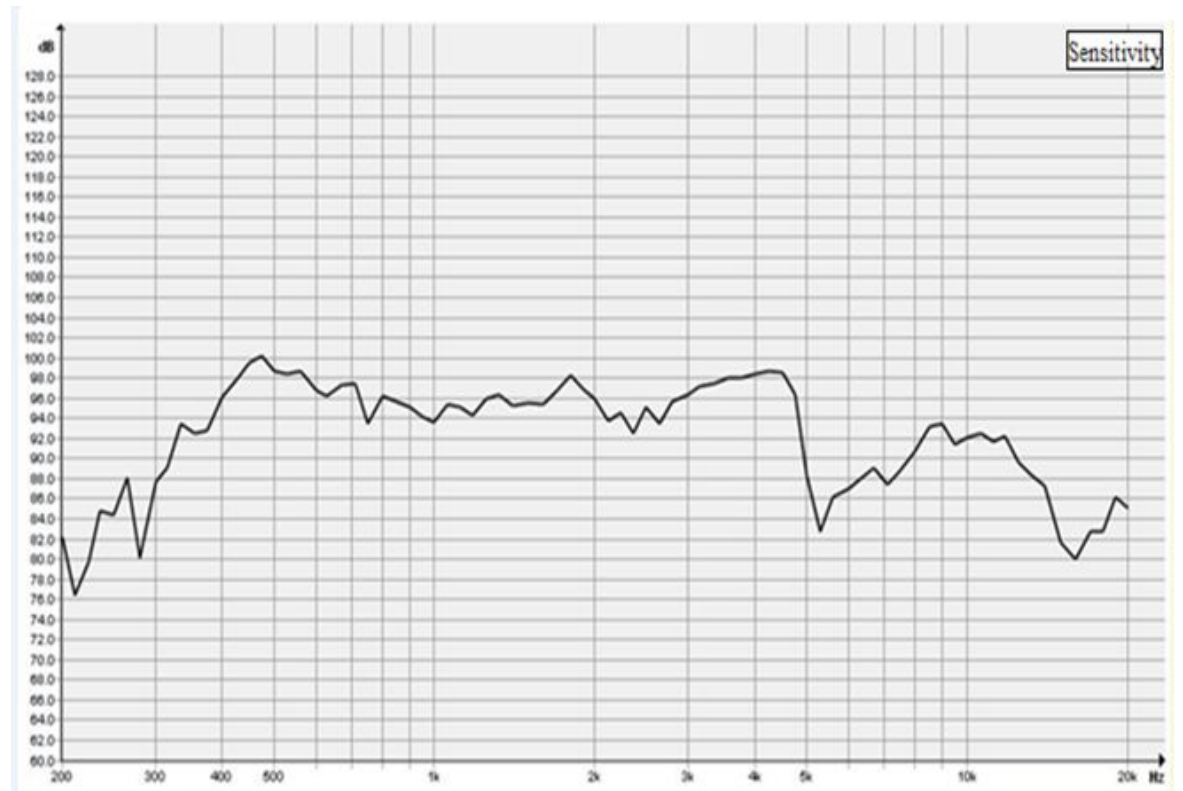
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## Frequency Response Curve (Fig. 2)





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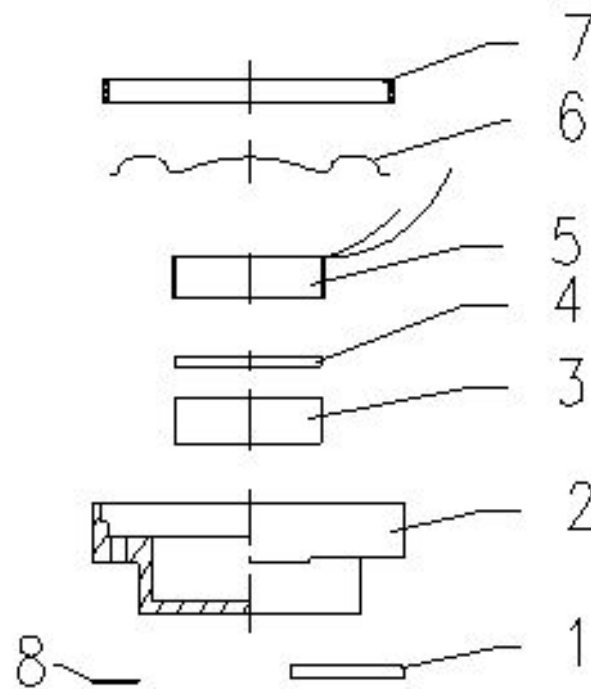
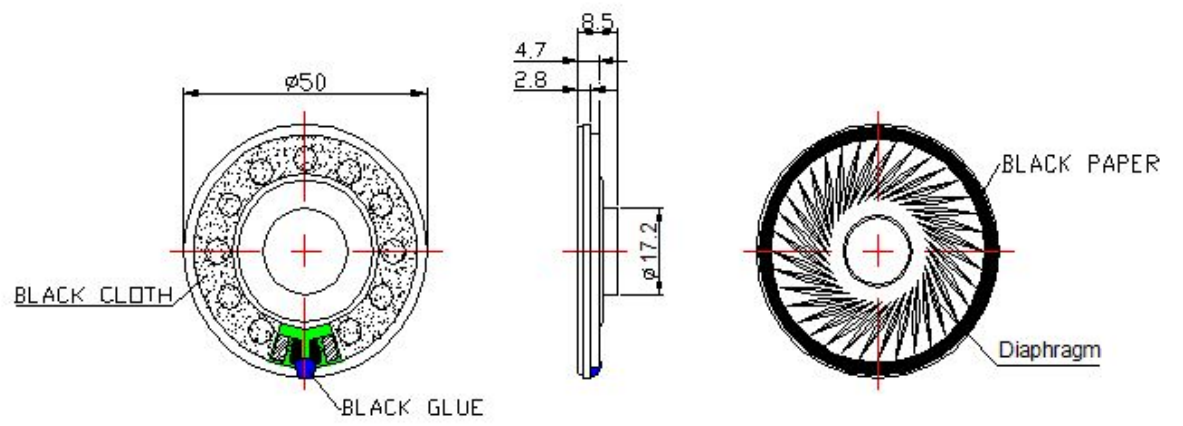
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## Dimensions

Tolerance:  $\pm 0.2$  (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 $\Omega$	1
5	Frame	SPCC	1
6	PCB	FR-4	1
7	Gasket	Black Paper	1
8	Silk Screen	Adhesive	1



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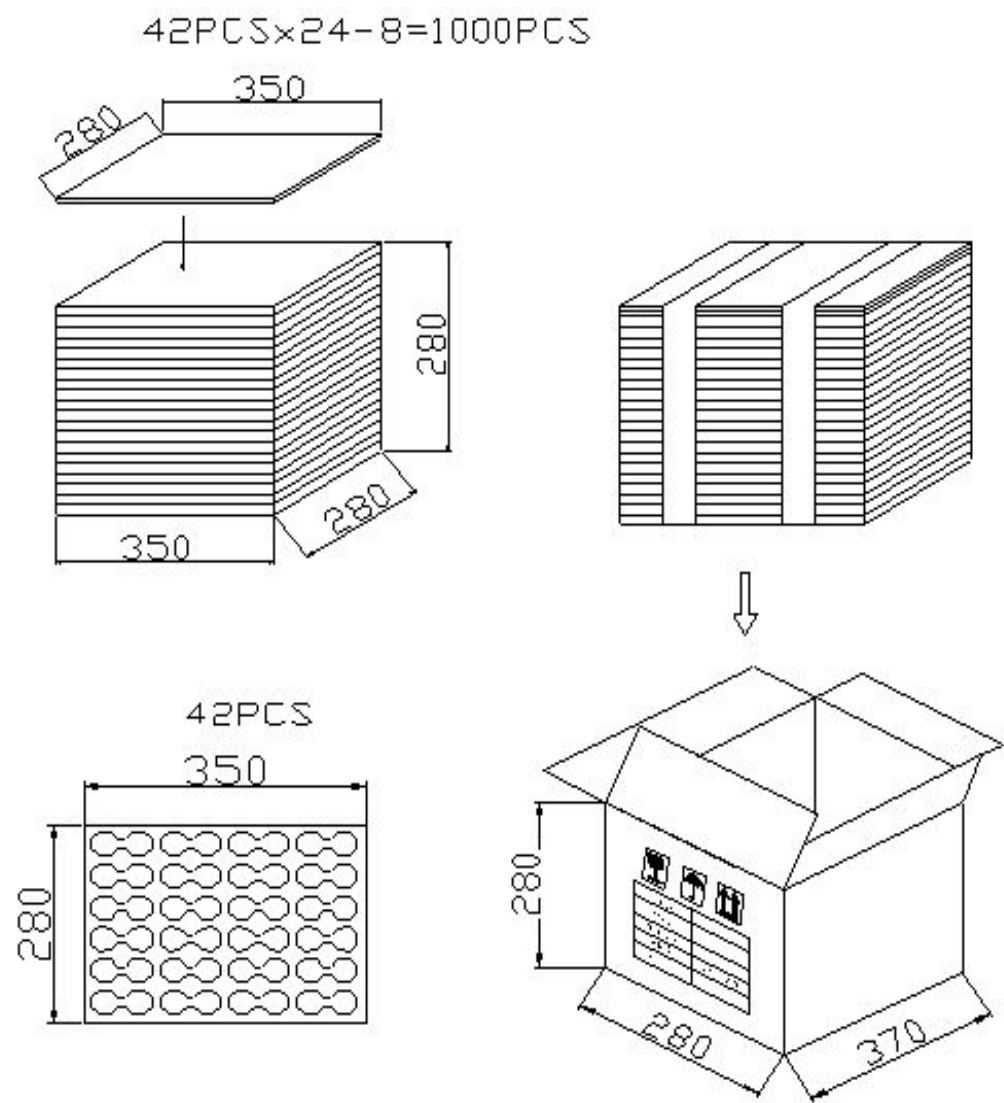
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## Packing



## Details

42 pcs per box

24 units per box

### Total

Amount  
1000 pcs per box

Size  
37×28×28cm