



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2509



Release | Revision: C/2018

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

84±3dB SPL @0.6, 0.8, 1.0 and 1.5KHz in average (0dB SPL=20µPa)  
Measuring Condition: 0.1W (Sine wave) 10cm measured with baffle shown in Fig.1.

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

550±20%Hz @ 1V. (Without Baffle)

### Input Power (Nominal and Maximum)

Rated Noise Power 1.0W (in 1cc box)

Short Term Max Power: 1.2W (in 1cc box)

### Operation Test

Must be free audible noise (buzzes and rattles)

(300 ~ 5KHz frequency range, input level up to 2.53 Vrms)

### Distortion

Less than 10% @1KHz, 0.1M, 0.1W frequency range, input level up to 0.1W

## General Specifications

### Operating Temperature Range

-20°C~+60°C

### Storage Temperature Range

-40°C~+85°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### AC Impedance

8±15%Ω (@2KHz 1V) without baffle

### Dimension

25.0x9.0x3.0mm

### IP Level

No rating



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## Reliability Tests

The sound pressure as specified will neither deviate more than  $\pm 3\text{dB}$  from the initial value, nor have any significant damage after any of following testing.

### High Temperature Test

High Temperature  $+60\pm 2^\circ\text{C}$

Duration 96 hours

### Low Temperature Test

Low Temperature  $-20\pm 2^\circ\text{C}$

Duration 96 hours

### Heat Shock Test

High Temperature  $+60\pm 2^\circ\text{C}$

Low Temperature  $-20\pm 2^\circ\text{C}$

Changeover Time  $< 30$  seconds

Duration 1 hour

Cycle 100

### Humidity Test

Temperature  $+60\pm 2^\circ\text{C}$

Relative Humidity 90%~95%

Duration 96 hours

### Temperature Cycle Test

Temperature  $-20^\circ\text{C}$   $+60^\circ\text{C}$

Duration 45 minutes 45 minutes

Temperature gradient  $1\sim 3^\circ\text{C}/\text{min}$

Cycle 25

### Drop Test

Mounted with dummy set mass 100 g

Height 1.5 m

Cycle 6 (1 each plain) onto the concrete board

### Load Test

Speaker mode: White noise (EIA filter) for 96 hours @ 1.0W input power.



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## Measuring Method (Speaker Mode)

### Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar to 1060mbar

### Standard Test Fixture

Input Power 0.1W

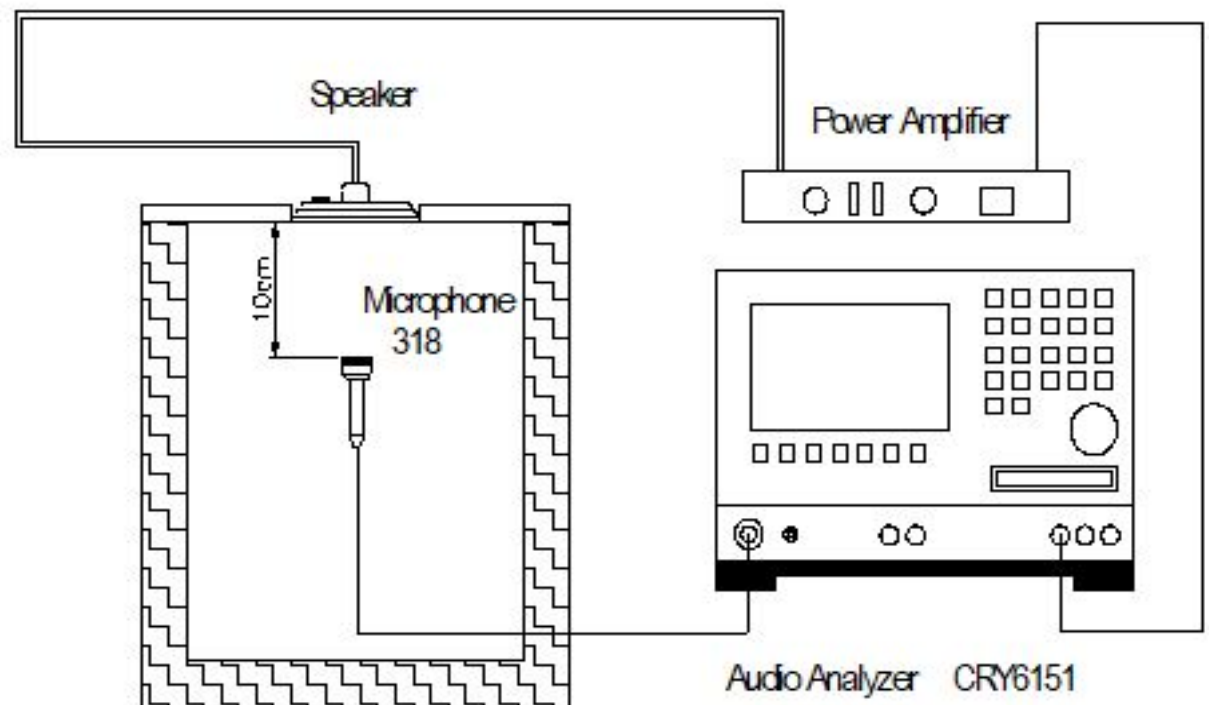
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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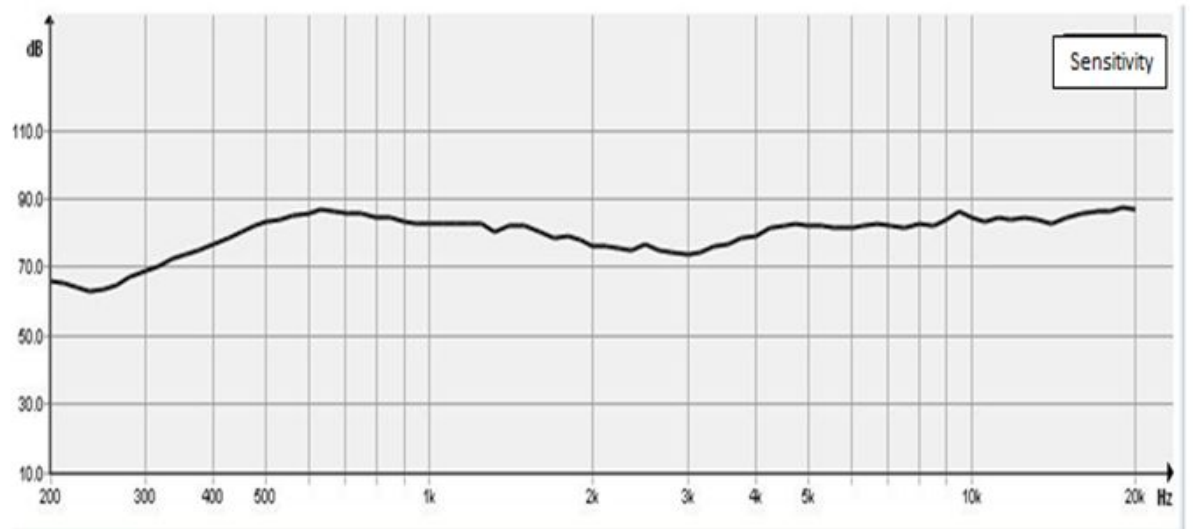
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### Frequency Response Curve (Fig. 2)





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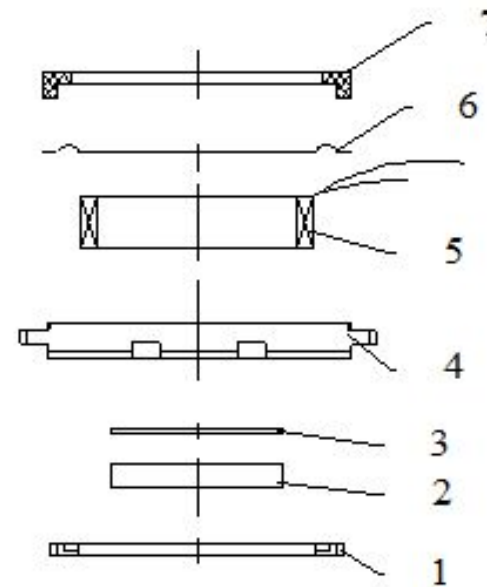
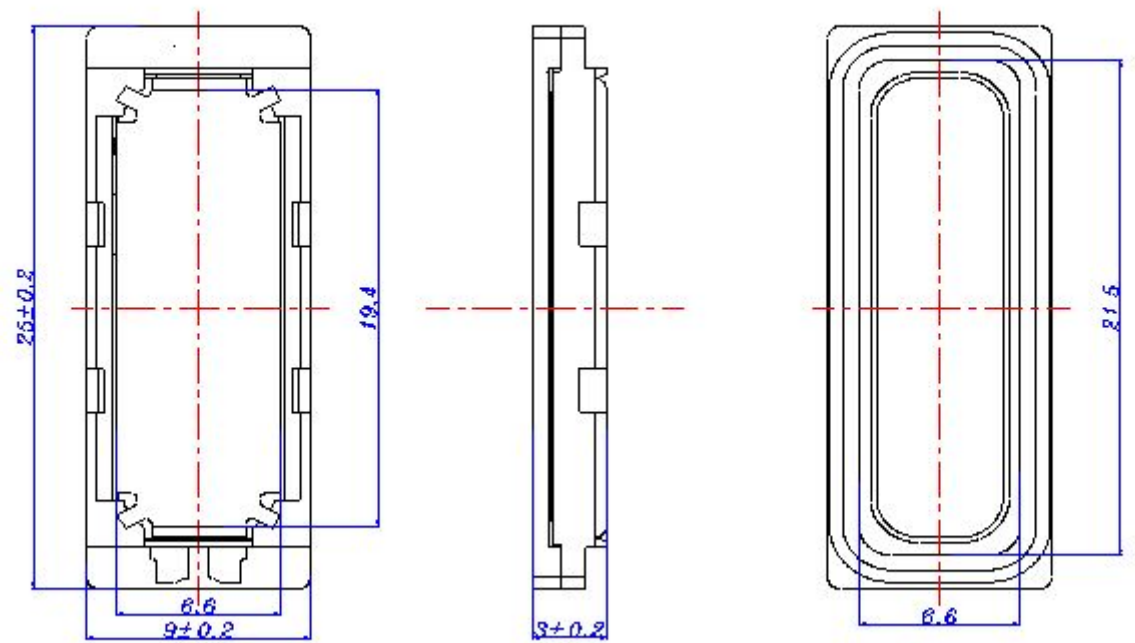
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## Dimensions

Tolerance:  $\pm 0.5$  (unit: mm)



No.	Part Name	Material	Quantity
1	Frame	PPA	1
2	Magnet	Nd Fe B	1
3	Plate	SPCC	1
4	U Yoke	SPCC	1
5	Diaphragm	PEEK	1
6	Voice Coil	Copper Wire	1
7	Cap	PPA	1



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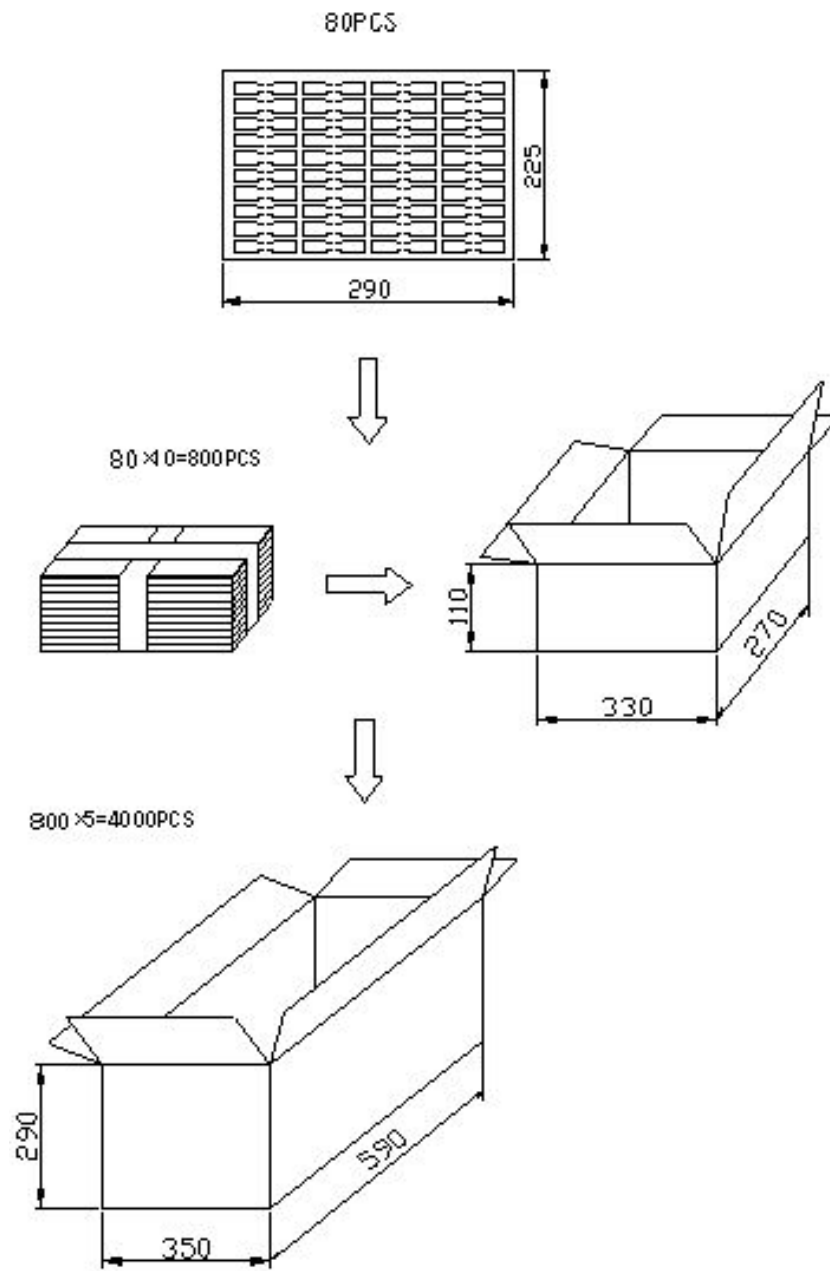
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## Packing



## Details

80 pcs per tray	10 trays for unit	800 pcs per carton	5 cartons per box
<b>Total</b>	<b>Amount</b>	<b>Size</b>	<b>Weight</b>
	4000 pcs per box	59x35x29 cm	11.6Kg