



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1511S-6



Release | Revision: D/2018

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## Speaker Electroacoustic Characteristics

### Sound Pressure Level

82±3dB SPL @0.7, 0.8 1.0, 1.5 and 2.0KHz 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 1

### Response Frequency

750±20%Hz @ 1V in free air  
900±20%Hz @ 1V in 1cc box

### Input Power (Nominal and Maximum)

Rated Noise Power: 0.5W  
Short Term Maximum Power: (in 1cc box) 0.8W

### Operation Test

Must be free of audible noise (buzzes and rattles)  
(300~5KHz frequency range, input level up to 2.0Vrms in 1cc box)

### 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

### Standard Test Conditions

Temperature 17°C~25°C  
Relative Humidity 45%~80%(RH)

### Impedance

8±15%Ω (@2KHz 1V) without baffler

### Dimension

15.0 x 11.0 x 4.0mm

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

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 @ 0.5W input power.



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## Measuring Method (Speaker Mode)

### Test Condition Standard

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar to 1060mbar

### Standard Test Fixture

Input Power 0.1W

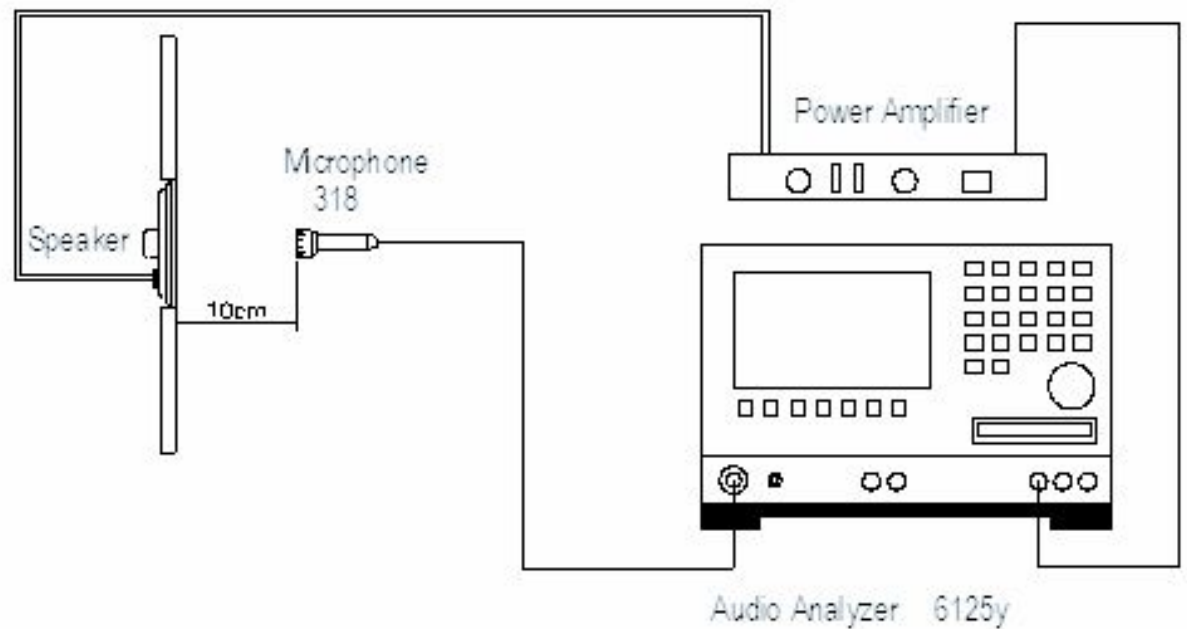
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

## Standard Test Condition of Speaker





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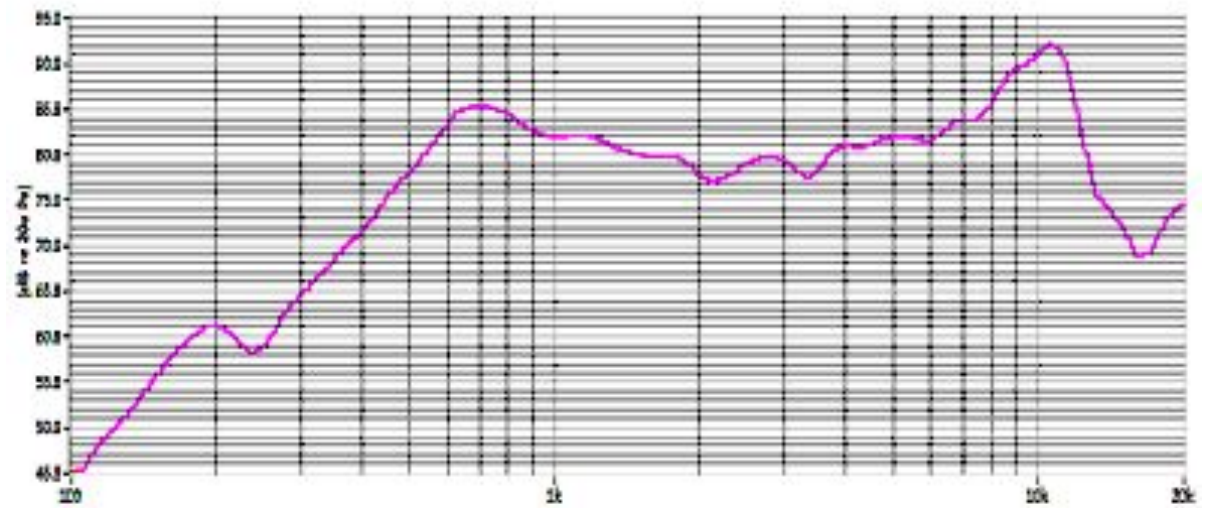
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### Frequency Response Curve (Fig. 1)

0.1W/10cm, in free air





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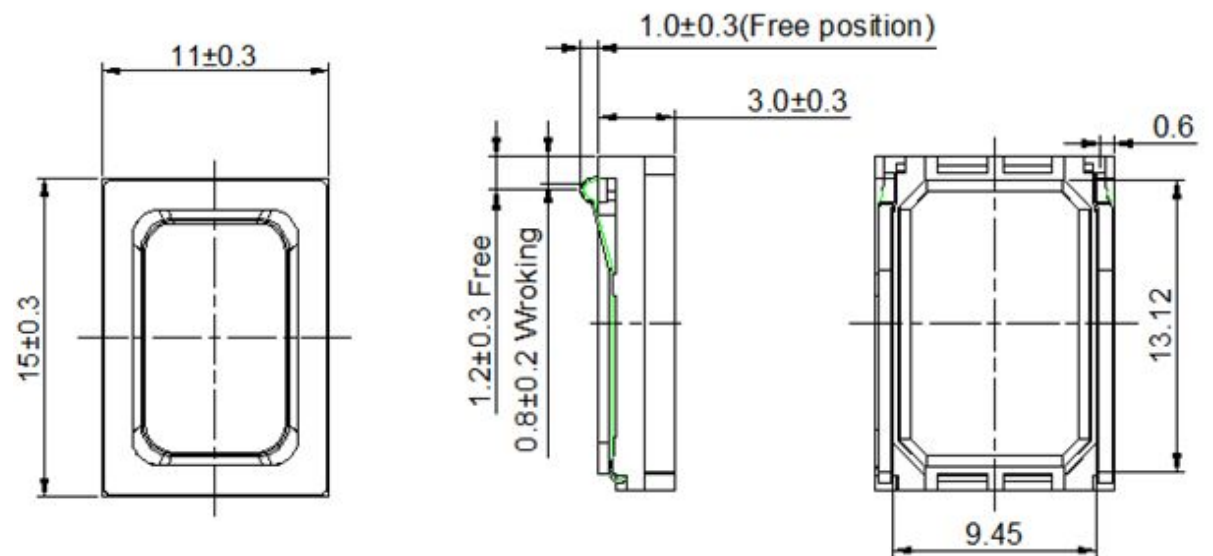
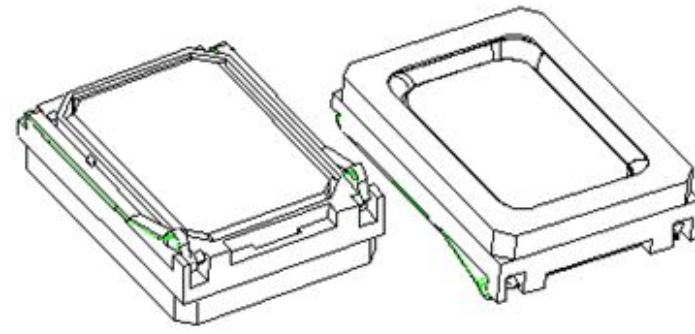
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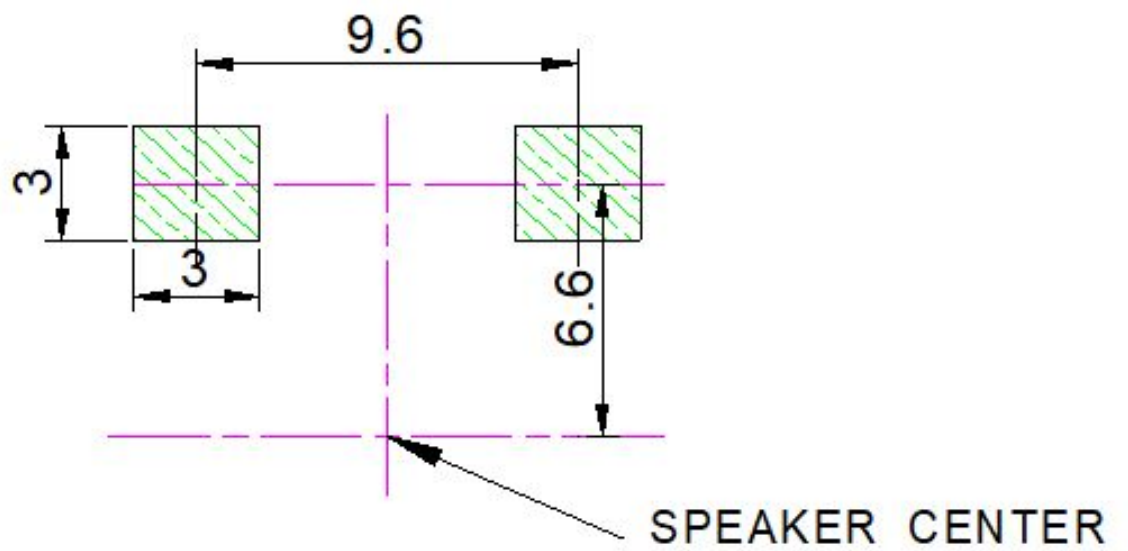
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## Dimensions

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



## PCB Layout





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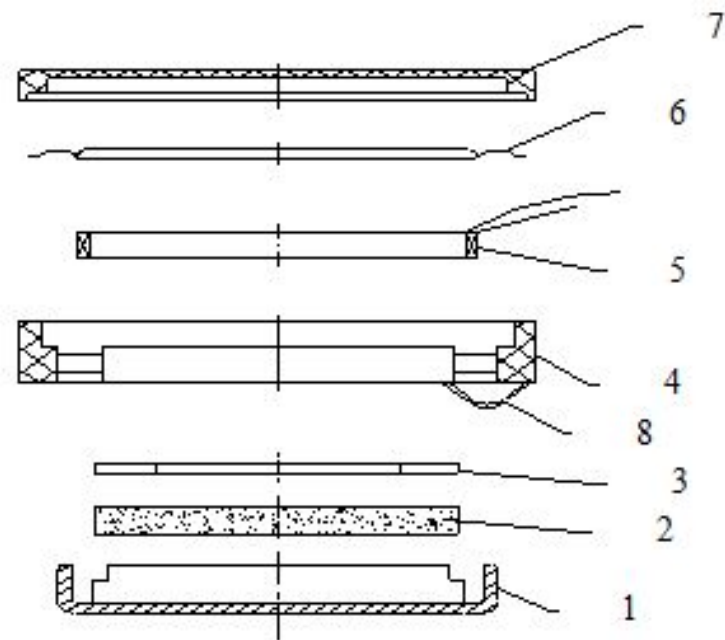
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## Exploded Diagram and Materials Table



No.	Part Name	Material	Quantity
1	U Yoke	SPCC	1
2	Magnet	Nd Fe B	1
3	Plate	SPCC	1
4	Frame +PIN	PPA+SUS	1
5	Voice Coil	Copper wire	1
6	Diaphragm	PEEK	1
7	Cap	PPA	1
8	Spring Terminal	SUS	2



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