



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-4005S



Release | Revision: B/2018

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

93±3dB (0.1W/0.1M) @AVE 0.8KHz,1.0KHz,1.5KHz, 2.0KHz (0dB SPL=20µPa)

### Frequency Response Curve

As shown in Figure 2

### Resonance Frequency

500±20% Hz @1.0V (without Baffler)

### Input Power (Nominal and Maximum)

Rated Noise Power: 1.0W

Short Term Max Power: 2.0W must be normal at a white noise (F0 ~ 20KHz) for one minute

### Frequency Range

F0~ 20KHz

### Test Set Up

Measuring conditions and procedures shown in Fig.1

### AC Impedance

8±15%Ω

### Buzz, Rattle, Etc.

Not audible from 300Hz to 8KHz with 2.83V sine wave input

### Distortion

Less Than 10% @1KHz, 10cm, 0.1W

## General Specifications

### Operating Temperature Range

-20°C~+60°C

### Storage Temperature Range

-25°C ~ +65°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### Dimension

Ø 40 x 8.4mm

### 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  $+65\pm 2^\circ\text{C}$

Duration 96 hours

### Low Temperature Test

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

Duration 96 hours

### Heat Shock Test

High Temperature  $+65\pm 2^\circ\text{C}$

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

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 (0.89V)

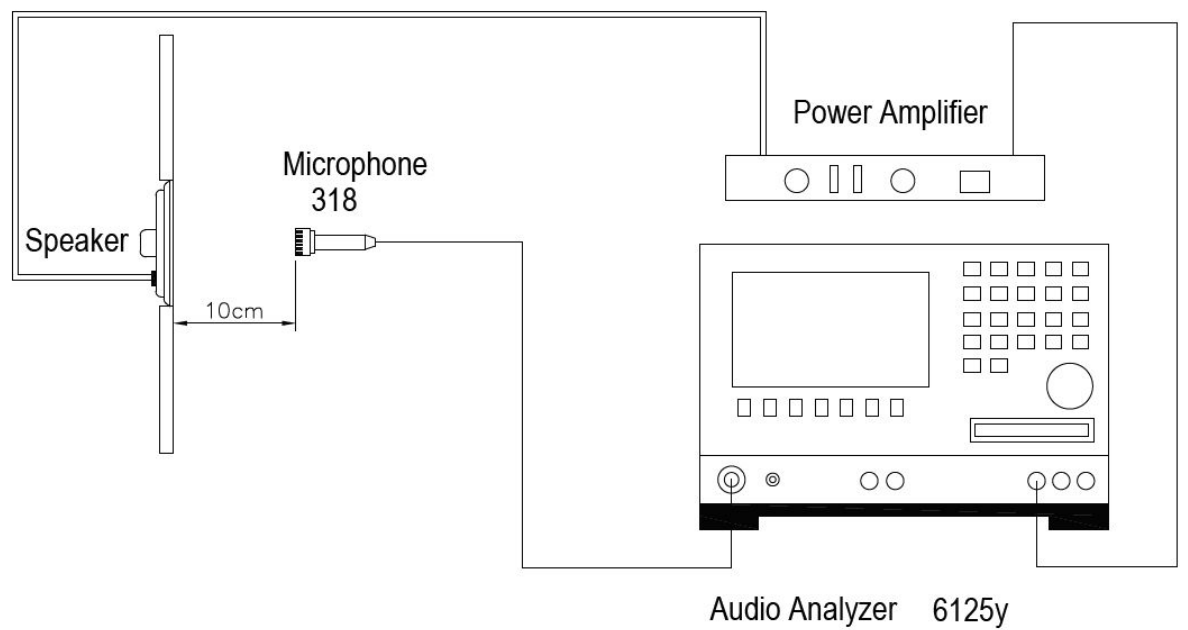
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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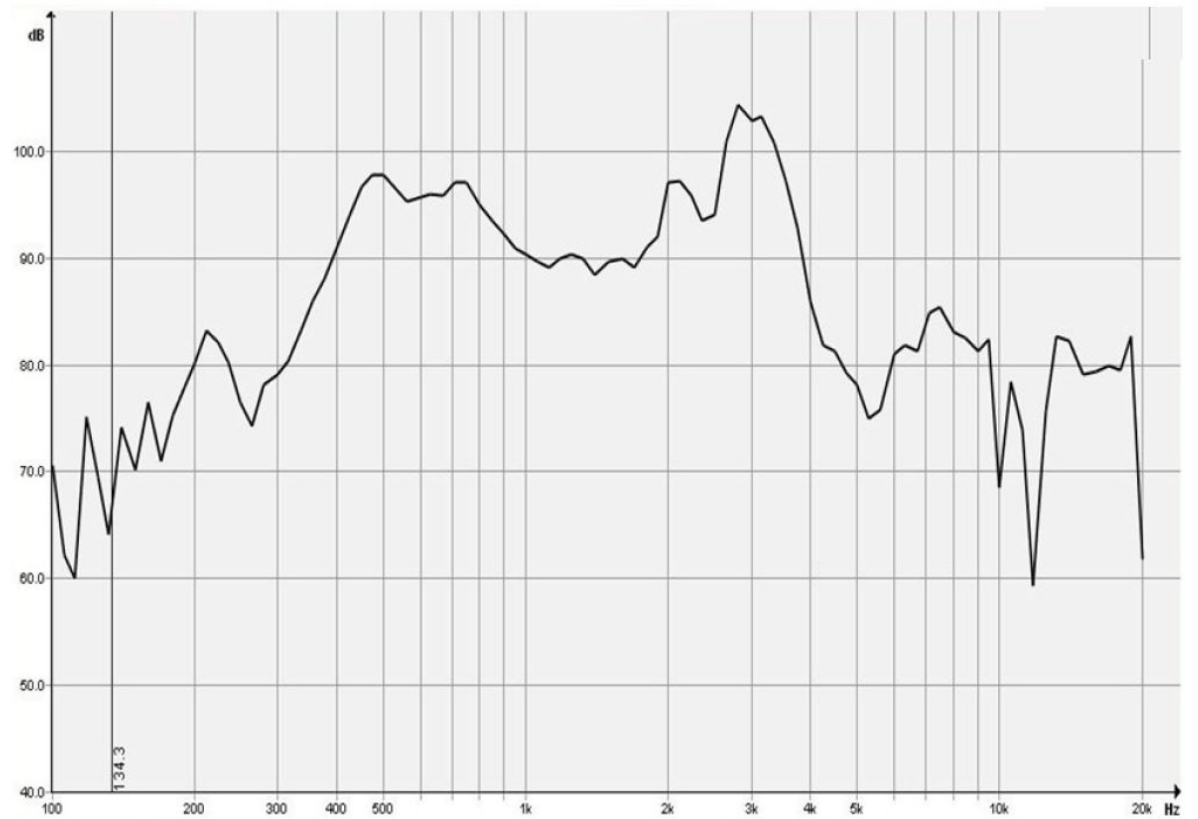
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### Frequency Response Curve (Fig. 2)





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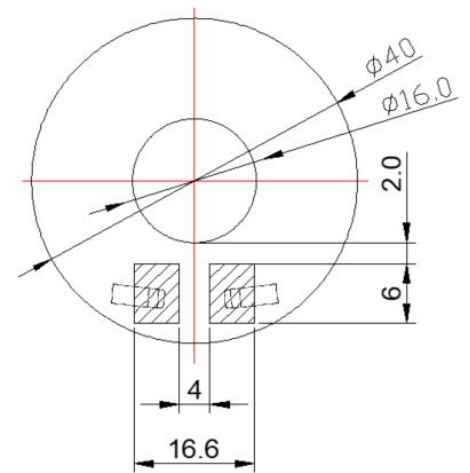
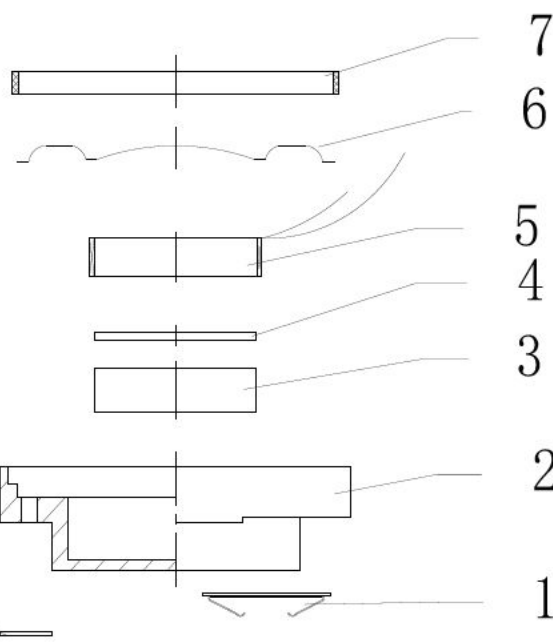
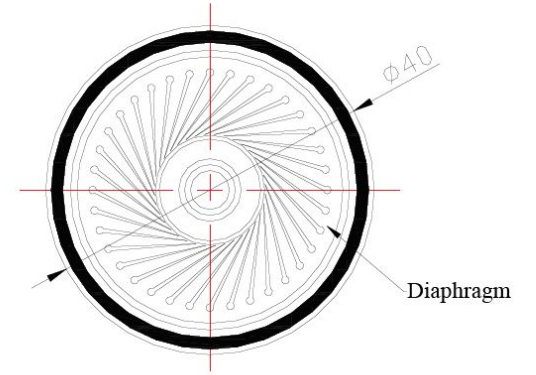
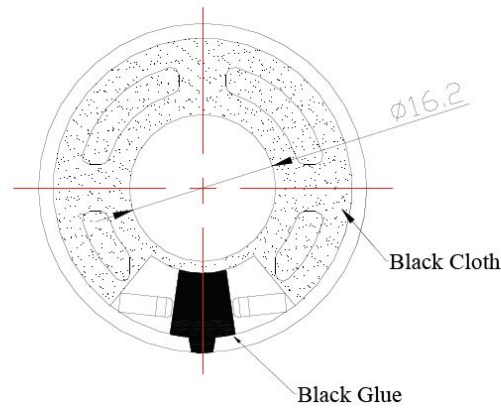
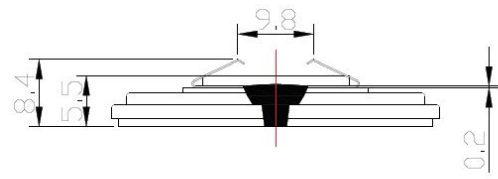
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## Dimensions

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



Pad Layout

No.	Part Name	Material	Quantity
1	PCB + PIN	FR-4 + Stainless	1
2	Frame	SPCC	1
3	Main Magnet	$\Phi 12.5 \times 1.5$ -N38	1
4	Plate	SPCC	1
5	Voice Coil	Polyurethane enamelled wire	1
6	Diaphragm	PET	1
7	Gasket	Black paper	1
8	Silk Screen	Black cloth	1



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## Packing

$$42\text{PCS} \times 24 = 1008\text{PCS}$$

