



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2306-1



Release | Revision: A/2018

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

87±3dB SPL @1.0., 1.2, 1.5 and 2.0KHz in average (0dB SPL=20µPa)  
**Measuring condition:** 0.1W (Sine wave) 10cm measured with baffler shown in Fig.1.

**Test Set Up:** Measuring conditions and procedures shown in Figure 1

### Frequency Response Curve

As shown in Figure 1

### Response Frequency

750±20%Hz @ 1V. (Without Baffler)

### Input Power (Nominal and Maximum)

**Rated Noise Power** 1.0W

**Short Term Max Power:** 1.5W must be normal at a white noise (1.0W, F0 ~ 20KHz) for one minute

### Distortion

Less than 5% @1KHz, 0.1M, 0.1W frequency range, input level up to 2.83Vrms

### Operation Test

Must be free audible noise (buzzes and rattles) (300 ~ 8KHz frequency range, input level up to 2.83 Vrms)

### Polarity

When a positive D.C current is applied to terminal marked (+) diaphragm shall move forward

## General Specifications

### Temperature Range

**Operating Temperature** -20°C~+60°C

**Storage Temperature** -25°C~+65°C

### Standard Test Conditions

**Temperature** 17°C ~ 25°C

**Relative Humidity** 45% ~ 85% (RH)

### AC Impedance

8±15°C (@2KHz 1V) without Baffler

### Dimension

ø23.0 X H5.7mm  
WIRE 152mm (UL1571 / AWG28# )

### IP Level

No rating



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## Reliability Tests

The sound pressure as specified shall neither deviate more than  $\pm 3\text{dB}$  from the initial value, nor 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

### Humidity 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 1.5m

Cycle 6 (1 each plain) onto the concrete board

### Load Test

Speaker mode: White noise (EIA filter) for 96 hours @1W 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)

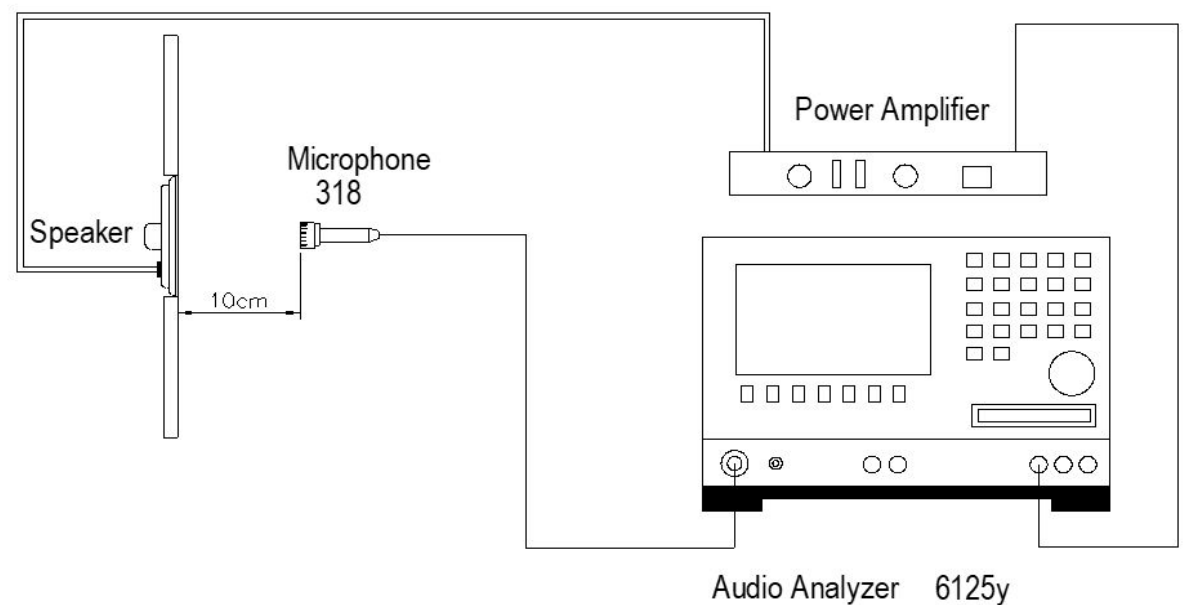
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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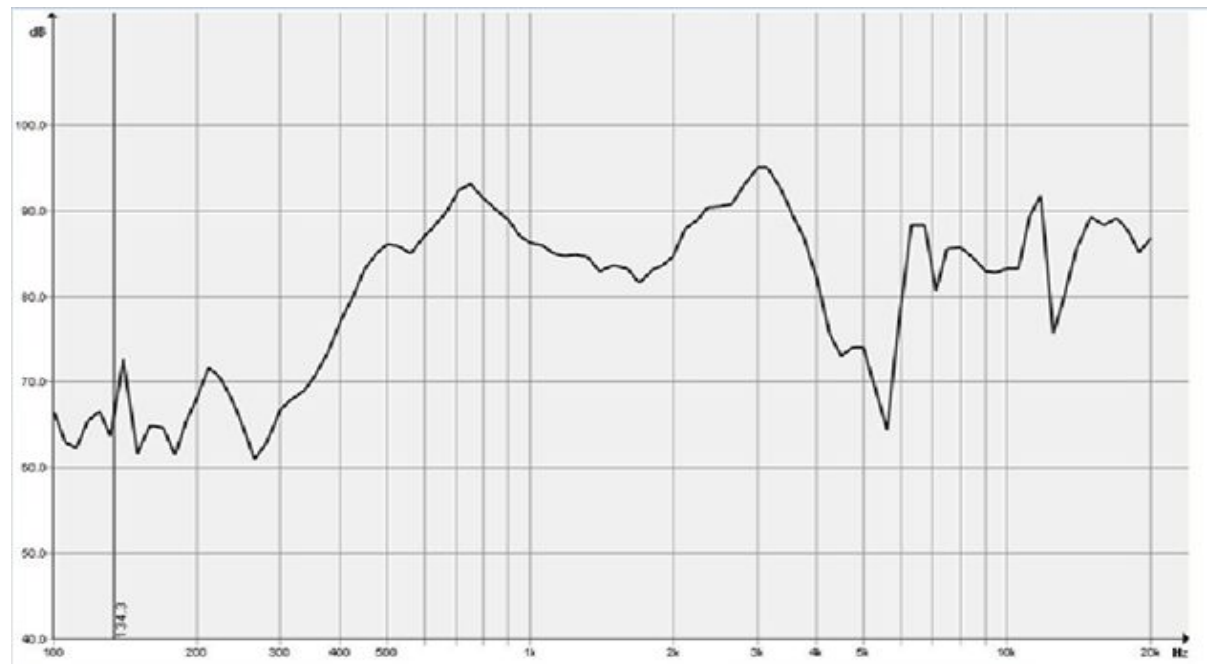
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### Frequency Response Curve (Fig. 3)





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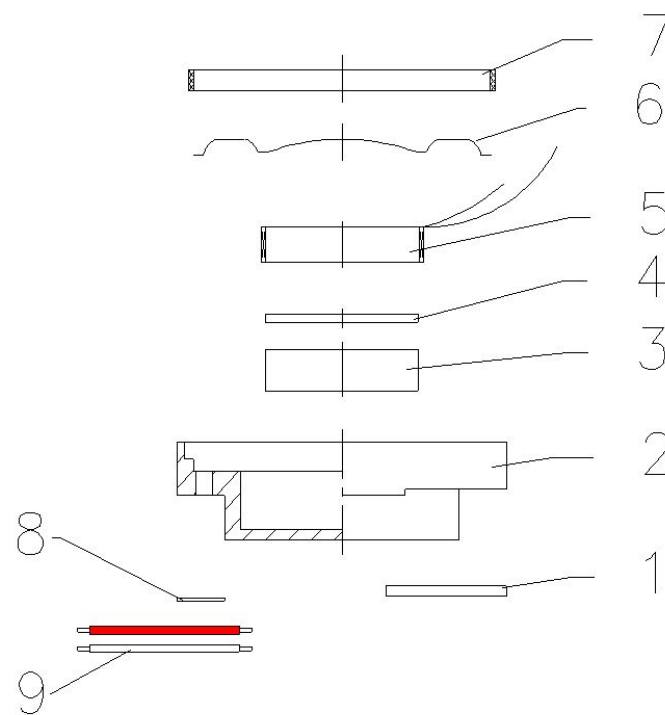
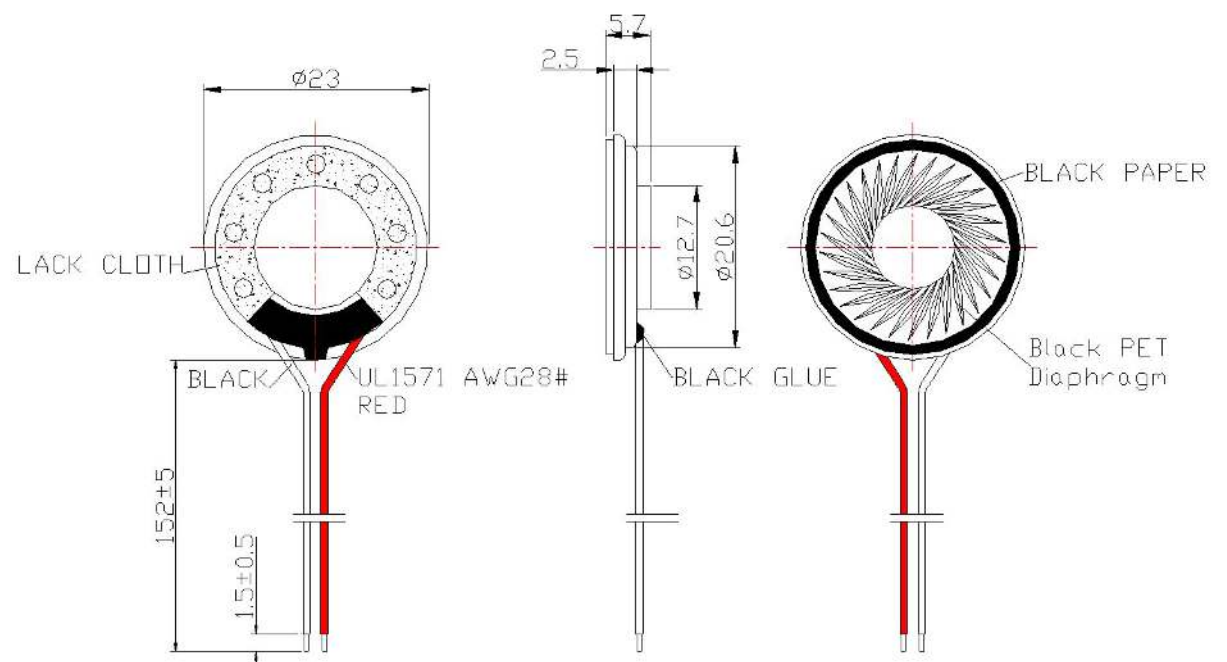
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## Dimensions

Tolerance:  $\pm 0.2$  (unit: mm)



No.	Part Name	Material	Quantity
1	PCB	FE-4	1
2	Frame	SPCC	1
3	Magnet	$\Phi 9.5 \times 1.5$ -N38	1
4	Plate	$\Phi 9.7 \times 0.8$ SPCC	1
5	Voice Coil	Polyurethane Enamelled Wire	1
6	Diaphragm	PET	1
7	Gasket	Black Paper	1
8	Silk Screen	Black Cloth	1
9	Wire (152mm)	UL1571 / AWG28#	2



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## Packing

