



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-4005-1



Release | Revision: A/2017

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

93±3dB SPL @ 0.6, 0.8, 1.0, 1.2, 1.5 and 2.0KHz in average (0dB SPL=20μPa)  
Measuring Condition: 0.1W (Sine wave) 0.05m measured with baffler shown in Fig.1.

### AC Impedance

8±15%Ω (@ 1 KHz 1V) without baffler

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

430 ± 20%Hz @ 1V. (Without Baffler)

### Input Power (Nominal and Maximum)

Rated Noise Power: 1.0W

Short Term Max Power: 2.0 W must be normal at a white noise (1W, F0-20KHz) for 1 minute

### Operation Test

Must be free audible noise (buzzes and rattles)

300 ~ 8KHz frequency range, input level up to 2.83Vrms

### Distortion

Less than 10% @1KHz, 5cm, 0.1W frequency range, input level up to 0.1W

## General Specifications

### Operating Temperature Range

-20°C~+65°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### Dimension

Ø 40.0x 8.5mm WIRE 150mm UL1571/AWG26# +  
Connector equ. to JST-PHR-2 (2P=2.0mm Pitch wafer)

### 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 @ 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)

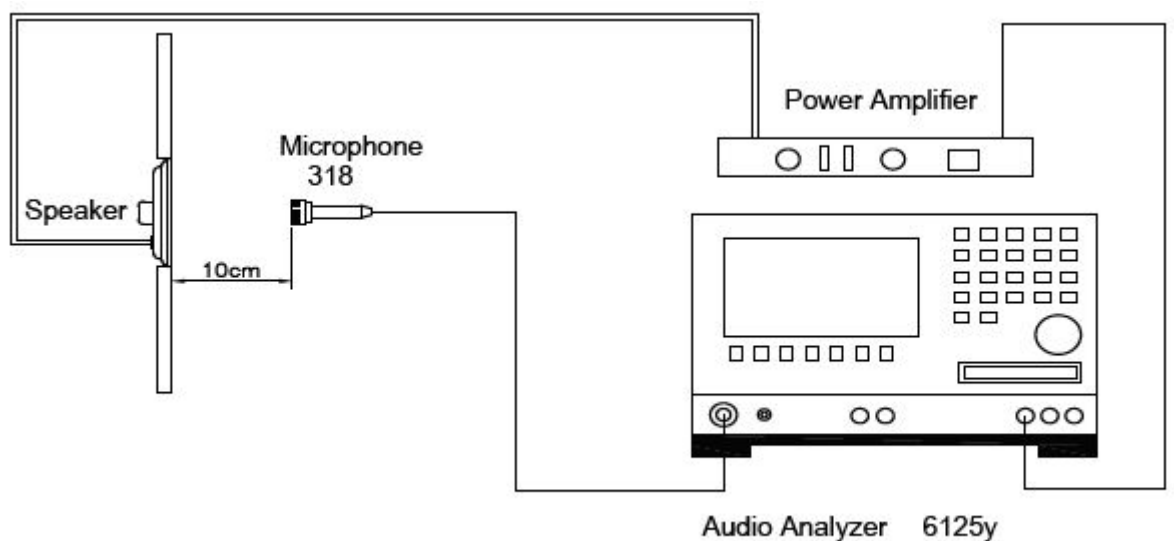
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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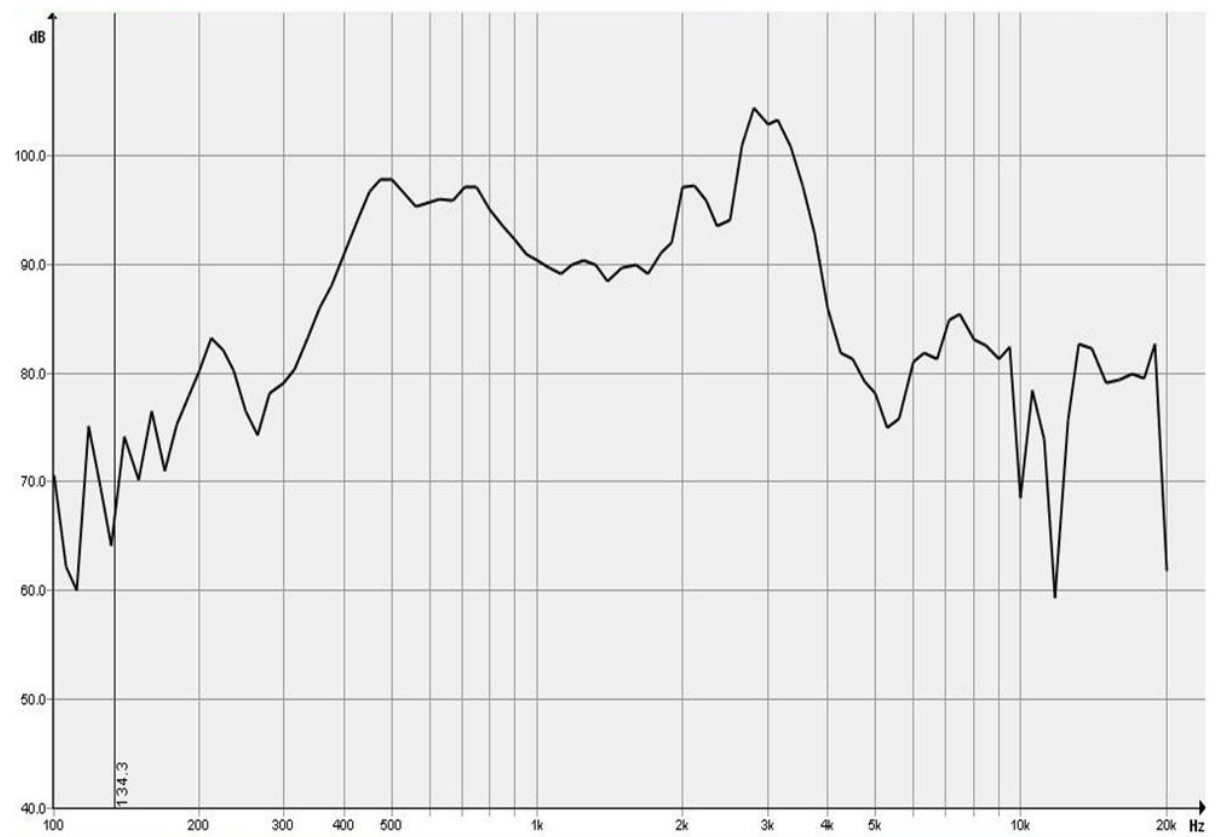
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Frequency Response Curve (Fig. 2)





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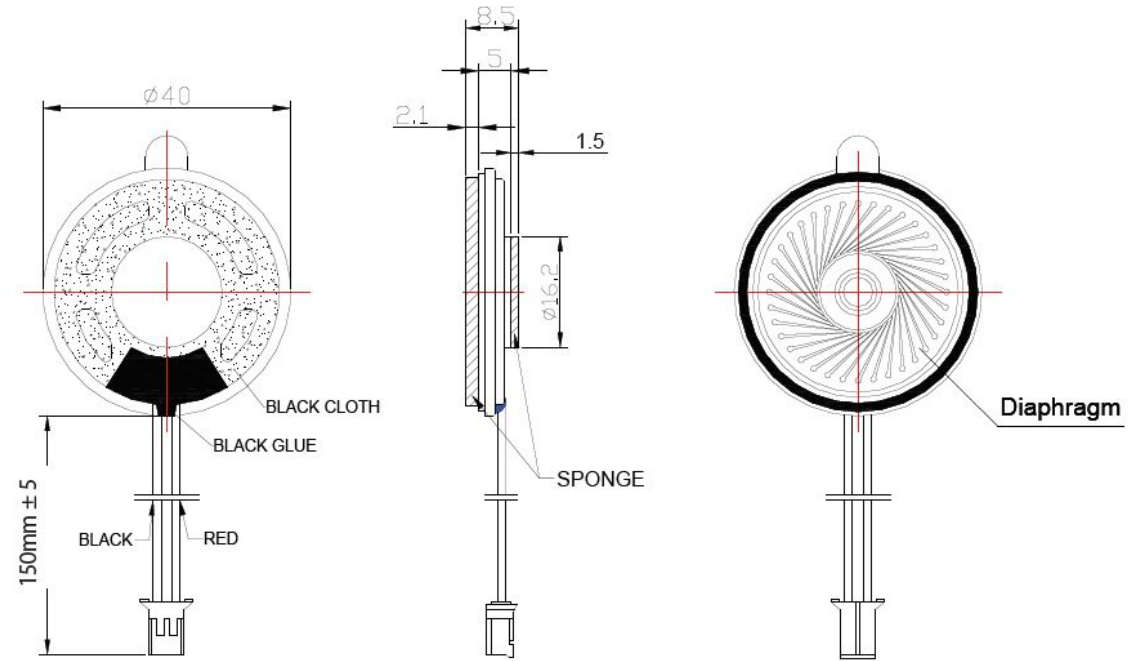
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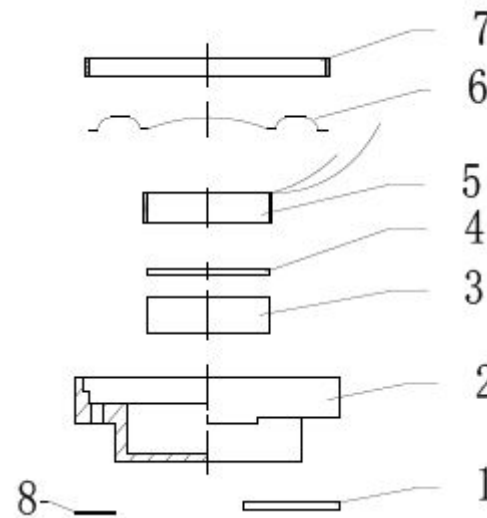
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## Dimensions

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



UL1571 / AWG26#  
Connector:  
equ. to JST-SHR-02V-S-B  
(2P=1.0mm)



| No. | Part Name   | Material                                 | Quantity |
|-----|-------------|--|----------|
| 1   | PCB         | FR-4                                     | 1        |
| 2   | Frame       | SPCC                                     | 1        |
| 3   | Magnet      | $\phi 12.5 * 1.5 - N38$                  | 1        |
| 4   | Plate       | SPCC                                     | 1        |
| 5   | Voice Coil  | PL13.3-2.4-7.4                           | 1        |
| 6   | Diaphragm   | PET                                      | 1        |
| 7   | Gasket      | Black paper                              | 1        |
| 8   | Silk Screen | Black cloth                              | 1        |
| 9   | Wire        | UL1571 / AWG26#                          | 2        |
| 10  | Connector   | equ. to JST-PHR-2 (2P=2.0mm Pitch wafer) | 1        |



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## Packing

$$42\text{PCS} \times 24 - 8 = 1000\text{PCS}$$

