

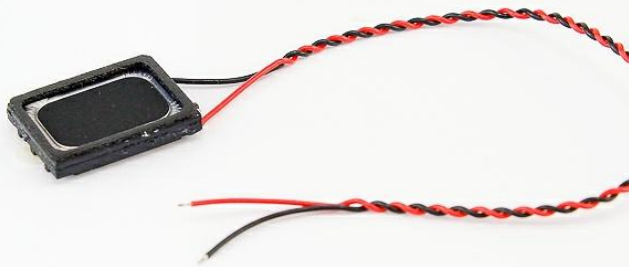


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# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1511L-1



Release | Revision: B/2018

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This document contains the technical specifications for the dynamic speaker unit.

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

82±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 refer to figure.1

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

850±20%Hz @1V in free air

### Input Power (Nominal and Maximum)

Rated Noise Power 0.5W (in 1cc box)

Short Term Max Power: 0.8W (in 1cc box)

### Operation Test

Must be free audible noise (buzzes and rattles)

(300 ~ 8KHz frequency range, input level up to 0.2Vrms)

### 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

-30°C~+70°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### AC Impedance

8±15%Ω (@ 2 KHz 1V) without baffler

### Dimension

15.0 x 11.0 x H3.1mm

WIRE 113mm (UL1571 / AWG 32#)

### IP Level

No rating

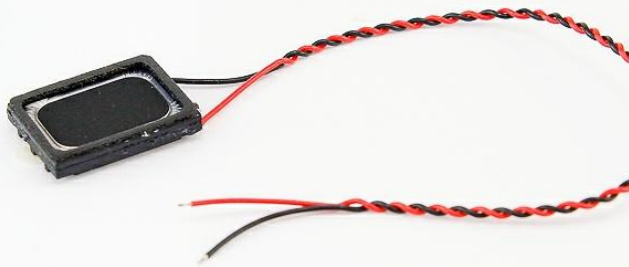


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## Reliability Tests

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

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)

### 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

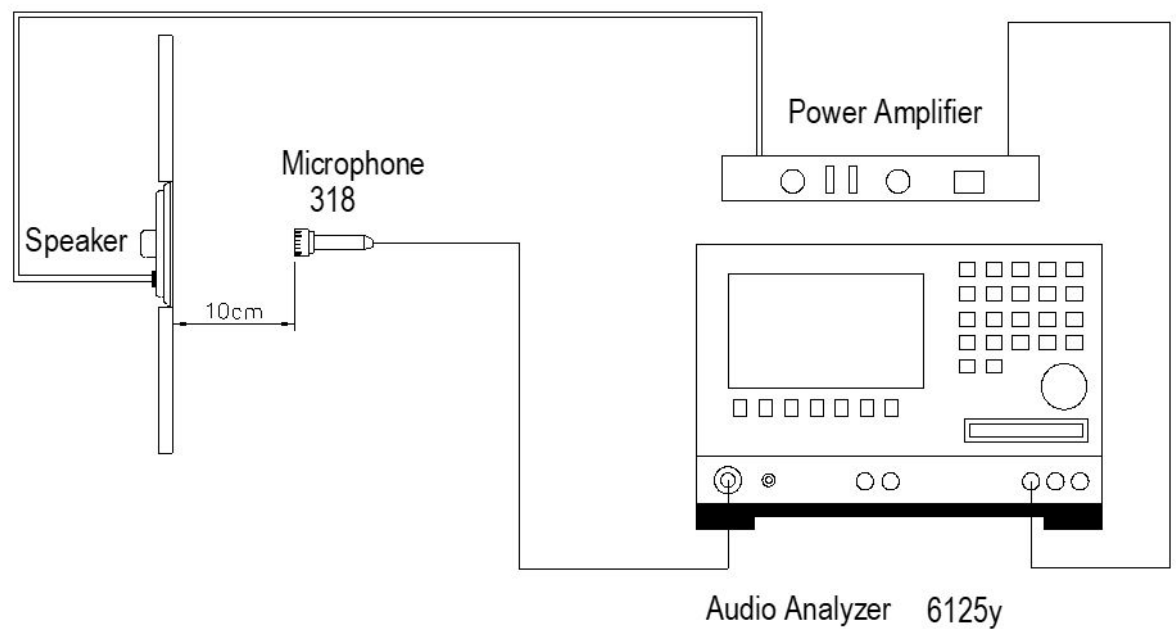
Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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

### Standard test condition of speaker



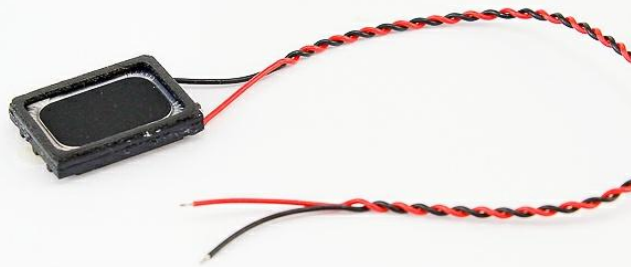


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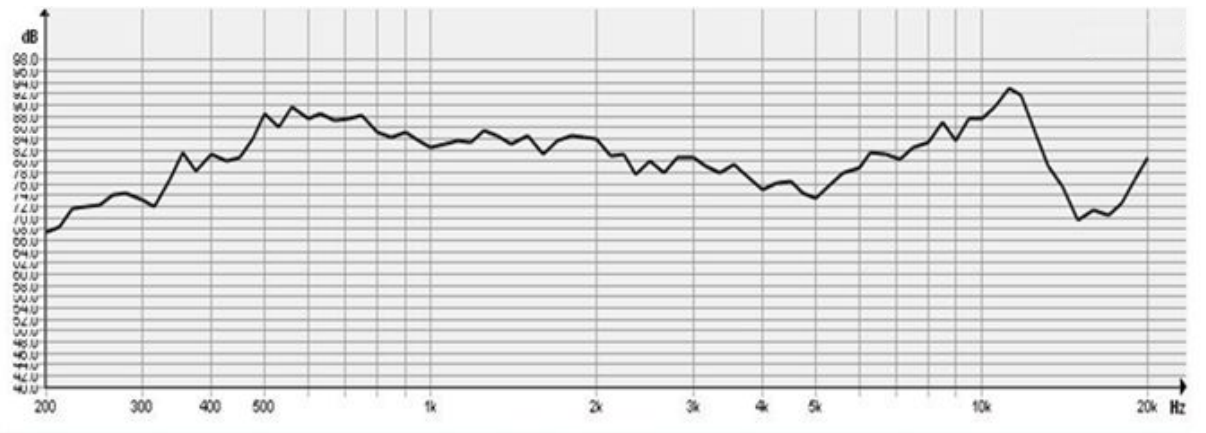
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## Frequency Response Curve (Fig. 2)

0.1W/10cm, in free air



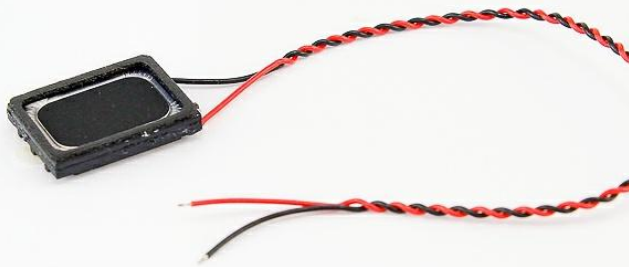


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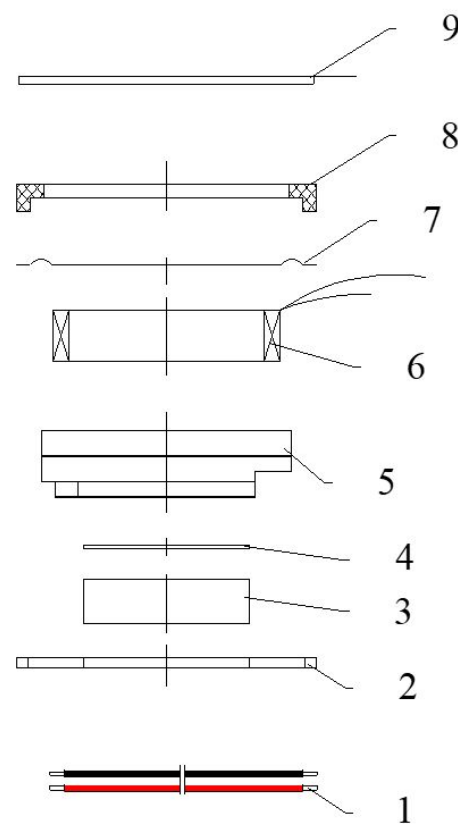
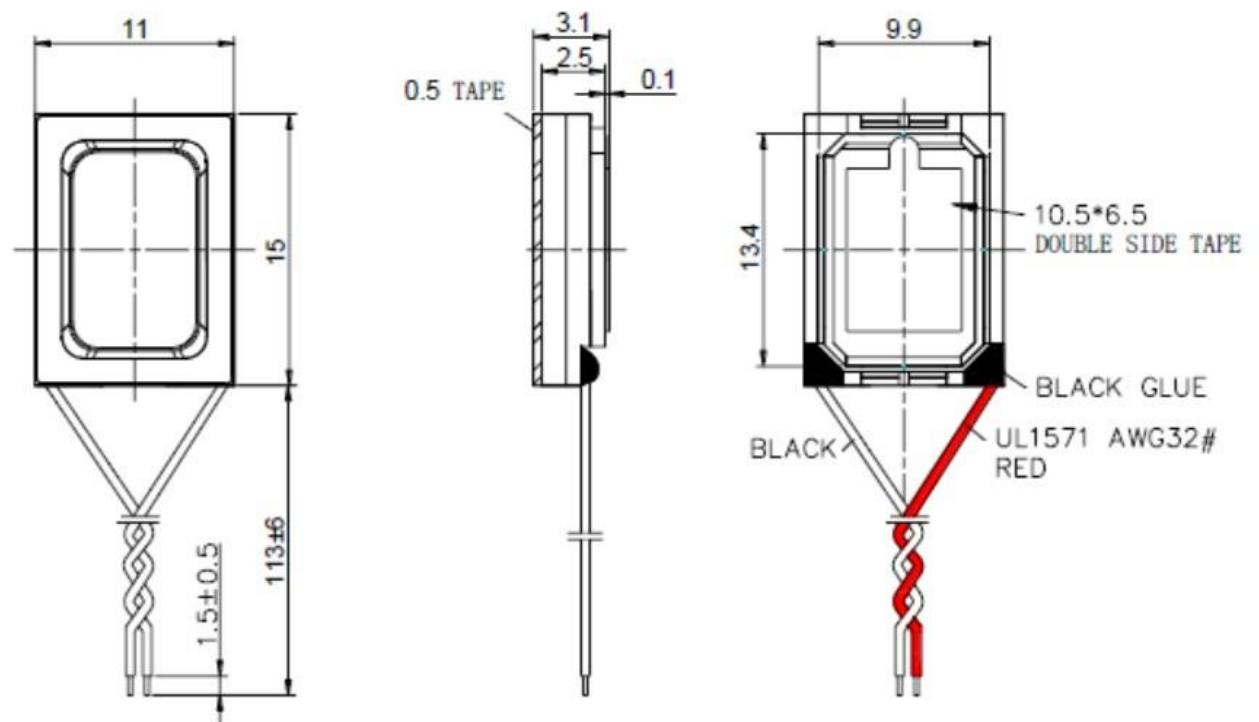
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## Dimensions

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



No.	Part Name	Material	Quantity
1	Wire	UL1571 / AWG32#	2
2	U Yoke	SPCC	1
3	Magnet	Nd Fe B	1
4	Plate 3	SPCC	1
5	Frame	Black PPA	1
6	Voice Coil	Copper Wire	1
7	Diaphragm	PEEK	1
8	Cap	Black PPA	1
9	Gasket	1511-0.4	1

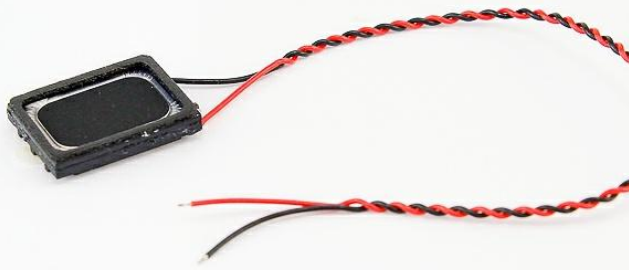


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