



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1503FW



Release | Revision: B/2018

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## Speaker Electroacoustic Characteristics

### Sound Pressure Level

96±3dB SPL @0.8, 1.0, 1.5 and 2.0 KHz in average (0dB SPL=20µPa)  
Measuring condition: 0.5W (Sine wave) 10cm measured with baffler shown in Fig.1

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

1100±20%Hz @ 1V. (Without Baffler)

### Input Power (Nominal and Maximum)

Rated Noise Power 0.5W

Short Term Maximum Power 0.8W must be normal at a white noise (1W, F0 ~ 20KHz) for one minute

### Operation Test

Must be free of audible noise (buzzes and rattles)

(3K ~ 5KHz frequency range, input level up to 2.0 Vrms)

### Distortion

Less than 10% @1KHz, 0.1M, 0.5W

## General Specifications

### Operating Temperature Range

-20°C~+60°C

### Storage Temperature Range

-25°C~+70°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### Impedance

8±15%Ω (@1KHz 1V) without baffler

### Dimension

ø15.0x3.5mm + Wire 85mm UL1571/AWG32# +  
Connector equ. to JST-SHR-02V-S-B (2P=1.0mm)

### IP Level

IP50



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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 11.1

### 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 100g

Height 1.5 m

Cycle 6 (1 each plain) onto the concrete board

### Load Test

Speaker mode White noise(EIA filter)for 96hours @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 0.5W

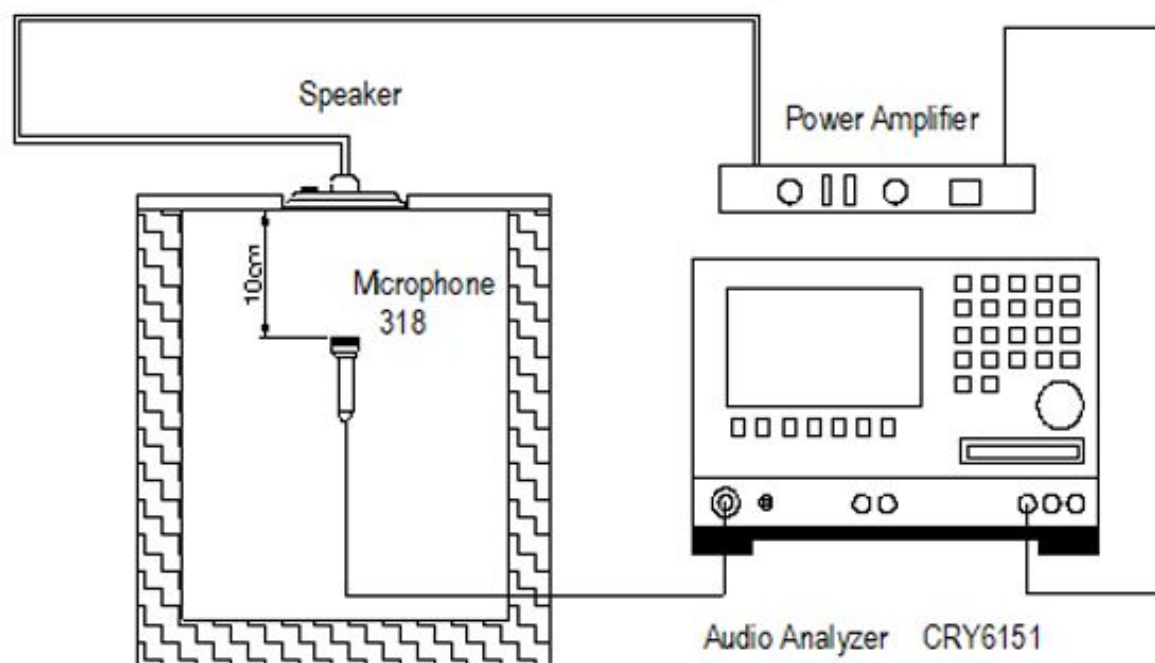
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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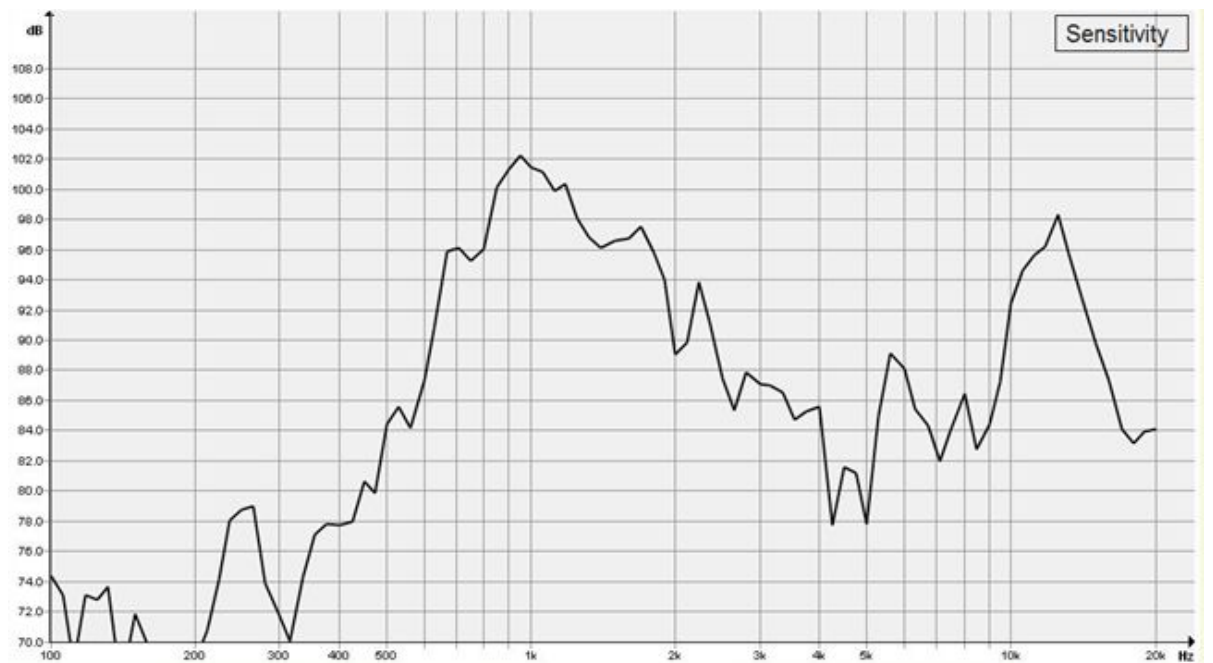
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## Frequency Response Curve (Fig 2)





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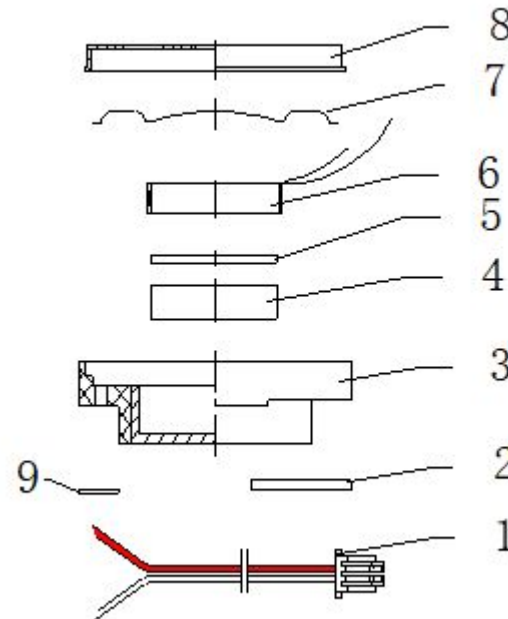
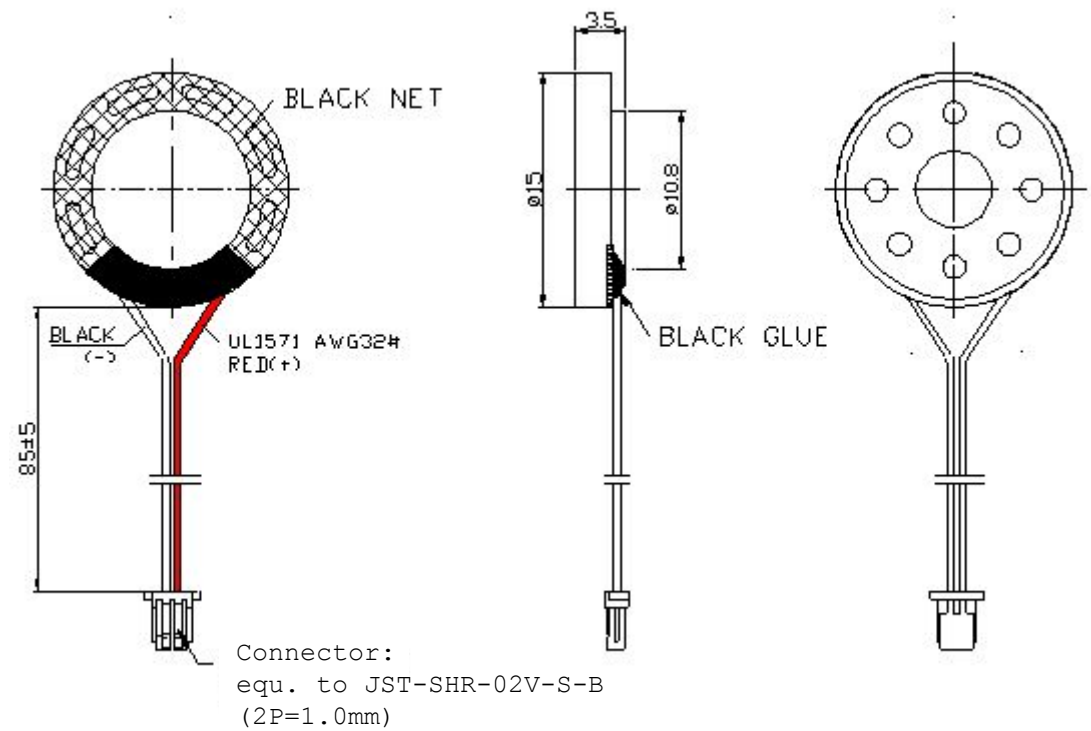
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## Dimensions

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



No.	Part Name	Material	Quantity
1	Wire	UL1571/AWG32#	2
	Connector	equ. to JST-SHR-02V-S-B (2P=1.0mm)	1
2	PCB	FR-4	1
3	Frame	PBT	1
4	Main Magnet	Nd Fe B	1
5	Plate	SPCC	1
6	Voice Coil	Polyurethane Enamelled Wire	1
7	Diaphragm	PEN	1
8	Cap	SUS 201	1
9	Silk Screen	Black Net	1



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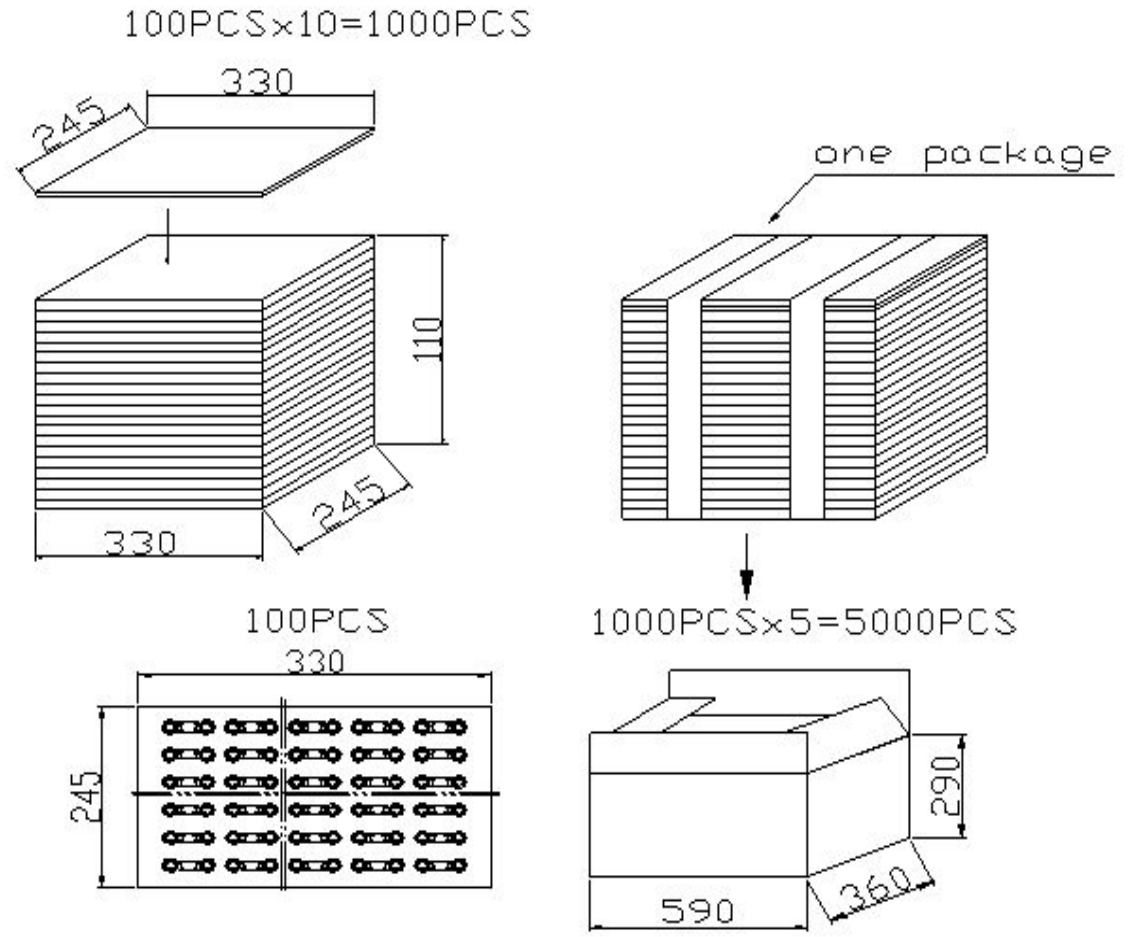
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## Packing



## Details

<b>Tray</b>	330*245mm	100 pcs
<b>Unit</b>	330*245*110mm	100*10=1000 pcs
<b>Carton Box</b>	360*590*290mm	1000*5=5000 pcs