



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-4029-1



Release | Revision: B/2018

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

85±3dB SPL @ 0.8, 1.0, 1.2 and 1.5KHz in (1.0W/0.5M) in average  
Test Set Up: Measuring conditions and procedures shown in Figure 1 & 2

### Frequency Response Curve

As shown in Figure 3

### Frequency Range

F0 Hz ~ 20 KHz

### Resonance Frequency

450 ± 20%Hz

### Input Power (Nominal and Maximum)

Rated Noise Power 2.0W

Short Term Max Power: 3.0W

### Distortion

Less than 7% @1KHz, 1.0W, 0.5W

### Buzz & Rattle, Etc.

Should not be audible at 5.65V sine Wave between F0 ~ 20KH

### Polarity

Cone will move forward with positive dc current to “+” terminal

## General Specifications

### Temperature Range

Operating Temperature -20°C~+60°C

Storage Temperature -25°C~+70°C

### Standard Test Conditions

Temperature 17°C ~ 25°C

Relative Humidity 45% ~ 85% (RH)

### AC Impedance

4±15%Ω

### Dimension

40.2 x 28.5 x H11.5 mm  
Wire 40 mm UL1571 / AWG 28#  
Connector JST-SHR-02V-S-B

### IP Level

No rating



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## Reliability Tests

After any following test, parts should conform to original performance within  $\pm 3$  dB tested with Rated Power, after 6 hours of recovery period.

### High Temperature Test

High Temperature  $+70\pm 3^{\circ}\text{C}$

Duration 96 hours

### Low Temperature Test

Low Temperature  $-25\pm 3^{\circ}\text{C}$

Duration 96 hours

### Humidity Test

Temperature  $+30\pm 3^{\circ}\text{C}$

Relative Humidity 90%~96%

Duration 96 hours

### Temperature Cycle Test

Temperature  $-25^{\circ}\text{C}$   $+65^{\circ}\text{C}$

Duration 6 hours 6 hours

Temperature gradient  $\pm 3^{\circ}\text{C}$

Cycle 5

### Drop Test

The speakers contained in normal box onto the board 40mm thick 10 times from the height of 75cm

### Vibration Test

10Hz ~ 55Hz ~ 10Hz sine-wave sweep 15min. 5G(constant)  
X,Y, Z 3 direction. 2 hours each, total 6 hours.

### Load Test

Rated Power Pink Noise is applied for 24 hours at room temperature

### Lead Wire Pull Strength Test

The pull force shall be applied to double lead wire:  
Horizontal 3.0N(0.306kg) for 30 seconds.  
Vertical 2.0N(0.204kg) for 30 seconds.



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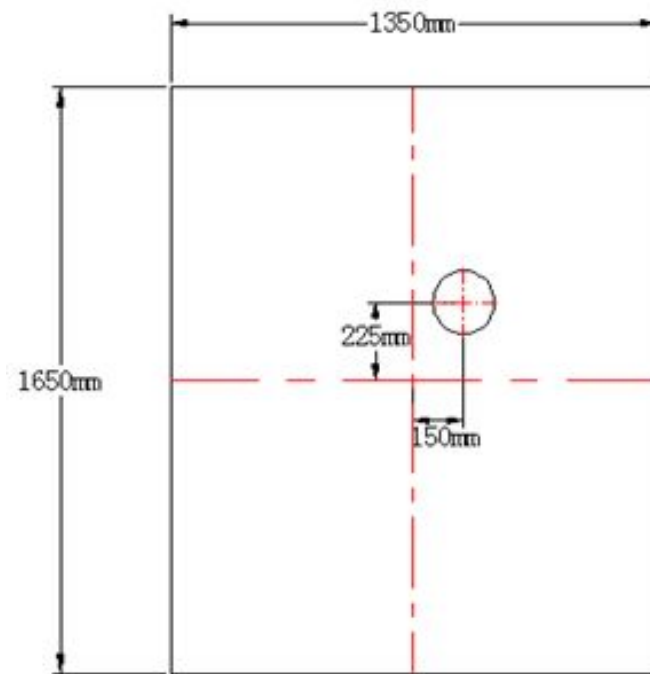
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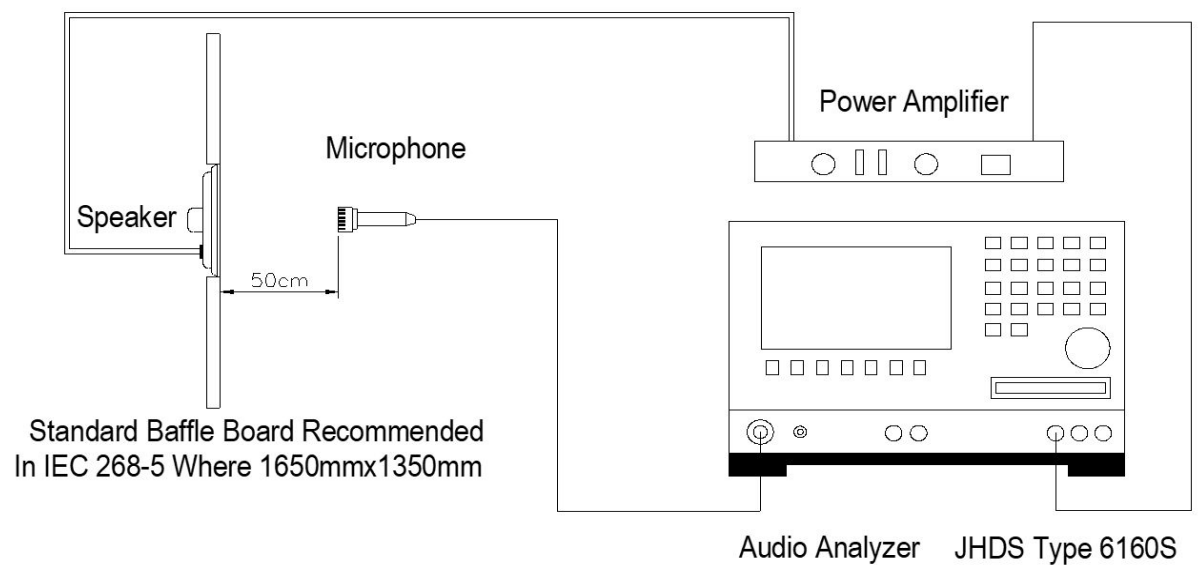
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## Measuring Method (Fig. 1)



## Standard Test Condition of Speaker (Fig. 2)



Standard Baffle Board Recommended In IEC 268-5 Where 1650mmx1350mm

Audio Analyzer JHDS Type 6160S



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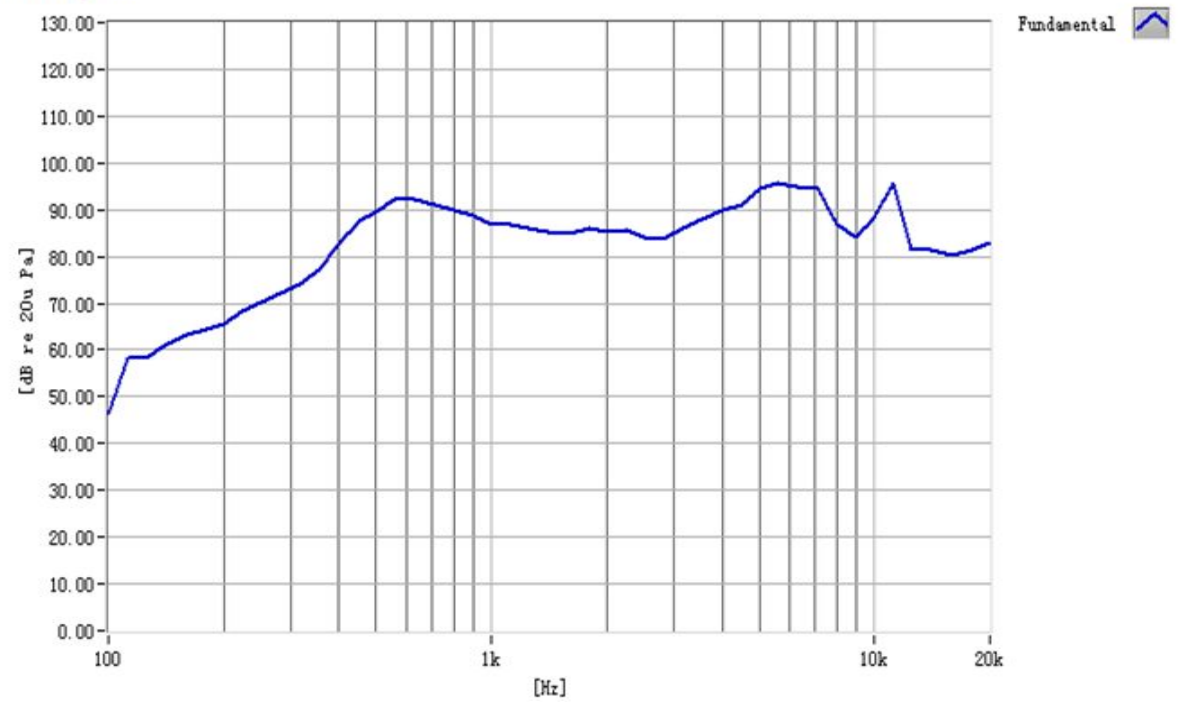
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## Frequency Response Curve (Fig. 3)

The swept sine-wave frequency response of a loudspeaker should ideally not deviate more than indicate per Fig.3

XY Graph 3





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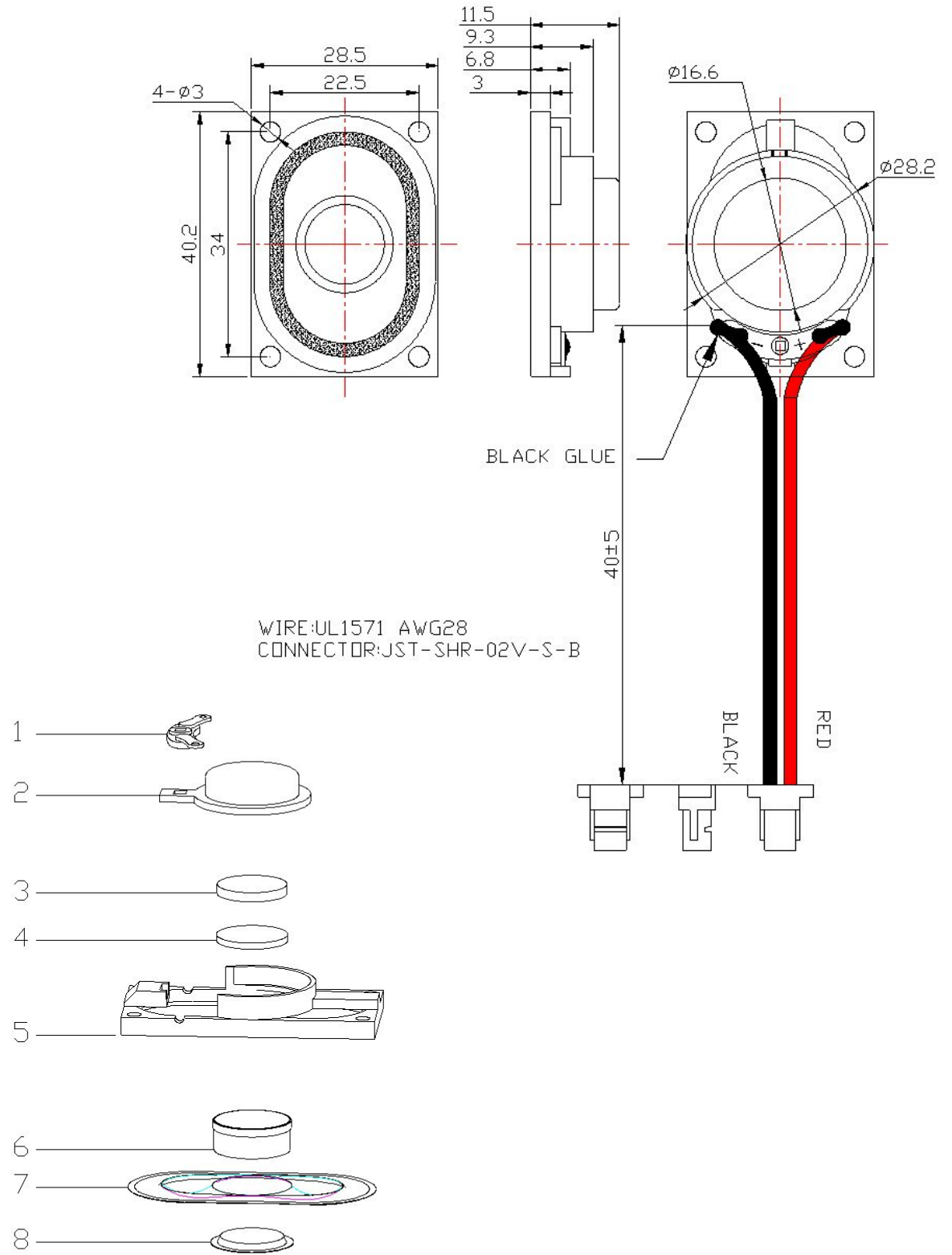
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## Dimensions

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



No.	Part Name	Material	Quantity
1	PCB Terminal	Paper + metal	1
2	Yoke	SPCC	1
3	Magnet	Nd Fe B	1
4	Plate	SPCC	1
5	Frame	ABS	1
6	Voice Coil	Paper + Cu	1
7	Diaphragm	Cloth-edge + paper	1
8	Cap	Paper	1
9	Wire (40mm)	UL1571 / AWG 28#	2
10	Connector	JST-SHR-02V-S-B	1





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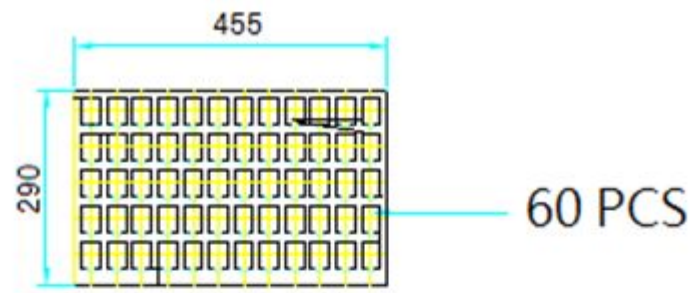
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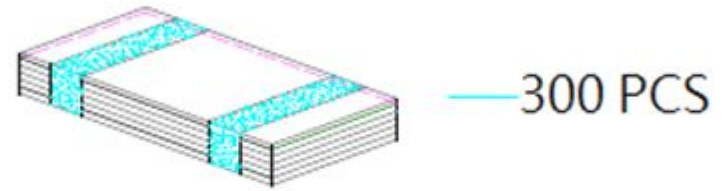
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X5



X3+100 PCS

