



soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2027



Release | Revision: B/2016

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

83dB(1.0W/0.5m) ±3dB at 1.0 KHz
Measuring conditions and procedures shown in Fig 1 & Fig 2

Frequency Response Curve

As shown in Figure 3

Resonance Frequency (F0)

700 ±20%Hz

Input Power (Nominal and Maximum)

Rated Noise Power: 1.0W

Short Term Max Power: 1.5W

Frequency Range

F0 ~ 10KHz

Buzz, Rattle, Etc

Not audible from 700Hz to 20KHz with 2.83V Sine Wave input

Polarity

When positive voltage is applied to the terminal marked (+), diaphragm should be moved to the front.

Magnet

Rare earth permanent (NdFeB) magnet φ11x1.5mm

AC Impedance

8Ω ±15%

Distortion

Input Rated Power to 1.0W

Dimension

20 x 27 x 6.4mm

General Specifications

Operating Temperature Range

-20°C~+50°C

Storage Temperature Range

-20°C ~ +60°C

Standard Test Conditions

Temperature 5°C~35°C

Relative Humidity 45%~80%(RH)

Air Pressure 860 mbar ~ 1060 mbar

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 $+60\pm 3^\circ\text{C}$

Duration 96 hours

Low Temperature Test

Low Temperature $-20\pm 3^\circ\text{C}$

Duration 96 hours

Humidity Test

Temperature $+40\pm 3^\circ\text{C}$

Relative Humidity 92%~95%

Duration 3 hours

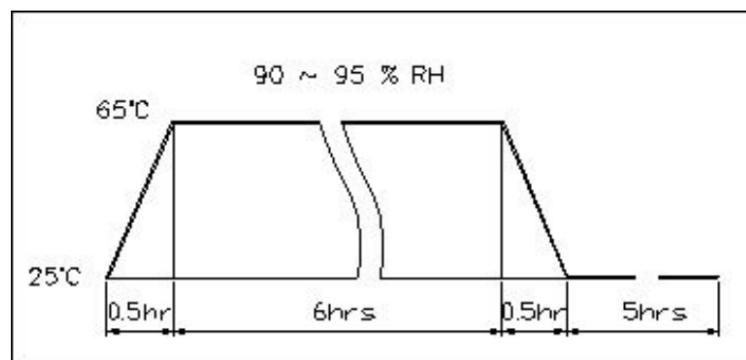
Vibration

10Hz ~ 55Hz ~ 10Hz sine wave sweep 15 minute 5G(constant)

X, Y, Z 3 directions, 2 hours each, total 6 hours

Temperature Cycle Test

The part will be subjected to 5 cycles. One cycle shall be 12 hours and consist of:



Drop Test

Fix on jig then drop from 152cm height to the concrete floor
X, Y, Z 6 directions 5 times each, total 30 times

Free Drop Test

Free drop from 100cm height to the concrete floor
X, Y, Z 6 directions, 1 time each, total 6 times

Load Test

Rated Power White noise is applied for 48 hours

Max Power Test

Max power 1 minute on - 2 minutes off 10 cycles

Terminal Strength Test

Capable of withstanding 1kg load for 30 seconds without resulting in any damage or rejection



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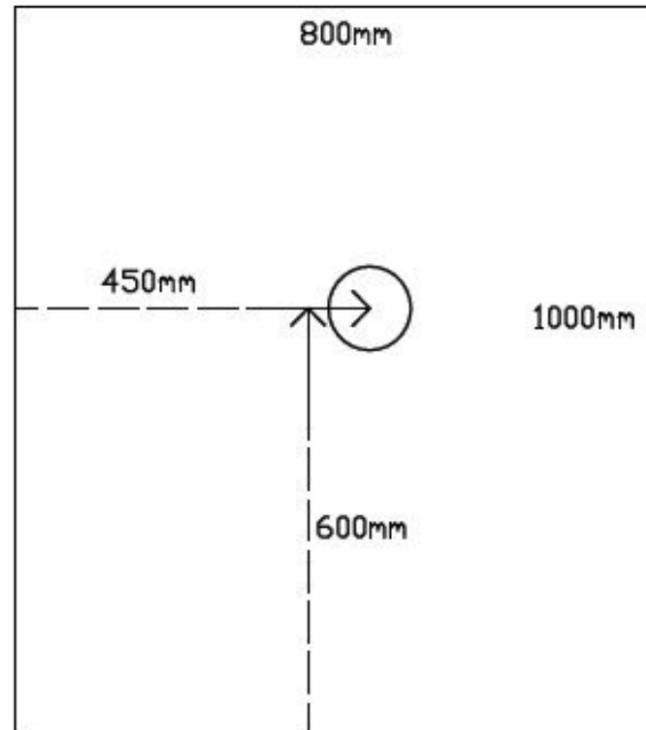
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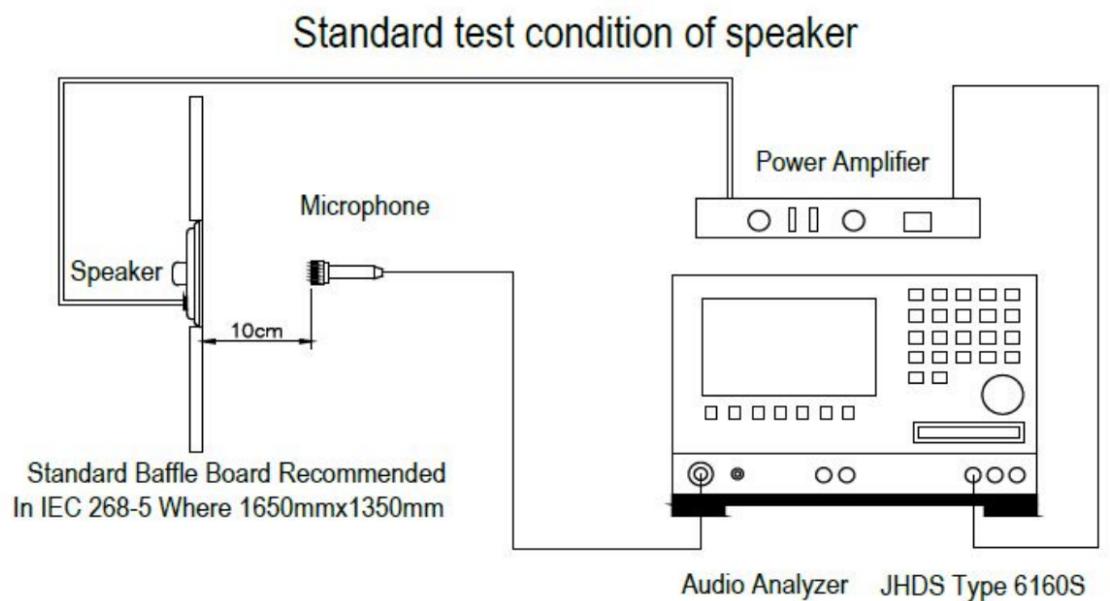
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Measuring Method (Speaker Mode) (Fig. 1)



Block Diagram for Measurement Method (Fig. 2)





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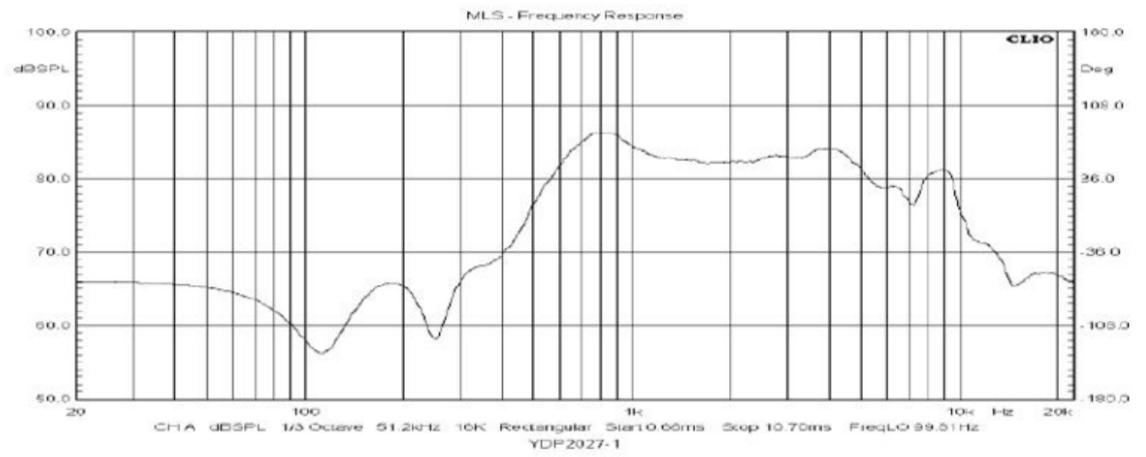
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Frequency Response Curve (Fig. 3)

The swept sine-wave frequency response of a loudspeaker should ideally not deviate more than indicated





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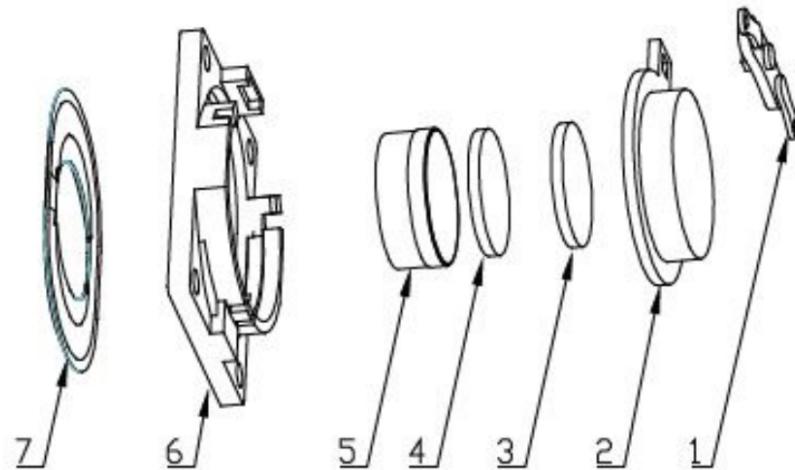
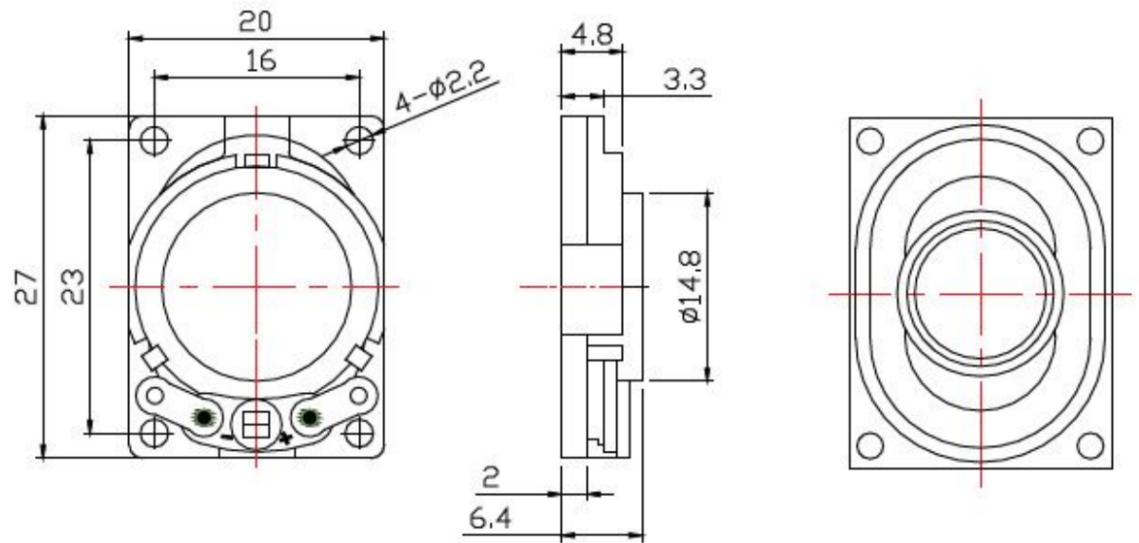
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Dimensions

Tolerance: ± 0.5 (unit: mm)



| No. | Part Name | Material | Quantity |
|-----|--------------|------------|----------|
| 1 | PCB terminal | Paper + Cu | 1 |
| 2 | Yoke | SPCC | 1 |
| 3 | Magnet | NdFeB | 1 |
| 4 | Plate | SPCC | 1 |
| 5 | Voice Coil | Paper + Cu | 1 |
| 6 | Frame | Plastic | 1 |
| 7 | Diaphragm | Cloth | 1 |



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