



soberton inc.

# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2027



Release | Revision: B/2016

## CONTENTS

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

**Page 1**  
Speaker Electroacoustic Characteristics

General Specifications

**Page 2**  
Reliability Tests

**Page 3**  
Measuring Method (Speaker Mode)

Block Diagram for Measurement Method

**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## 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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**Page 2**  
Reliability Tests

**Page 3**  
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Block Diagram for Measurement Method

**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## 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

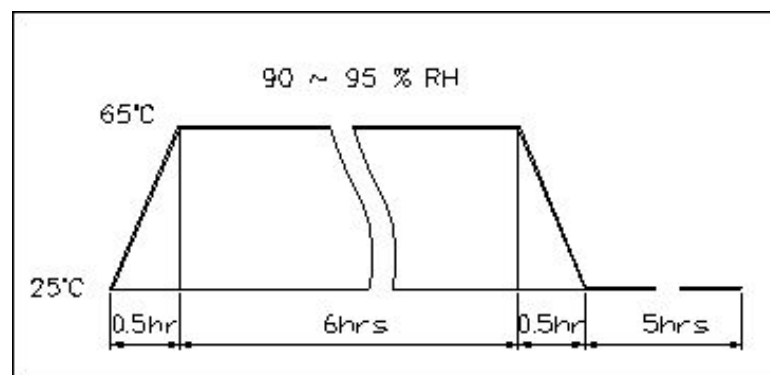
### Vibration

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

### Page 1

Speaker Electroacoustic Characteristics

General Specifications

### Page 2

Reliability Tests

### Page 3

Measuring Method (Speaker Mode)

Block Diagram for Measurement Method

### Page 4

Frequency Response Curve

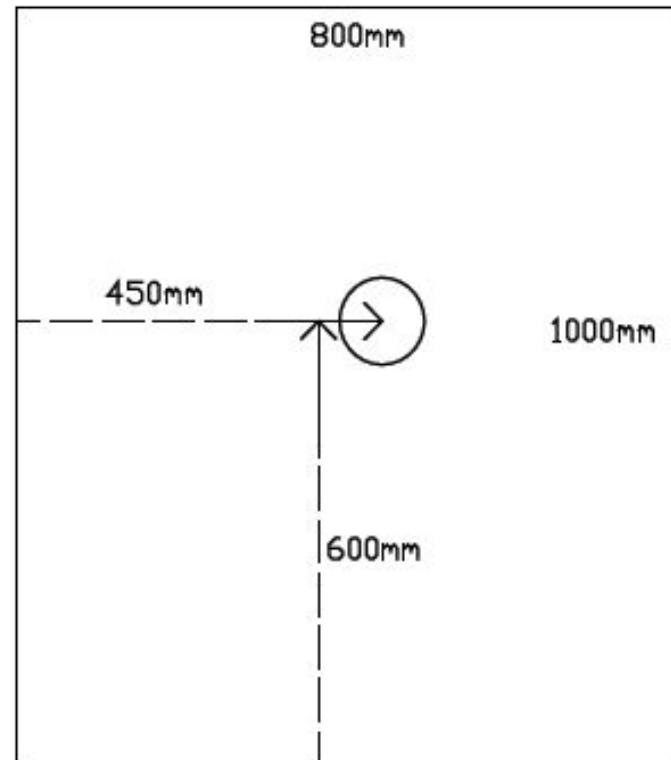
### Page 5

Dimensions

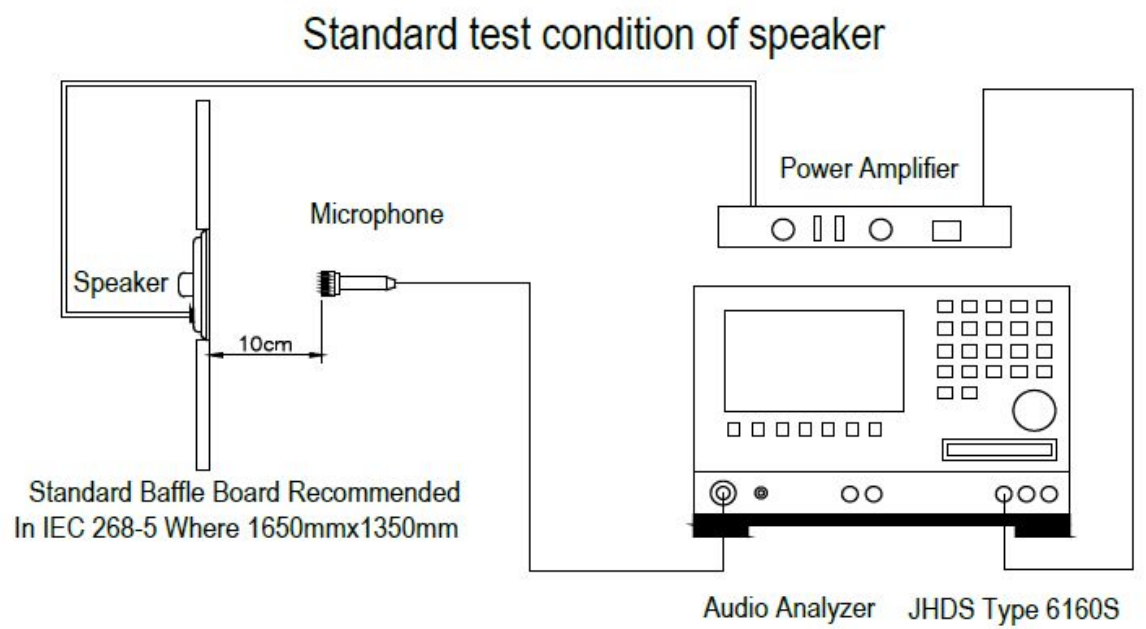
### Page 6

Packing

## Measuring Method (Speaker Mode) (Fig. 1)



## Block Diagram for Measurement Method (Fig. 2)





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

**Page 1**  
Speaker Electroacoustic Characteristics

General Specifications

**Page 2**  
Reliability Tests

**Page 3**  
Measuring Method (Speaker Mode)

Block Diagram for Measurement Method

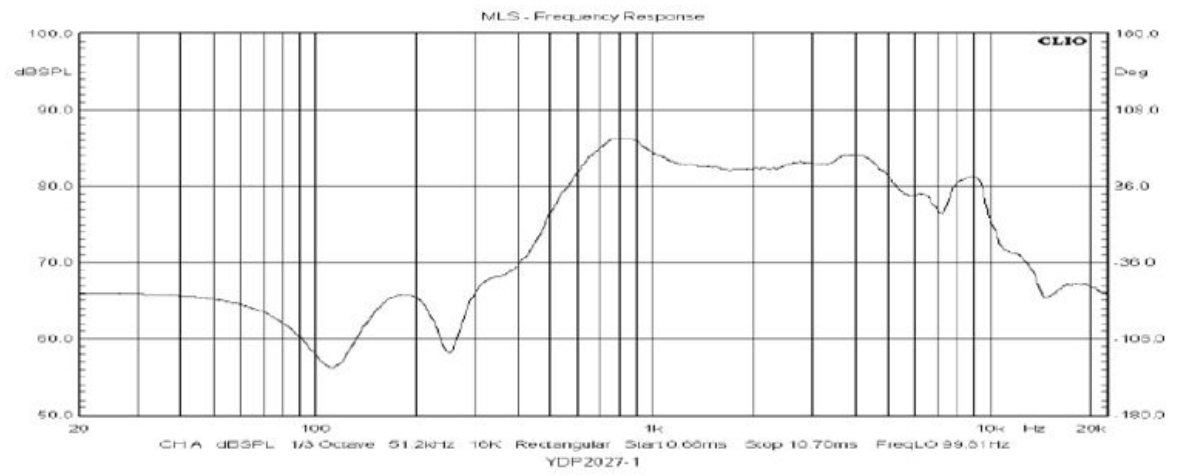
**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## 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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**Page 1**  
Speaker Electroacoustic Characteristics

General Specifications

**Page 2**  
Reliability Tests

**Page 3**  
Measuring Method (Speaker Mode)

Block Diagram for Measurement Method

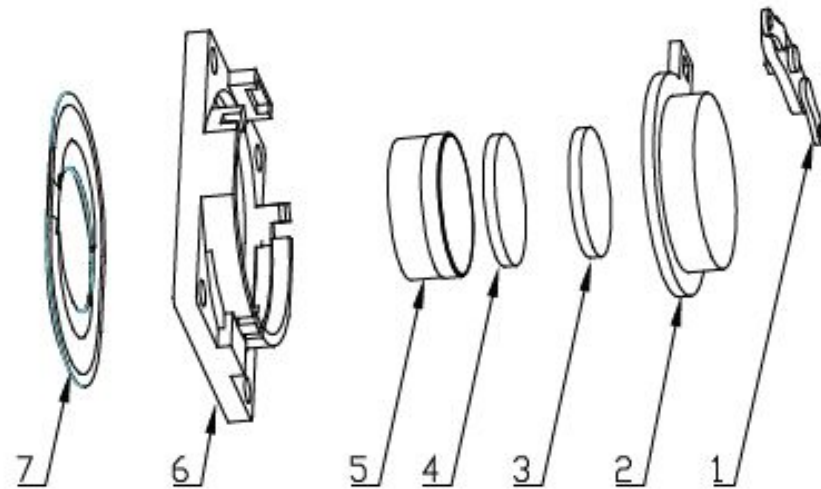
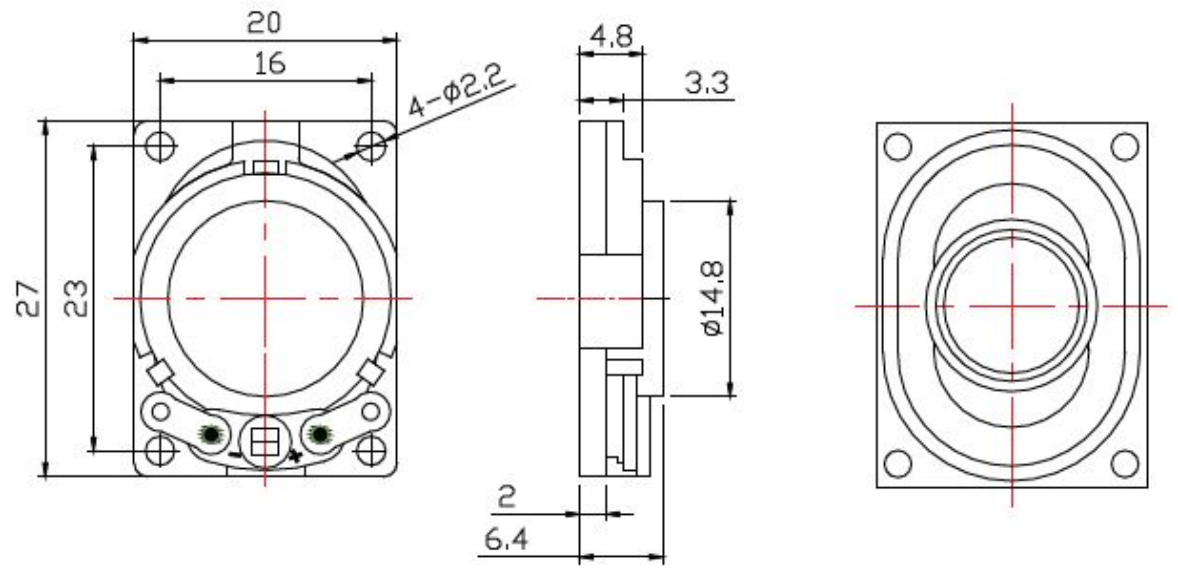
**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## Dimensions

Tolerance:  $\pm 0.5$  (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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Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

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