

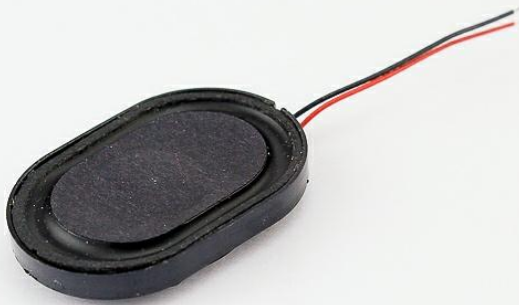


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# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-3020



Release | Revision: B/2018

## 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)

Standard Test Condition of Speakers

### Page 4

Frequency Response Curve

### Page 5

Dimensions

### Page 6

Packing

## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

85±3dB SPL @0.8,1.0,1.5 and 2.0KHz in average (0dB SPL=20µPa)  
Measuring Condition: 0.1W (Sine wave) 10cm measured with baffler shown in Fig.1

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

500±20%Hz @ 1V (Without Baffler)

### Input Power (Nominal and Maximum)

Rated Noise Power 1.5W

Short Term Max Power: 2.0W  
must be normal at a white noise, (1.0W, F0 ~ 20KHz) for one minute

### Operation Test

Must be free audible noise (buzzes and rattles)  
(300 ~ 8KHz frequency range, input level up to 3.46Vrms)

### Distortion

Less than 10% @1KHz, 0.1M, 0.1W, frequency range, input level up to 3.46Vrms

## General Specifications

### Operating Temperature Range

-20°C~+55°C

### Standard Test Conditions

Temperature 17°C ~ 25°C  
Relative Humidity 45% ~ 80% (RH)

### AC Impedance

8±15%Ω(@2KHz 1V without baffler.

### DC Resistance

7.4±10%Ω

### Dimension

30.0 x 20.0 x H5.2mm  
Wire 30mm (UL1571 / AWG32#)

### IP Level

No rating

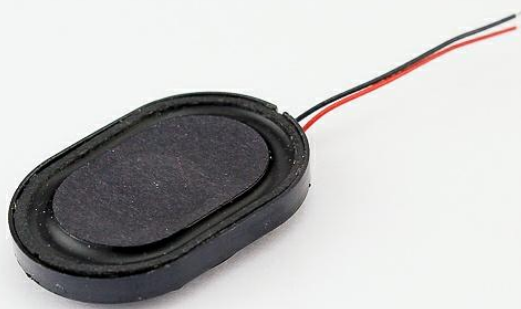


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#### Page 6

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  $+55\pm 2^\circ\text{C}$

Duration 96 hours

### Low Temperature Test

Low Temperature  $-20\pm 2^\circ\text{C}$

Duration 96 hours

### Heat Shock Test

High Temperature  $+55\pm 2^\circ\text{C}$

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  $-20^\circ\text{C}$   $+55^\circ\text{C}$

Duration 45 minutes 45 minutes

Temperature gradient  $1 \sim 3^\circ\text{C}/\text{min}$

Cycle 25

### Drop Test

Mounted with dummy set mass: 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 @ 1.5W input power

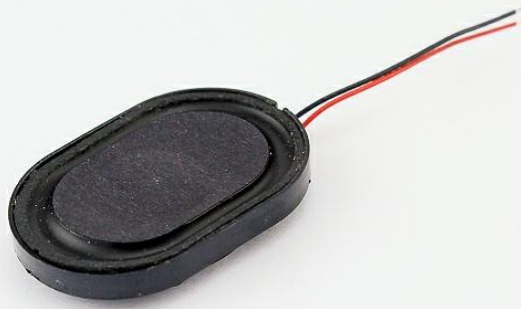


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**Page 3**  
Measuring Method (Speaker Mode)

Standard Test Condition of Speakers

**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## 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

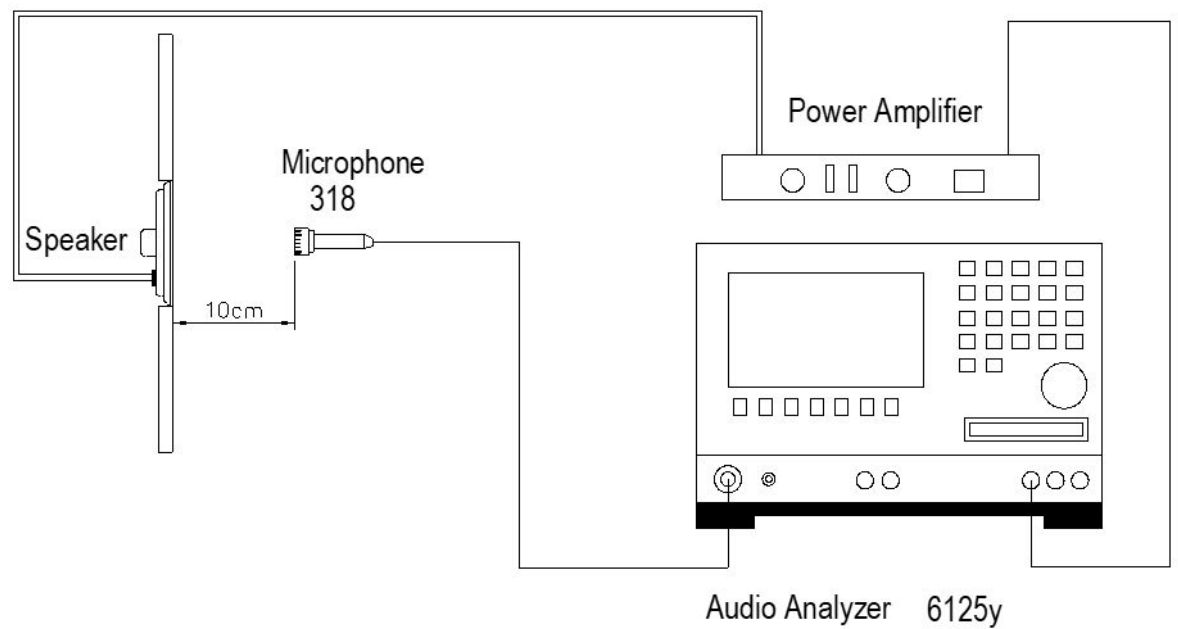
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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



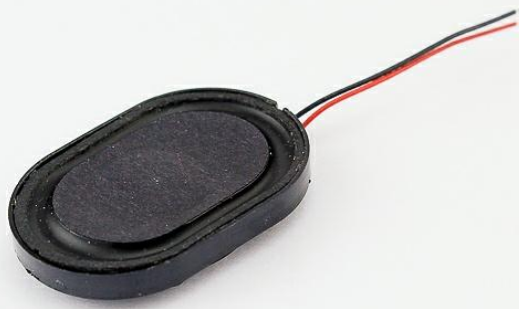


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### Page 3

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Standard Test Condition of Speakers

### Page 4

Frequency Response Curve

### Page 5

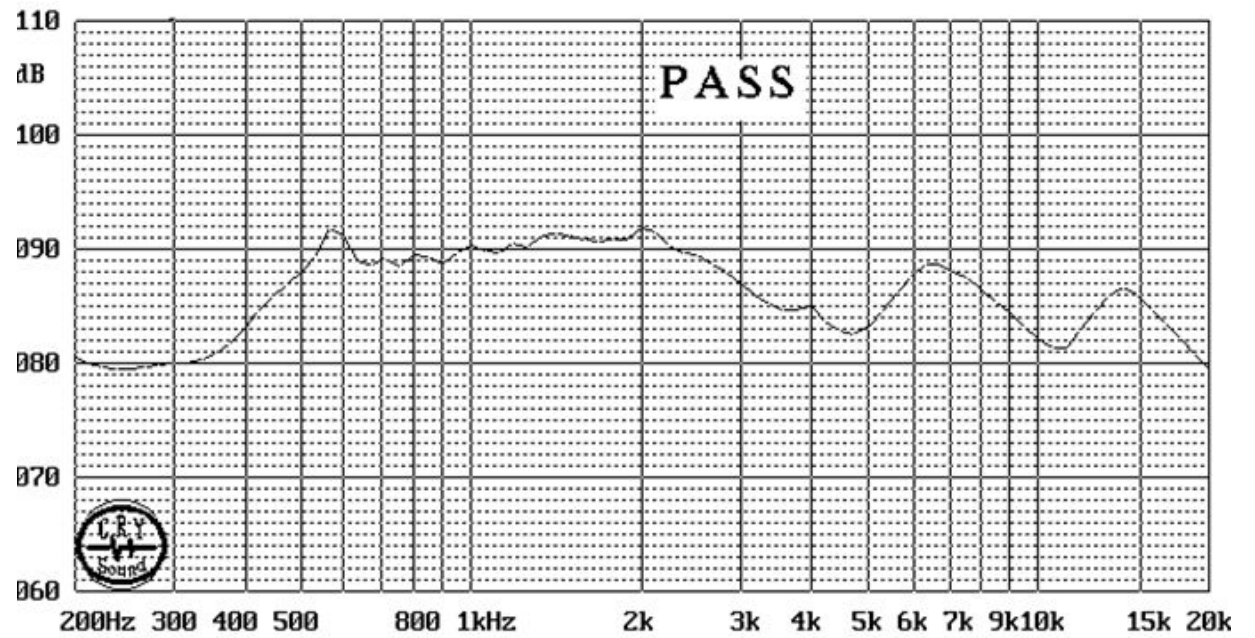
Dimensions

### Page 6

Packing

## Frequency Response Curve (Fig. 2)

0.1W/10cm, in free air



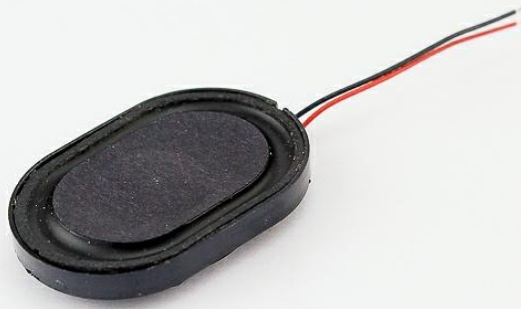


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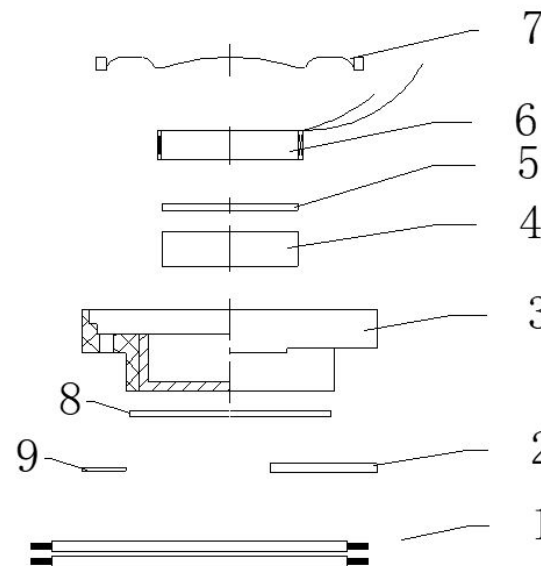
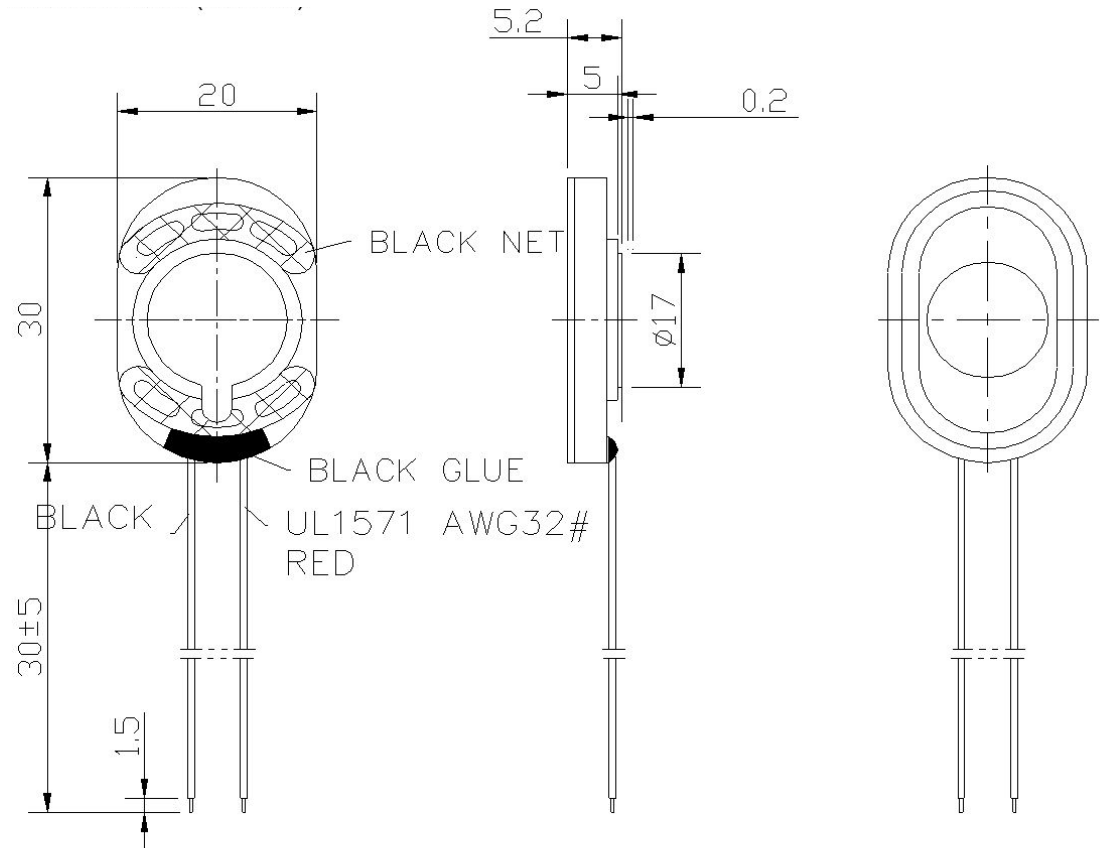
**Page 4**  
Frequency Response Curve

**Page 5**  
Dimensions

**Page 6**  
Packing

## Dimensions

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



No.	Part Name	Material	Quantity
1	Wire (30mm)	UL 1571/AWG32#	2
2	PCB	FR-4	1
3	Frame	PBT	1
4	Magnet	Nd Fe B-N40	1
5	Plate 1	SPCC	1
6	Voice Coil	KSV-7.4Ω	1
7	Diaphragm	PU + Paper	1
8	Gasket	16 x 0.1	1
9	Screen	Black Net	1

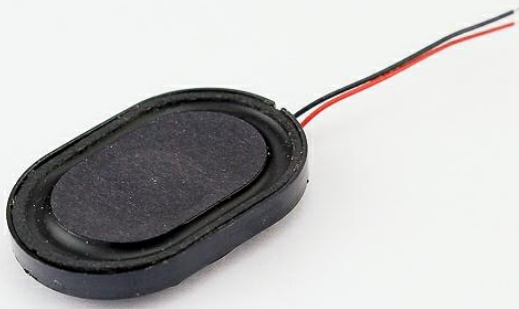


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### Page 4

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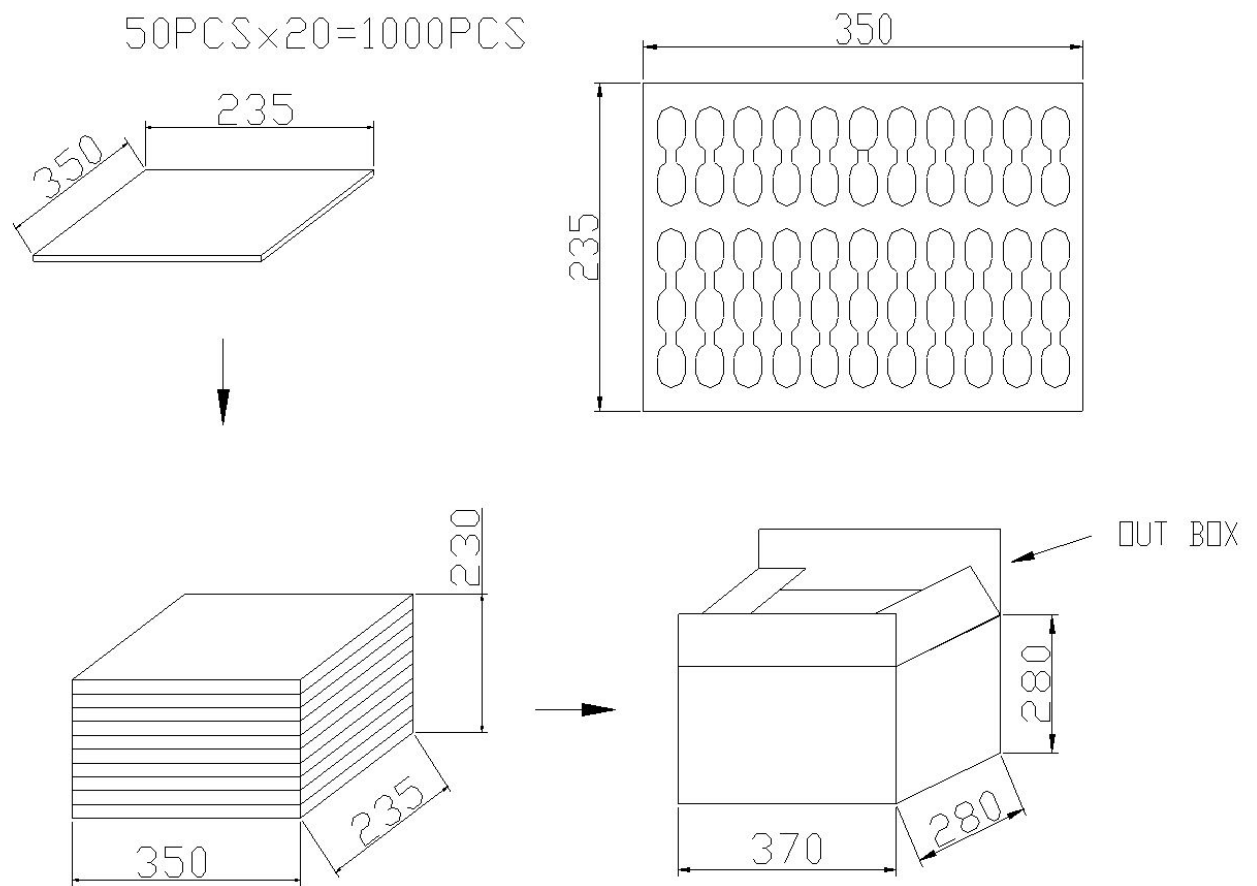
### Page 5

Dimensions

### Page 6

Packing

## Packing



TRAY	350X235X11mm	1X50PCS=50PCS
CARTON BOX	370X280X280mm	20X50PCS=1000PCS