

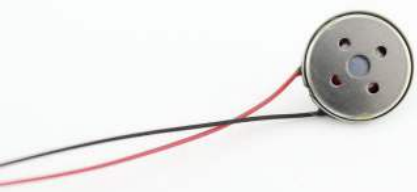


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# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1003



Release | Revision: A/2016

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

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

80±3dB SPL @0.9, 1.2, 1.5 and 2.0KHz in average (0dB SPL=20µPa)  
Measuring Condition: 0.1W (Sine wave) 0.05m measured with baffler shown in Fig.1.

### AC Impedance

8±15%Ω (@ 2 KHz 1V) without baffler

### Frequency Response Curve

As shown in Figure 2

### Response Frequency

1350 ± 20% Hz @ 1V. (Without Baffler)

### Input Power (Nominal and Maximum)

Rated Noise Power: 0.3W

Short Term Max Power: 0.5 W must be normal at a white noise (1W, F0-20KHz) for 1 minute

### Operation Test

Must be free audible noise (buzzes and rattles)

300 ~ 8KHz frequency range, input level up to 0.2Vrms

### Distortion

Less than 10% @1KHz , 0.1M , 0.2W frequency range, input level up to 0.2 Vrms

## General Specifications

### Operating Temperature Range

-20°C~+55°C

### Storage Temperature Range

-30°C ~ +70°C

### Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

### Dimension

Ø 10x2.4mm WIRE 62mm (UL1571/AWG34#)

### IP Level

No rating

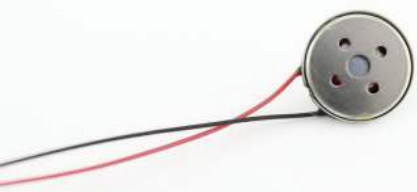


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## Reliability Tests

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

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 @ 0.3W input power.

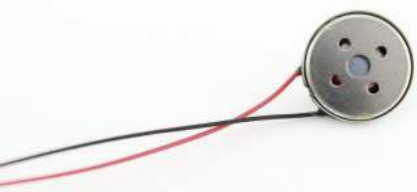


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## Measuring Method (Speaker Mode)

### Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar to 1060mbar

### Standard Test Fixture

Input Power 0.1W (0.89V)

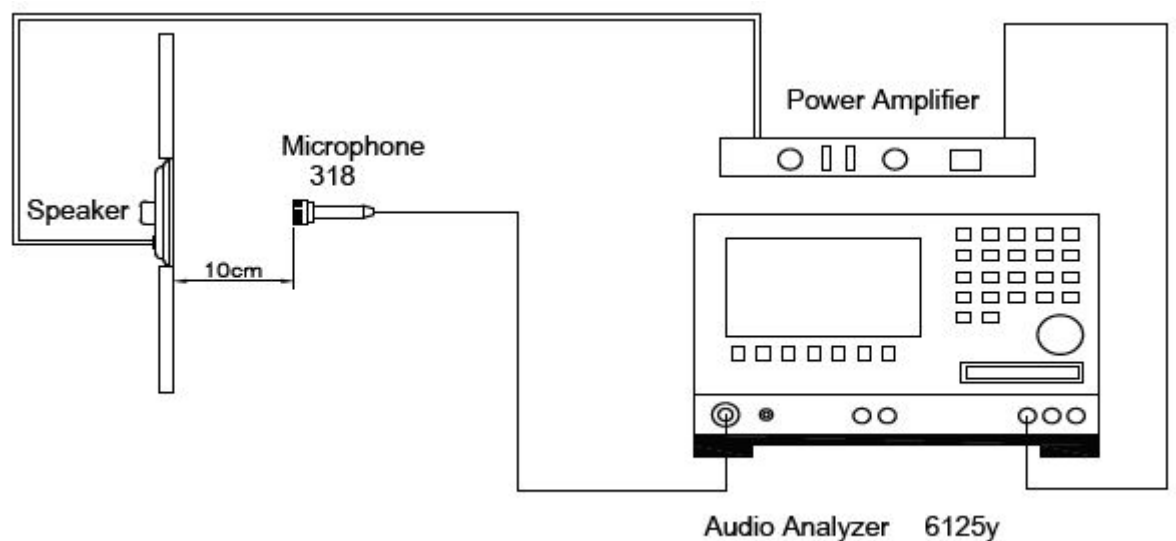
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

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





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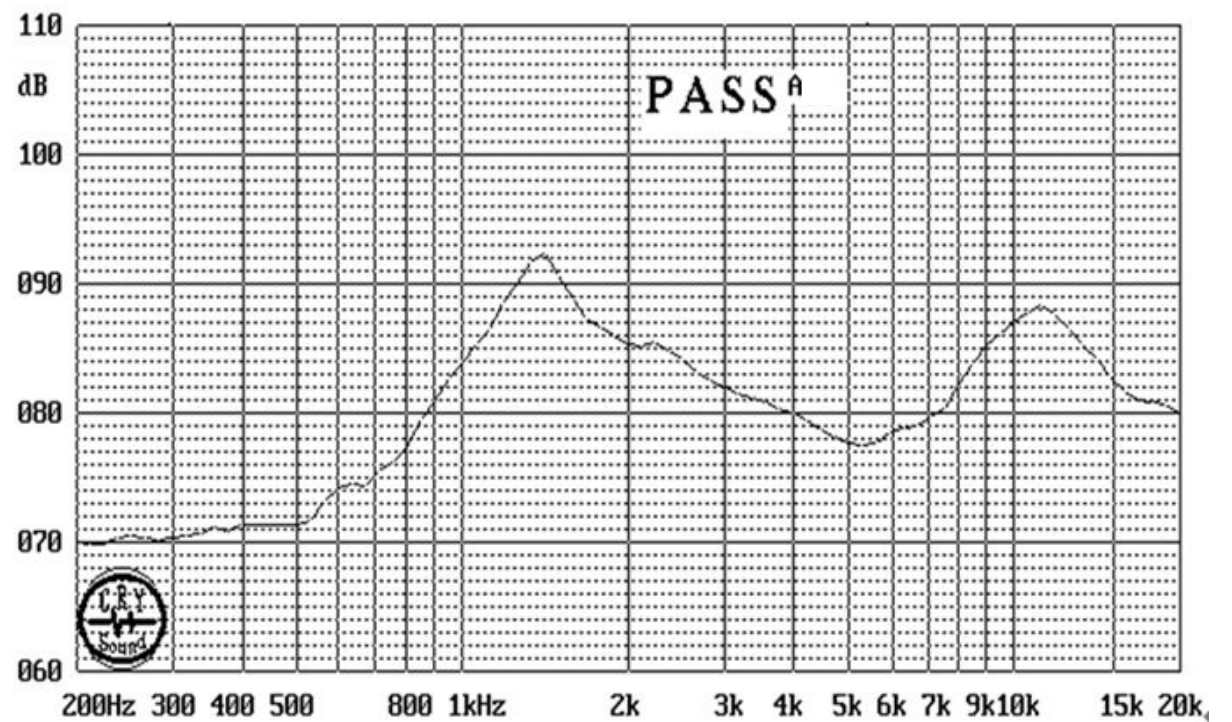
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Frequency Response Curve (Fig. 2)



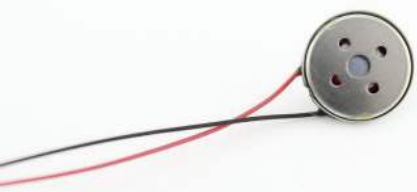


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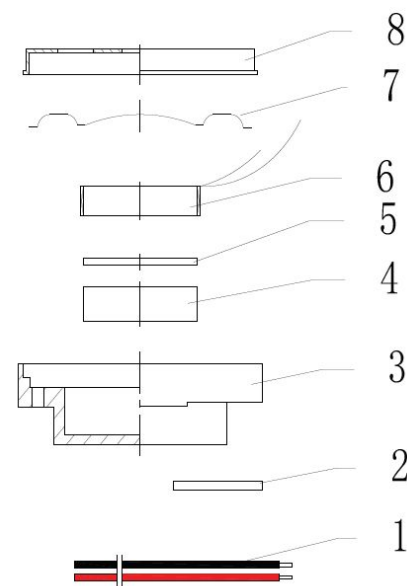
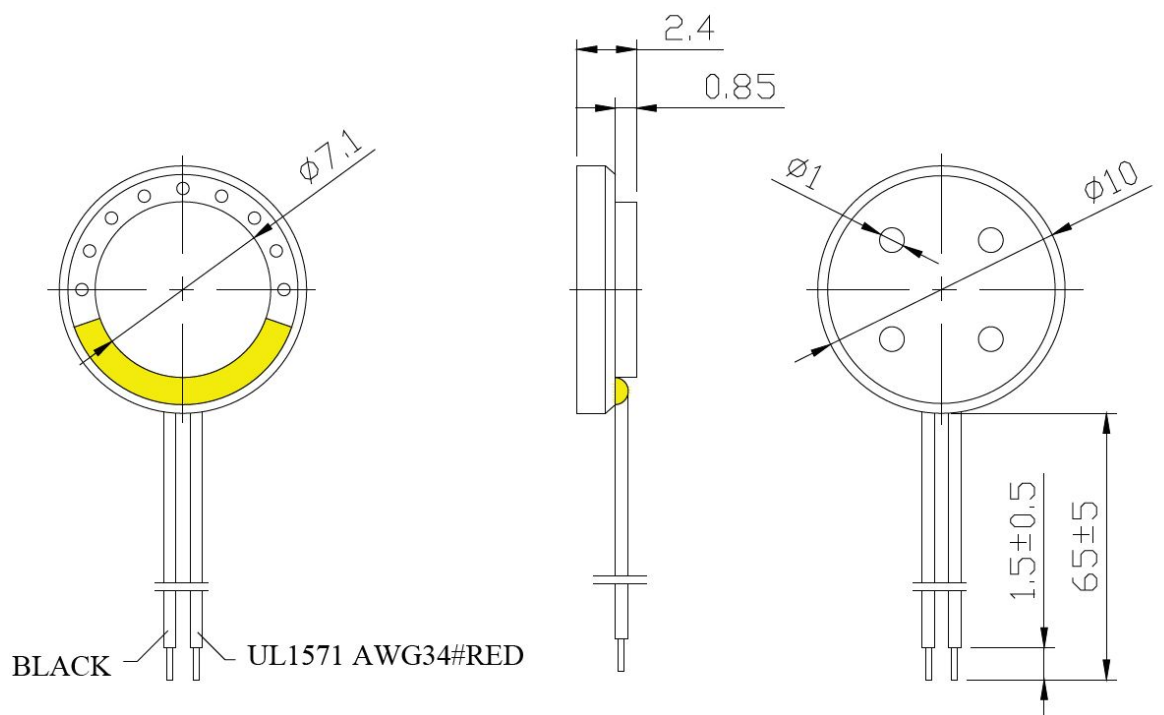
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## Dimensions

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



No.	Part Name	Material	Quantity
1	UL1571 AWG34#	Red/Black	2
2	PCB	FR-4	1
3	Frame	SPCC	1
4	Magnet	ND Fe B-N38	1
5	Plate	SPCC	1
6	Voice Coil	Copper	1
7	Membrane	PET	1
8	Cap	SUS 304	1

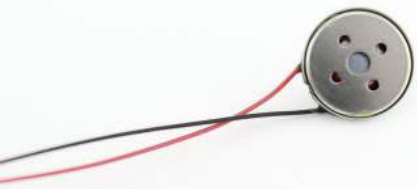


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