



soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-4005-1



Release | Revision: A/2017

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

93±3dB SPL @ 0.6, 0.8, 1.0, 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 (@ 1 KHz 1V) without baffler

Frequency Response Curve

As shown in Figure 2

Response Frequency

430 ± 20%Hz @ 1V. (Without Baffler)

Input Power (Nominal and Maximum)

Rated Noise Power: 1.0W

Short Term Max Power: 2.0 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 2.83Vrms

Distortion

Less than 10% @1KHz, 5cm, 0.1W frequency range, input level up to 0.1W

General Specifications

Operating Temperature Range

-20°C~+65°C

Standard Test Conditions

Temperature 17°C~25°C

Relative Humidity 45%~80%(RH)

Dimension

Ø 40.0x 8.5mm WIRE 150mm UL1571/AWG26# +
Connector equ. to JST-PHR-2 (2P=2.0mm Pitch wafer)

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 $+65\pm 2^\circ\text{C}$

Duration 96 hours

Low Temperature Test

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

Duration 96 hours

Heat Shock Test

High Temperature $+65\pm 2^\circ\text{C}$

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°C $+65^\circ\text{C}$

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 @ 1W 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)

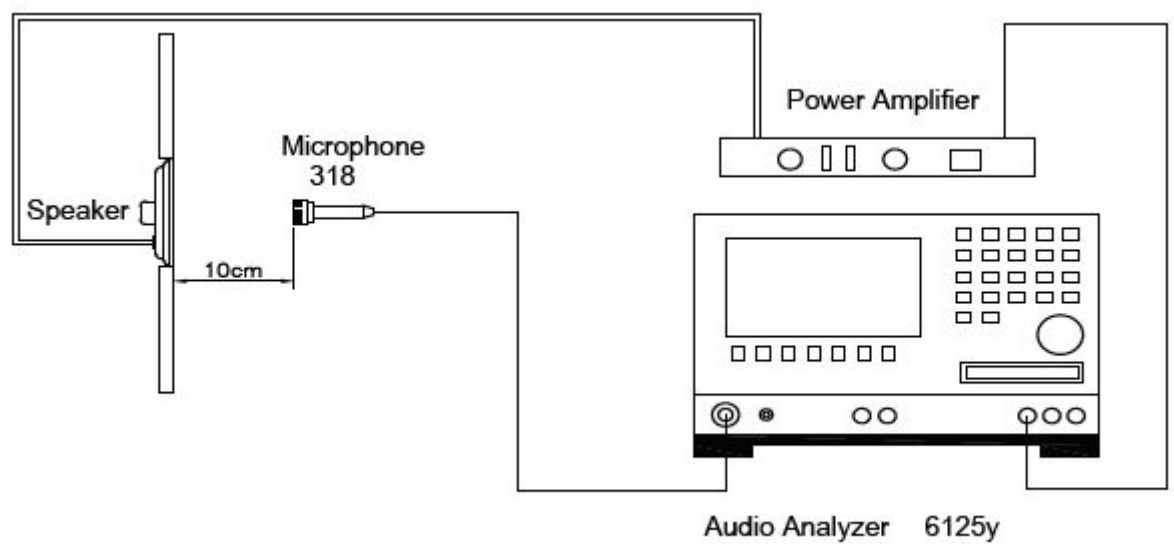
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig, 1)





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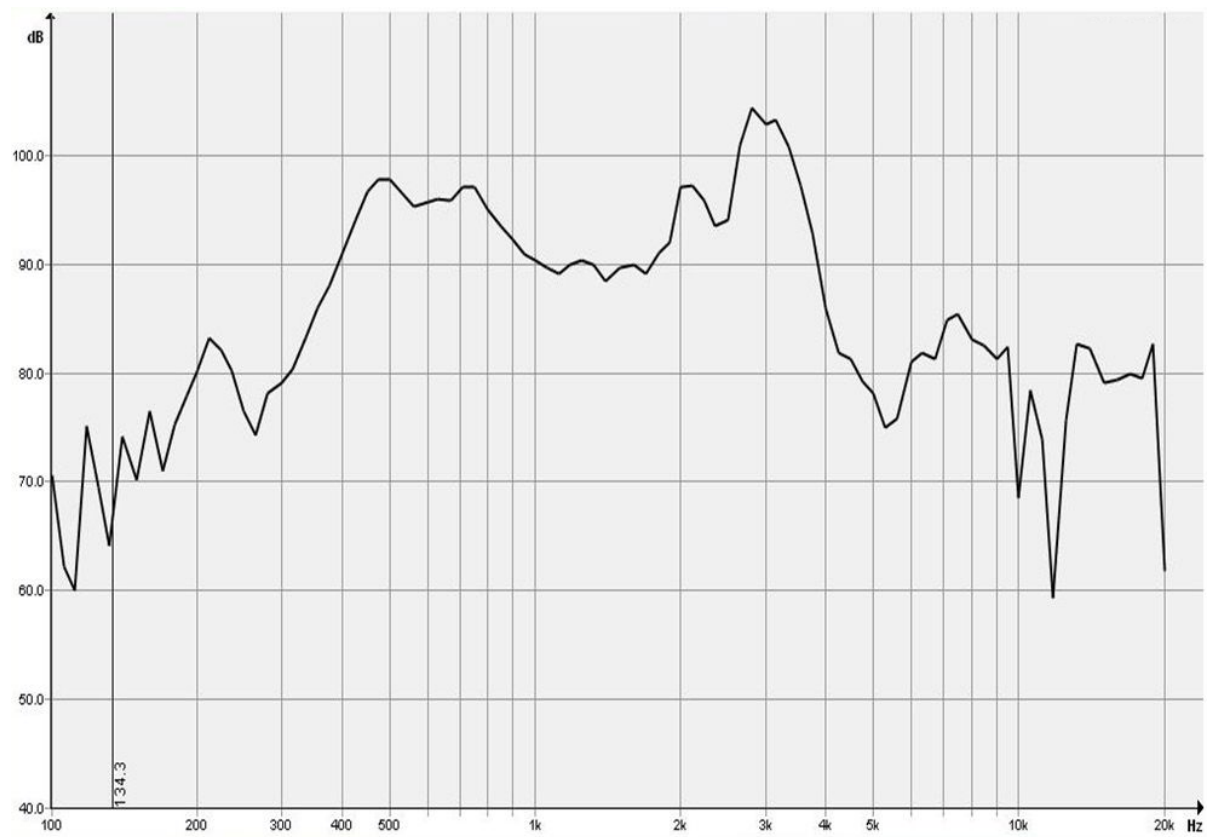
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Frequency Response Curve (Fig. 2)





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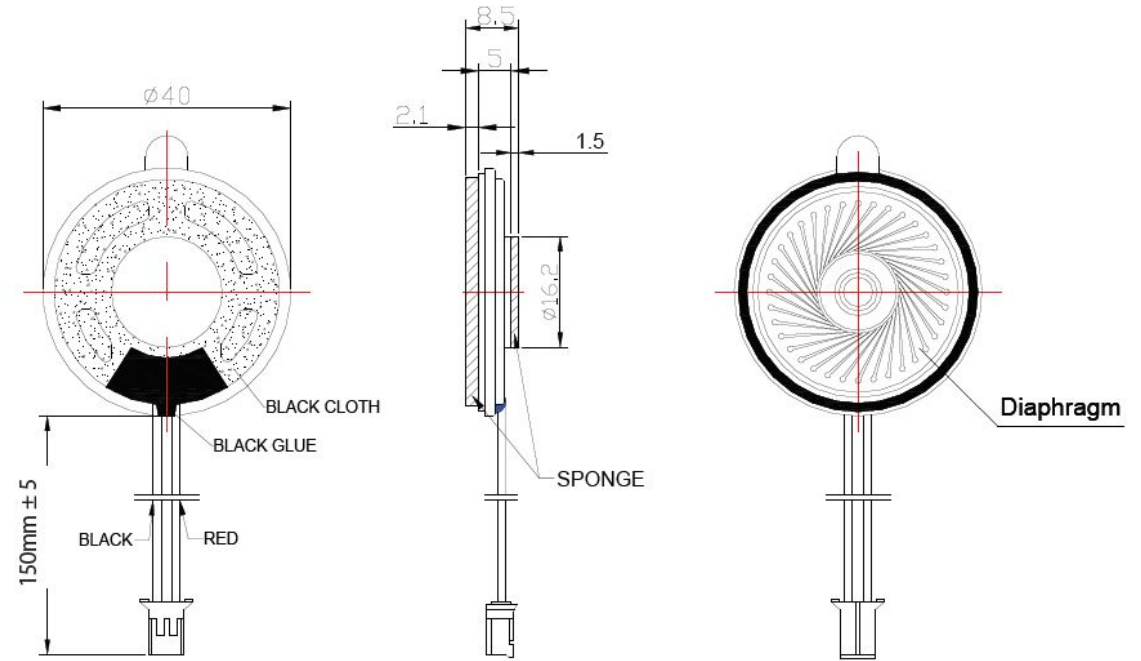
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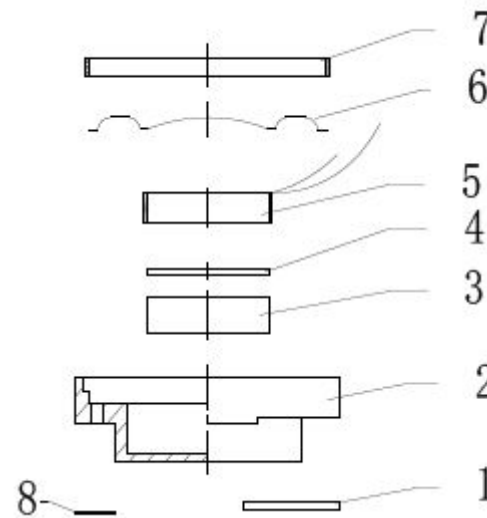
Packing

Dimensions

Tolerance: ± 0.5 (unit: mm)



UL1571 / AWG26#
Connector:
equ. to JST-SHR-02V-S-B
(2P=1.0mm)



No.	Part Name	Material	Quantity
1	PCB	FR-4	1
2	Frame	SPCC	1
3	Magnet	$\phi 12.5 * 1.5 - N38$	1
4	Plate	SPCC	1
5	Voice Coil	PL13.3-2.4-7.4	1
6	Diaphragm	PET	1
7	Gasket	Black paper	1
8	Silk Screen	Black cloth	1
9	Wire	UL1571 / AWG26#	2
10	Connector	equ. to JST-PHR-2 (2P=2.0mm Pitch wafer)	1



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$$42\text{PCS} \times 24 - 8 = 1000\text{PCS}$$

