



soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1511S



Release | Revision: B/2018

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Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

83±3dB SPL @ 2KHz 1.0V(Sine wave) 0.1m measured with baffler shown in Fig.1. (1CC BOX)

Measuring Diagram

Shown in Fig.1

Typical Frequency Response Curve

Shown in Fig. 2

Resonance Frequency

850±20%Hz @ 1Vrms. (In 1CC BOX)

Input Power (Nominal and Maximum)

Rated Noise Power: 0.7W (In 1CC Box)

Short Term Max Power: 1.0W (In 1CC Box)

Operation Test

Must be free audible noise (buzzes and rattles)

200 ~ 3400Hz frequency range, input level up to 2.37Vrms (In 1CC BOX)

Distortion

Less than 5% at 1KHz 1V

General Specifications

Operating Temperature Range

-25°C ~ +65°C

Storage Temperature Range

-40°C ~ +75°C

AC Impedance

8Ω±15% (@2KHz 1Vrms)

Dimension

15 x 11 x 4.2 mm

IP Rating

No rating



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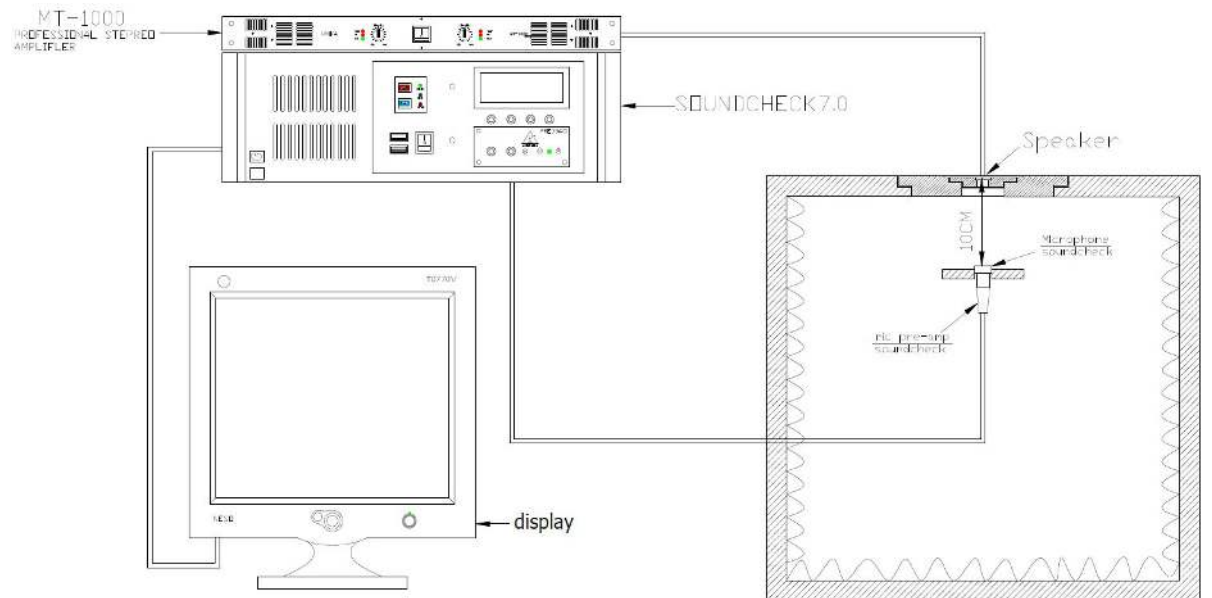
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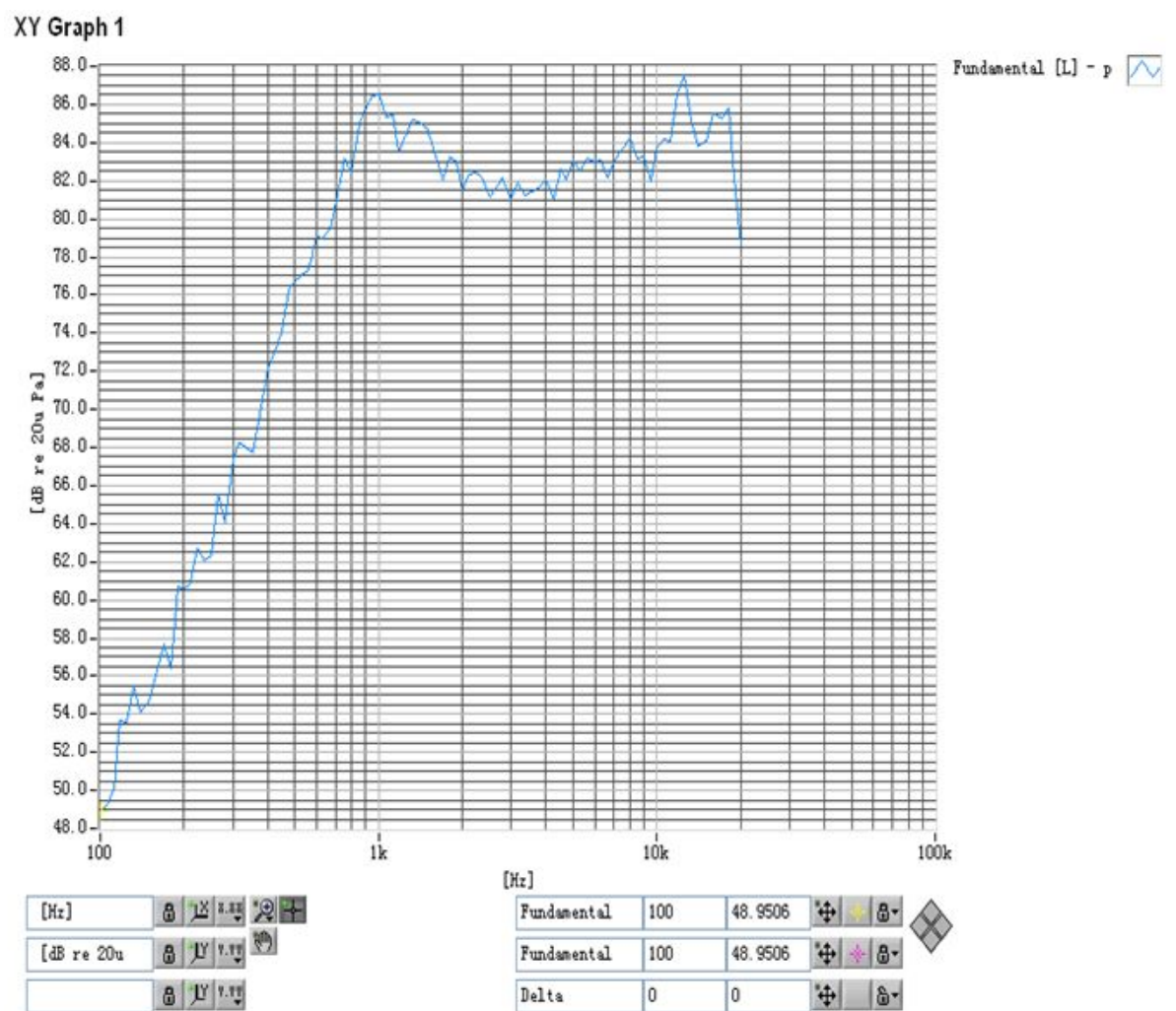
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Frequency Measuring Circuit - Receiver Mode (Fig. 1)



Typical Frequency Response Curve - Speaker Mode (Fig. 2)



TEST CLIMATIC CONDITIONS

Standard Test Condition

Temperature 15 ~ 35°C

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar to 1060mbar



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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 $+75\pm 2^\circ\text{C}$

Duration 96 hours

Low Temperature Test

Low Temperature $-40\pm 2^\circ\text{C}$

Duration 96 hours

Heat Shock Test (See in Fig. 3)

High Temperature $+85\pm 2^\circ\text{C}$

Low Temperature $-40\pm 2^\circ\text{C}$

Changeover Time < 15 seconds

Duration 1 hour

Cycle 32

Humidity Test

Temperature $+70\pm 2^\circ\text{C}$

Relative Humidity 90%~95%

Duration 48 hours

Temperature Cycle Test (See in Fig. 4)

Temperature -40°C $+75^\circ\text{C}$

Duration 45 minutes 45 minutes

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

Cycle 10

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 @ 0.7W (1CC BOX) (2.37V_{rms})

Salt Spray Test

Temperature $+35^\circ\text{C}$

Concentration 5%

Duration 24 hours



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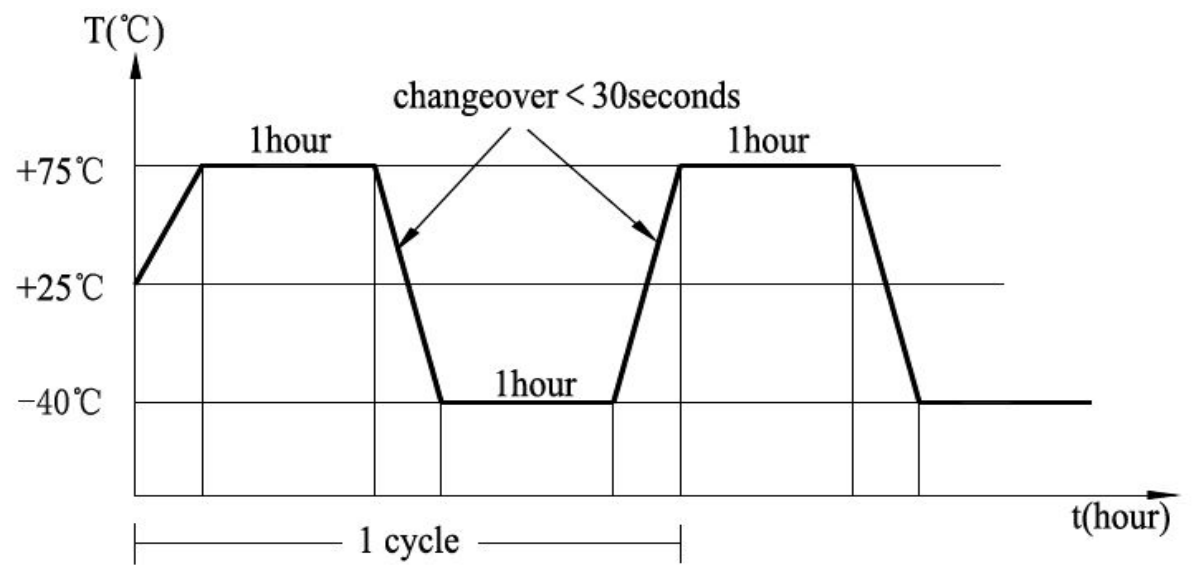
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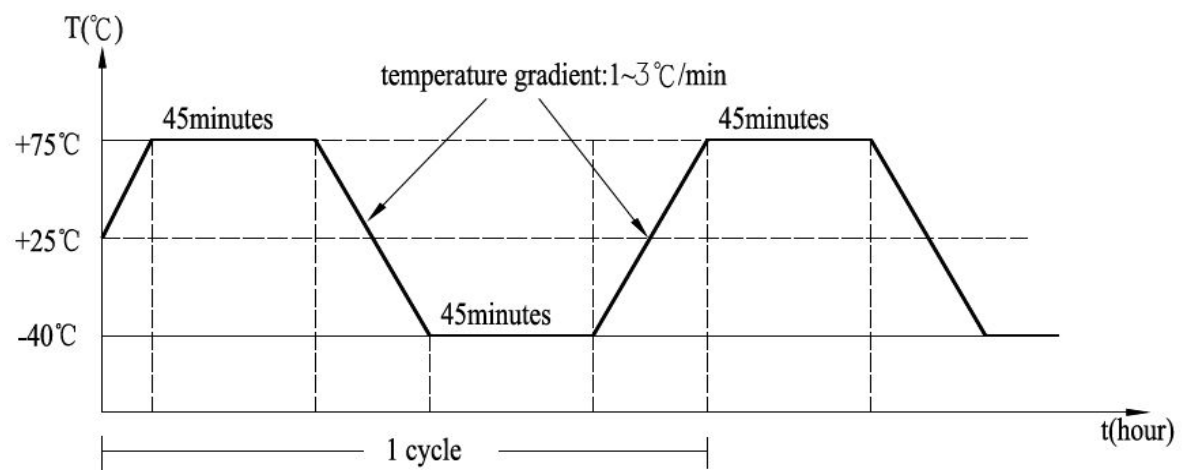
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Heat Shock Test (Fig. 3)



Temp. Cycle Test (Fig. 4)





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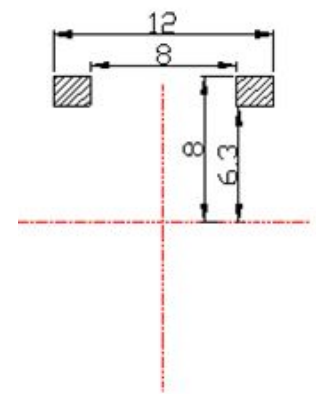
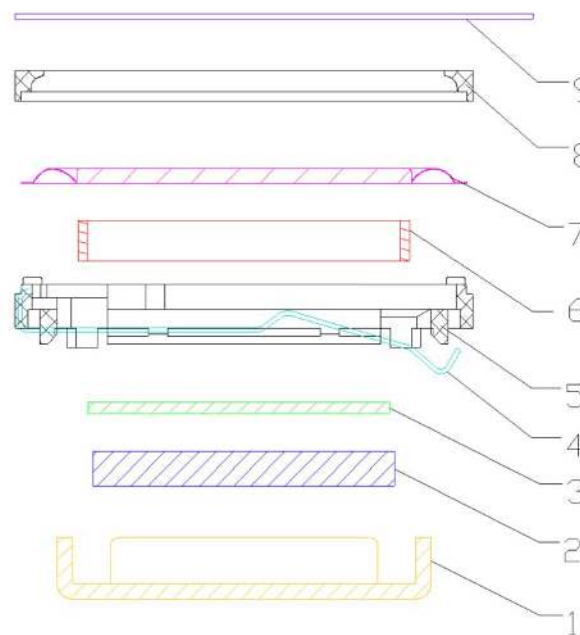
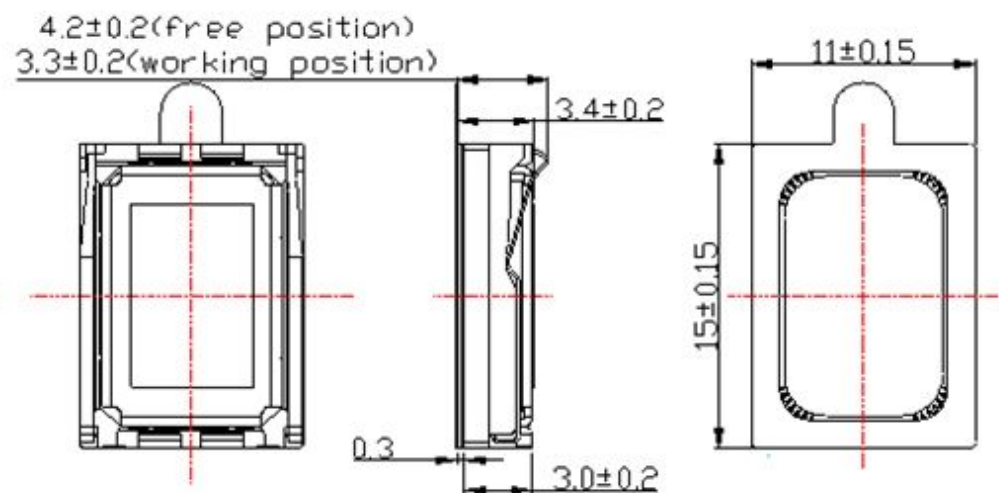
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Dimensions

Tolerance: ± 0.5 (unit: mm)



Pad Layout

| No. | Part Name | Material | Quantity |
|-----|-----------------|----------|----------|
| 1 | Yoke | Iron | 1 |
| 2 | Magnet | Nd Fe B | 1 |
| 3 | Plate | Iron | 1 |
| 4 | Spring Terminal | SUS | 2 |
| 5 | Frame | PPA | 1 |
| 6 | Voice Coil | Copper | 1 |
| 7 | Diaphragm | PEEK | 1 |
| 8 | Cap | PPA | 1 |
| 9 | PAD | PE | 1 |



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