soberton inc.

SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-2004FW

Release | Revision: C/2021

CONTENTS

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

Dynamic Speaker Electroacoustic Characteristics

Sound Pressure Level

91±3dB SPL @0.5Watt, 10cm
Average @1.2, 1.5, 2.0 & 2.5KHz

Measuring Condition: 0.5W (Sine wave) 10cm measured with baffler, as shown in Figure 1

Frequency Response Curve

As shown in Figure 2

Frequency Range

F0 ~ 10.0KHz

Response Frequency

750±20%Hz at 1.0V

Input Power (Nominal and Maximum)

Rated Noise Power: 0.5 Watt

Short Term Max Power: 0.8 Watt

Operation Test

Result must be normal when tested at 2.0 Volts in free air

Total Harmonic Distortion

10% Max @1.0KHz, 0.5 Watt, 0.1 Meter

Polarity

Diaphragm shall move forward when a positive DC current is applied to the "+" or 'marked' Terminal.

General Specifications

Operating Temperature Range

-20℃ ~ +60℃

Storage Temperature Range

-30℃ ~ +70℃

Standard Test Conditions

Temperature 15℃ ~ 35℃

Relative Humidity 45% ~ 85% (RH)

Voice Coil Impedance

DC: 8±15%Ω

Dimension

Ø20.0 x H3.9mm
Wire: 40mm (UL1571/ AWG30#)
Connector: Equivalent to Molex 51021-02, 2P=1.25mm

IP Level

No Rating

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Reliability Tests

The sound pressure as specified shall neither deviate more than ±3dB from the initial value, nor have any significant damage after any of following testing.

High Temperature Test

High Temperature	+70±2℃
Duration	96 hours

Low Temperature Test

Low Temperature	-30±2℃
Duration	96 hours

Heat Shock Test

High Temperature	+70±2˚C
Low Temperature	-30±2˚C
Changeover Time	<30 seconds
Duration	1 hour
Number of Cycles	10

Humidity Test

Temperature	+40±2℃
Relative Humidity	90% ~ 95%
Duration	48 hours

Temperature Cycle Test

Temperature	-30℃	+70℃
Duration	45 minutes	45 minutes
Temperature gradient	1 ~ 3˚C/min	
Number of Cycles	25	

Drop Test

The speaker is mounted onto the dummy assembly, placed in a standard cardboard box and then dropped onto a concrete board.

Height	0.75 m
Number of Cycles	6

Load Test

Speaker mode: White noise (EIA filter) for 96 hours @0.5W input power

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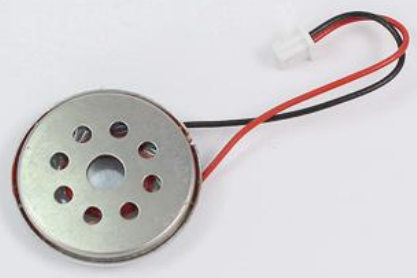

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Measuring Method (Speaker Mode)

Standard Test Condition

Temperature 17 ~ 35℃

Relative humidity 45% ~ 85%

Atmospheric pressure 860mbar ~ 1060mbar

Standard Test Fixture

Input Power 0.5W / 2.0V

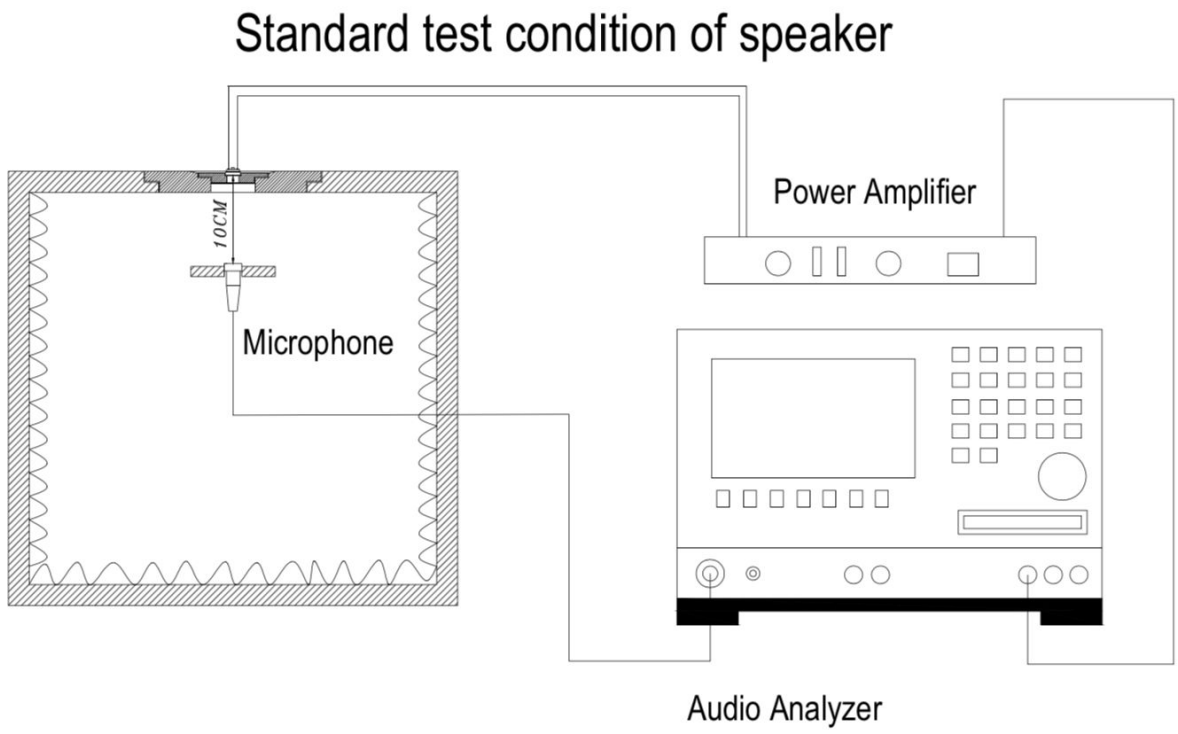
Zero Level -dB

Mode TSR

Potentiometer Range 50dB

Sweep Time 0.5sec

Standard Test Condition of Speaker (Fig. 1)



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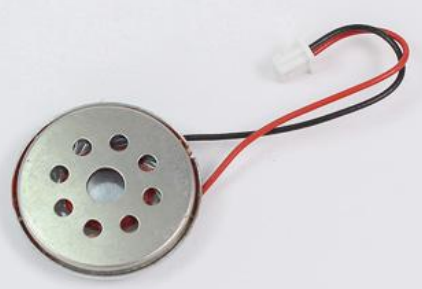

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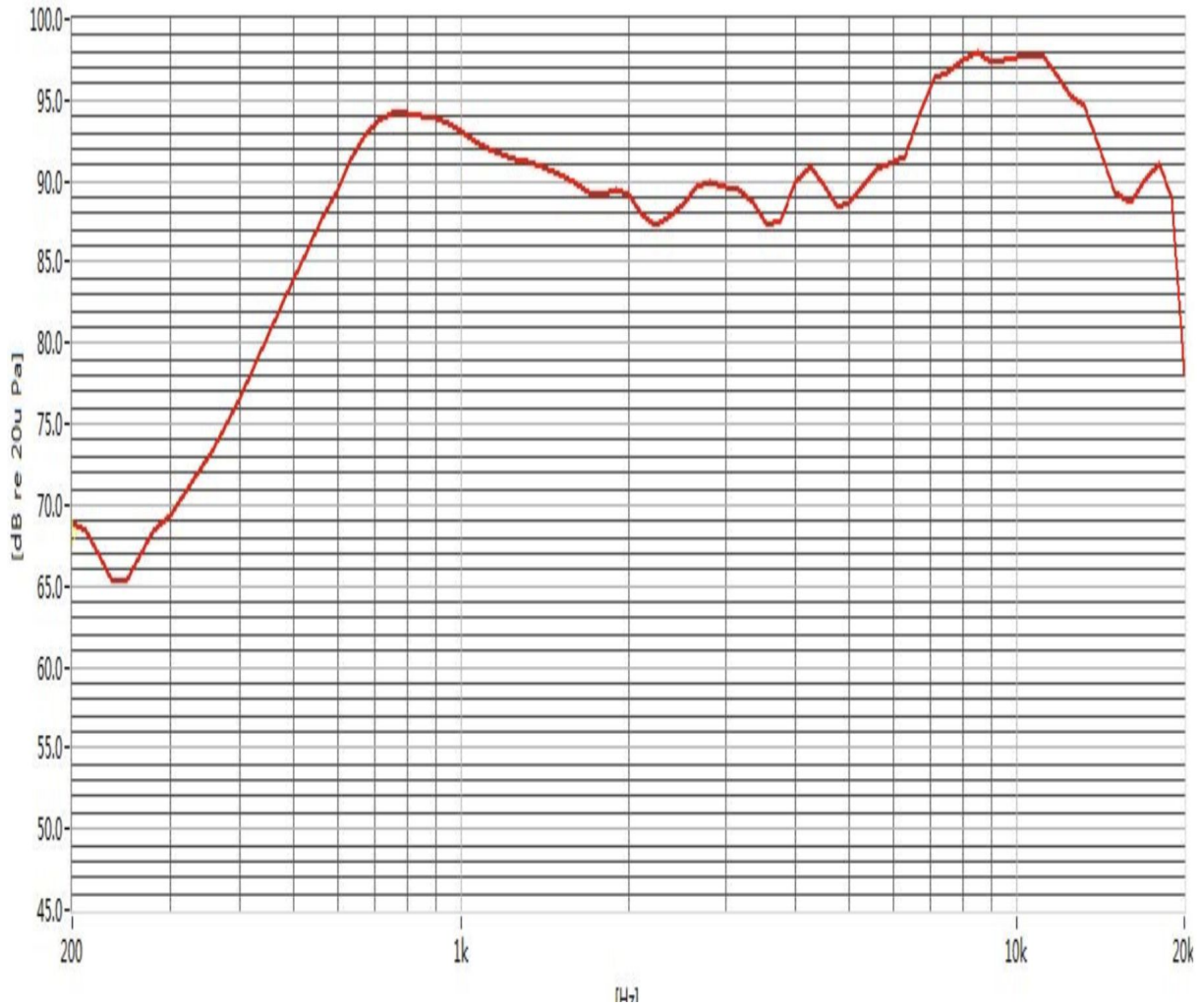
Frequency Response Curve (Fig. 2)

Test Condition: 0.5W /0.1M



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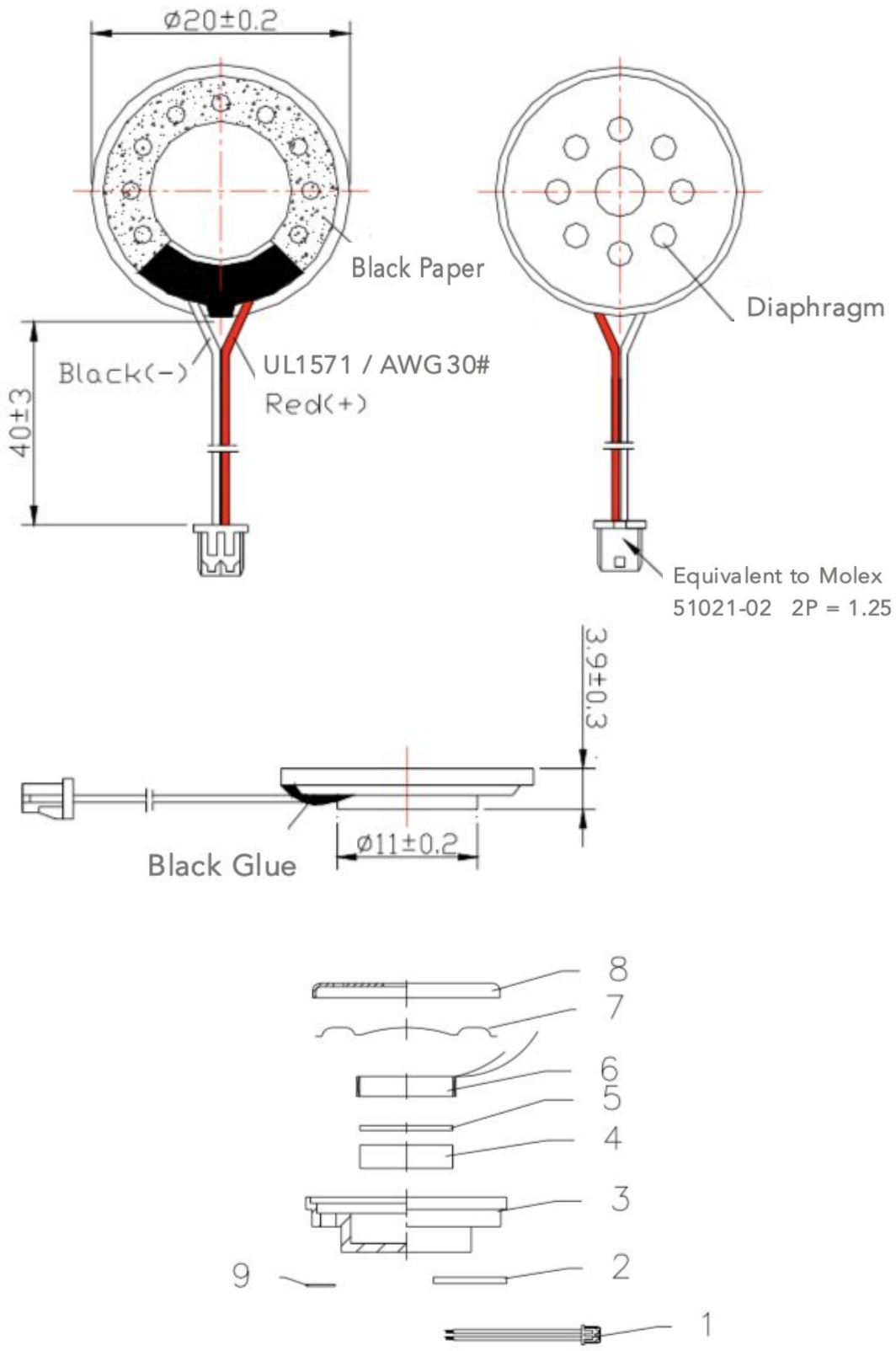
Dimensions

Tolerance: ±0.5 (unit: mm)



No.	Part Name	Material	Quantity
1	WIRE (45mm) Connector	UL1571 / AWG 30# Equivalent to Molex 51021-02, 2P = 1.25	2 1
2	Silk Screen	Black Cloth	1
3	Frame	SPCC	1
4	Magnet	Nd Fe B	1
5	Plate	SPCC	1
6	Voice Coil	Cu	1
7	Diaphragm	PET	1
8	Cap	SUS	1
9	PCB	FR-4	1

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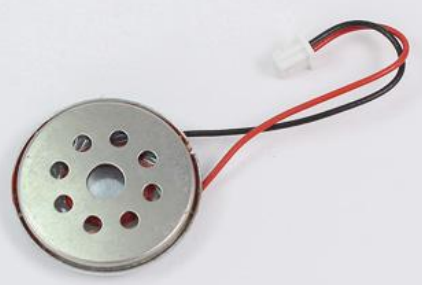

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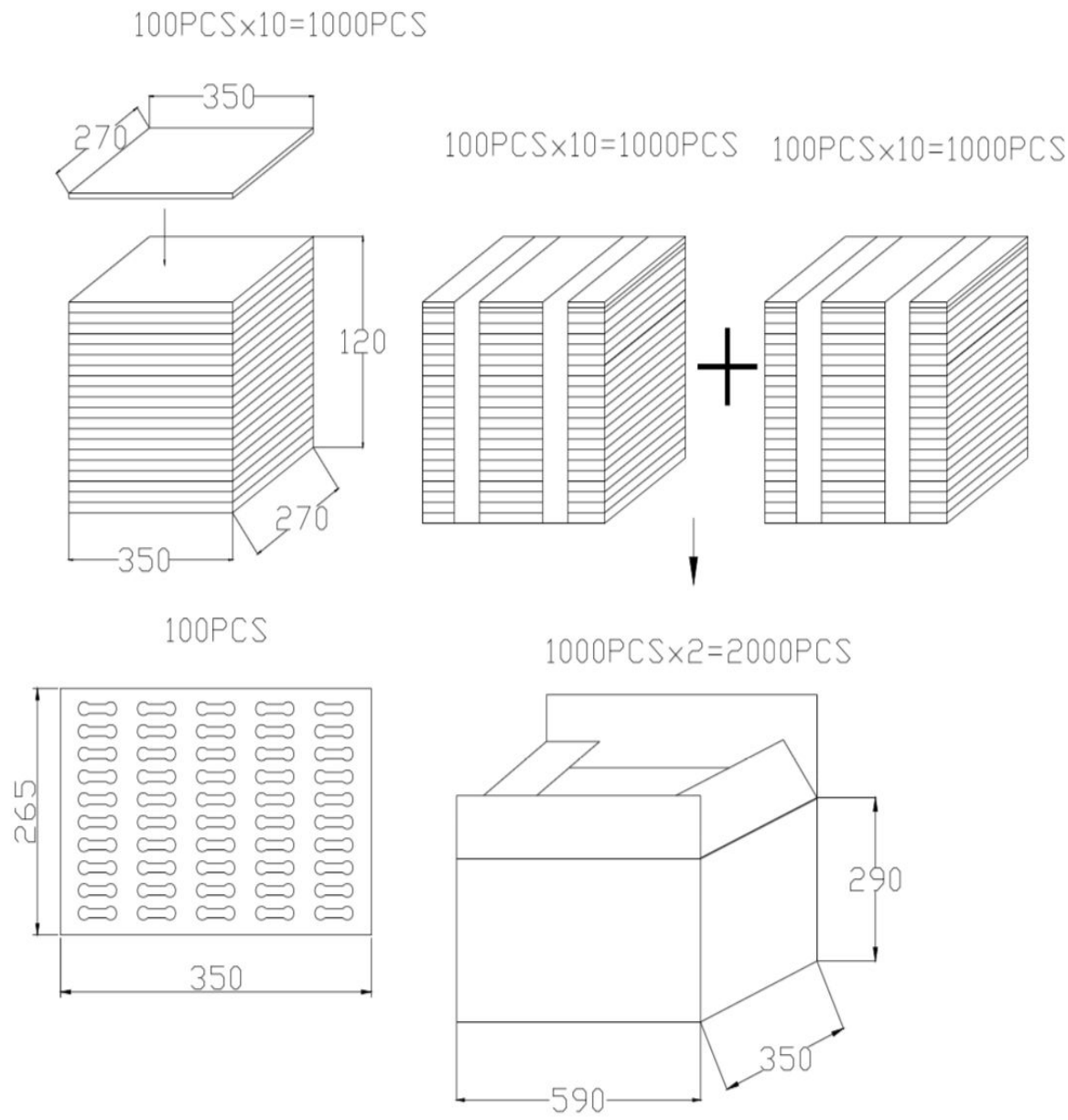
Packing



Remarks

Per Tray: 100 pcs

Per Package : 1,000 pcs

Per Carton: 2,000 pcs

Carton Size: 590 x 350 x 290mm