

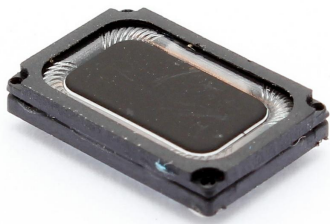


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# SP DYNAMIC SPEAKER UNIT

Acoustic Product Specification

Product Number: SP-1208



Release | Revision: B/2020

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## Dynamic Speaker Electroacoustic Characteristics

### Sound Pressure Level

68±3dB at 0.8Vrms/10cm at 2KHz (Mounted in free air without baffle)  
Measuring conditions and procedures shown in Fig 1 & Fig 2

### Resonance Frequency

500 ±15% Hz, 1 Vrms input in free air  
800 ±15% Hz, 1 Vrms input in 0.5cc Box

### Rated Frequency Range

100 ~ 10KHz

### Frequency Response

See Figure 1

### THD

See Figure 2, Table 2 (Mounted in Free air 0.5 at without baffle)  
Test at 0.25w/10cm

### Rub & Buzz

A sine sweep among 100Hz ~ 1.5KHz at rated noise power with 0.5cc back cavity will not result in any buzzing or extraneous sound.

### AC Impedance

8±15% Ω@2KHz, 1Vrms input

### Input Power

Rated Noise Power: 0.25Watts (in 0.5cc box)

Short term Power: 0.5Watts (in 0.5cc box)

### Dimension

12.0 x 8.0 x H2.63mm

### IP Level

No rating

## Polarity Requirements

### Polarity

When a DC source's "+" polarity is attached to speaker's "+" polarity, "-" polarity is attached speaker's "-" polarity, the membrane will move forward.

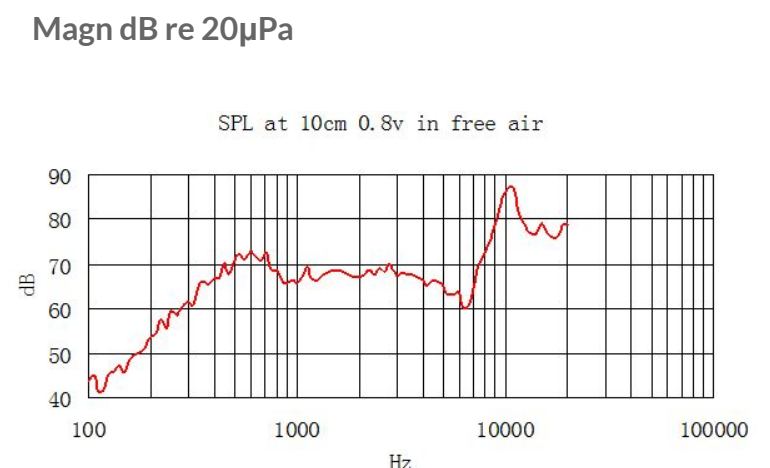
### Magnetic Polarity

Top of the magnet is the north pole.

## Typical Frequency Response (Fig. 1)

Magn dB re 20µPa  
Table 2 Limit Data for THD

Freq.(Hz)	Limit (%)
500	30
600	20
1500	10
15000	5



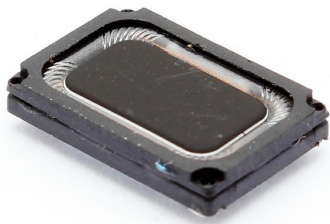


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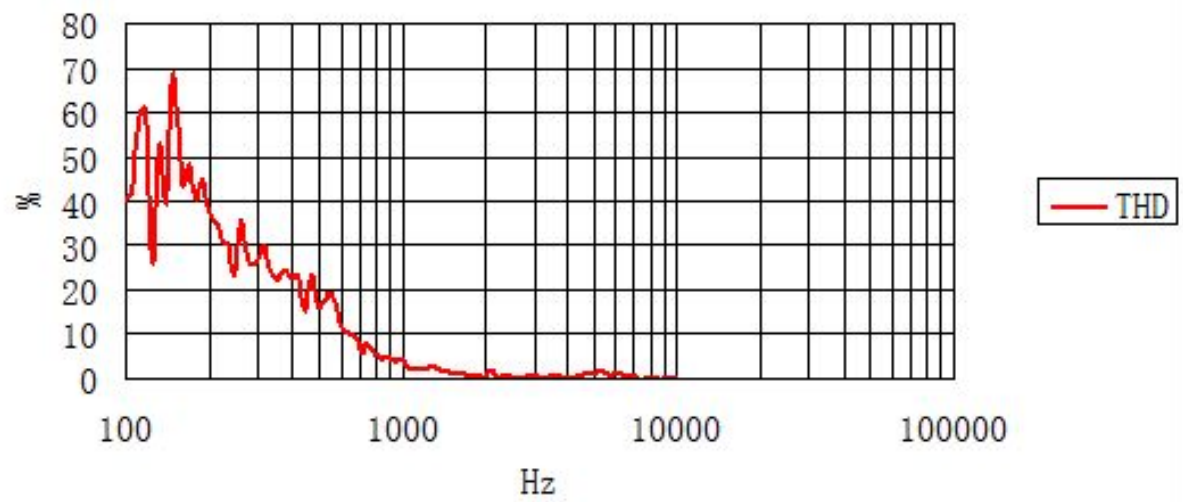
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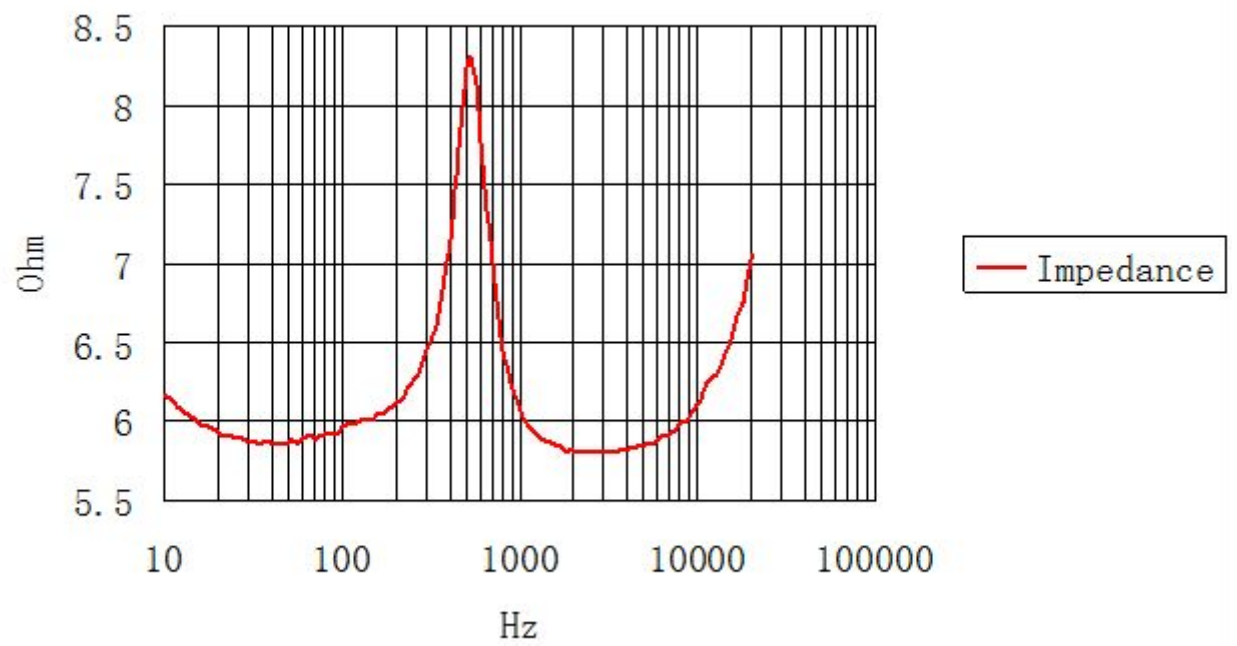
## Typical Frequency Response (Fig. 2)

Typical THD

THD at 0.25w in free air



Typical IMP Curve, 0812,1 VRMS INPUT



## Test Climatic Condition

### Ambient Temperature

15°C ~ 35°C, preferably 20°C

### Relative Humidity

25% to 75%

### Air Pressure

86kPa - 106kPa

Refer to IEC 268-1

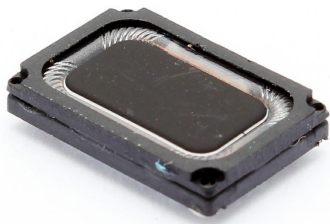


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## Test Method

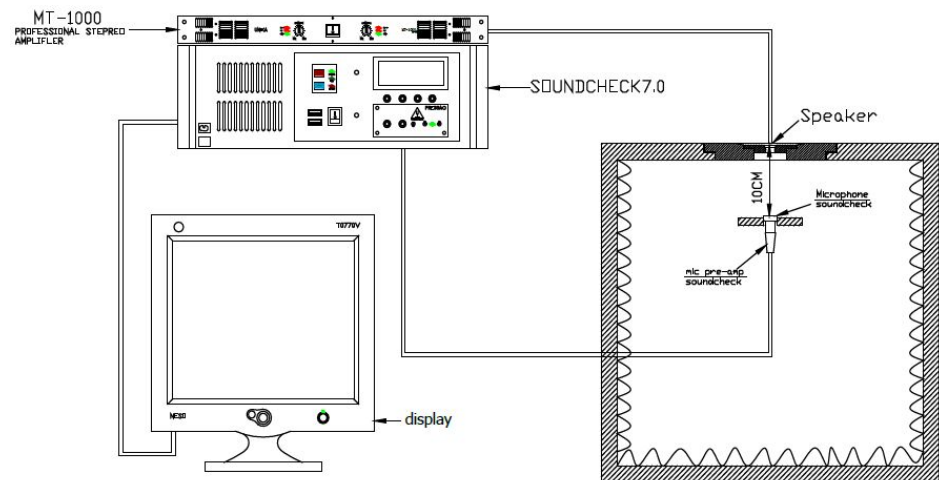
### SPL and Frequency Response Curve

The loudspeaker in 0.5cc box shall be mounted in specified baffle, the measuring microphone shall be free-field microphone and placed at specified distance from DUT, on axis. The drive power is 0.4Watts, and swept sine-wave range is 20Hz to 20KHz with a R40 of test sequence.

### THD

Tested per Section 9.1 and driven at 0.25Watts , sweep at specified frequency range with R40 test sequence.

## Test Setup (Fig. 3) Speaker Measurement Circuit



## Reliability Tests

The sound pressure as specified shall 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  $25\pm 2^\circ\text{C}$

Duration 96 hours

### Heat Shock Test (See in Fig. 4)

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

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

Changeover Time  $< 30$  seconds

Direction 1 hour

Cycle 10

### Humidity Test

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

Relative Humidity 90% ~ 95%

Duration 48 hours

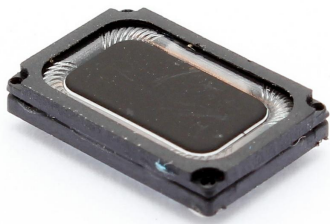


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## Reliability Tests (continued)

### Temperature Cycle Test (See in Fig.5)

Temperature -40°C +75°C

Duration 45 minutes 45 minutes

Temperature Gradient 1~3°C/min.

Cycle 10

### Drop Test

Mounted with dummy set mass 100 g

Height 1.5m

Cycle 6 (1 each plain) On to the concrete board

### Load Test

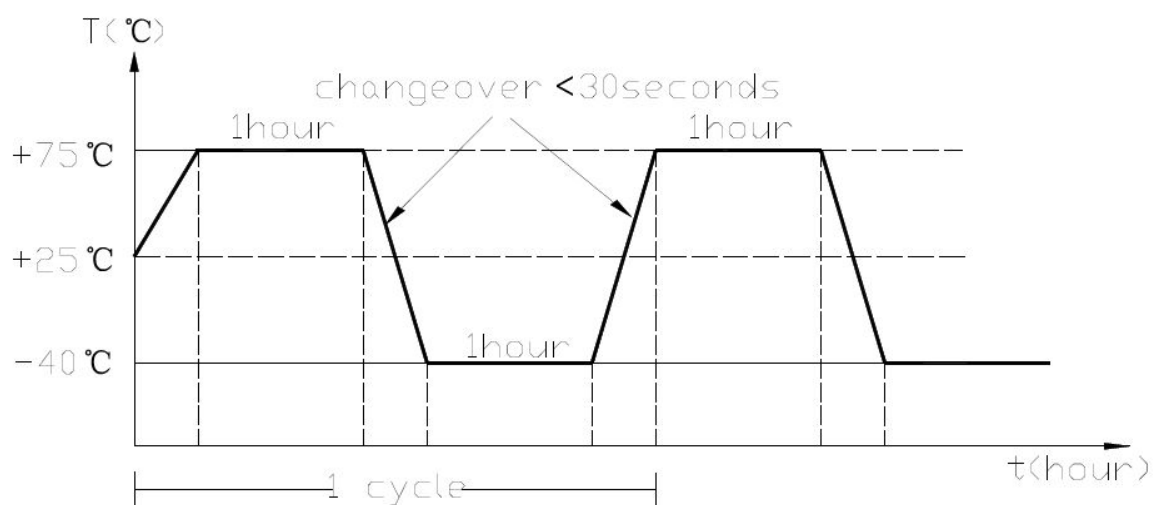
Noise Signal Pink noise (EIA filter)

Input Power 0.25W (1.4Vrms)

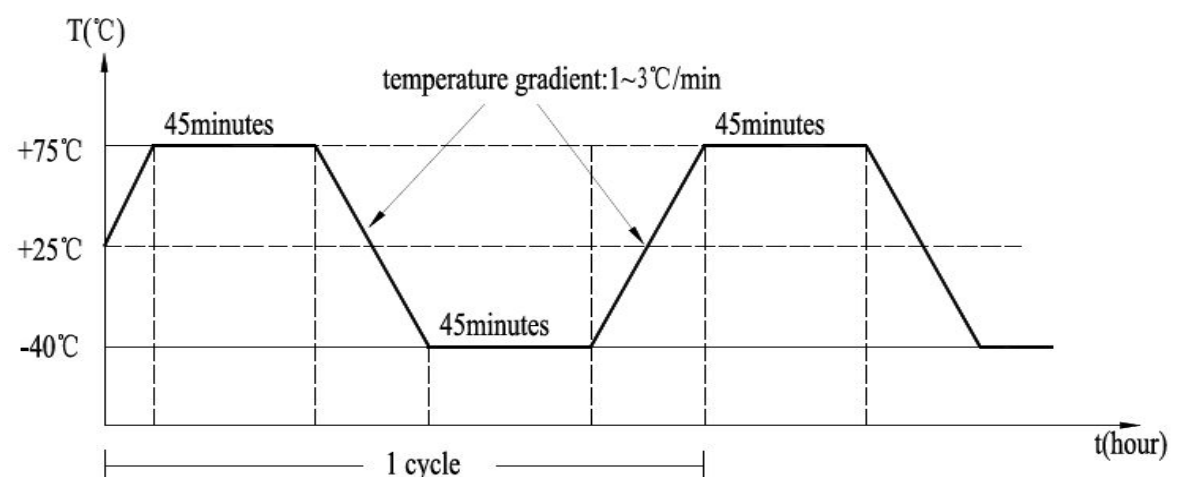
Duration 96 hours

## Test Method

### Heat Shock Test (Fig. 4)



### Temperature Cycle Test (Fig. 5)



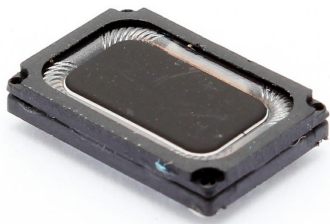


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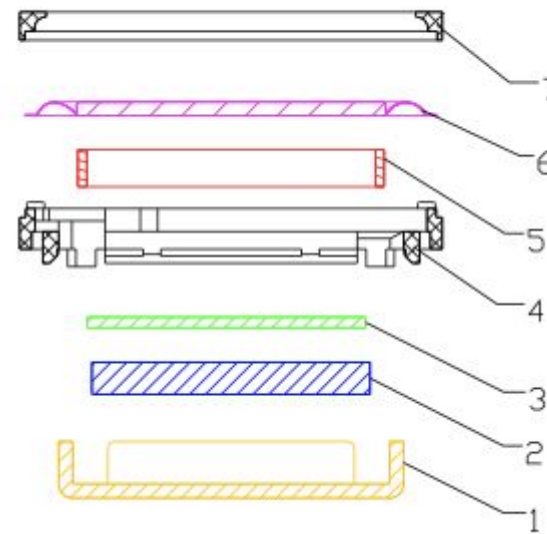
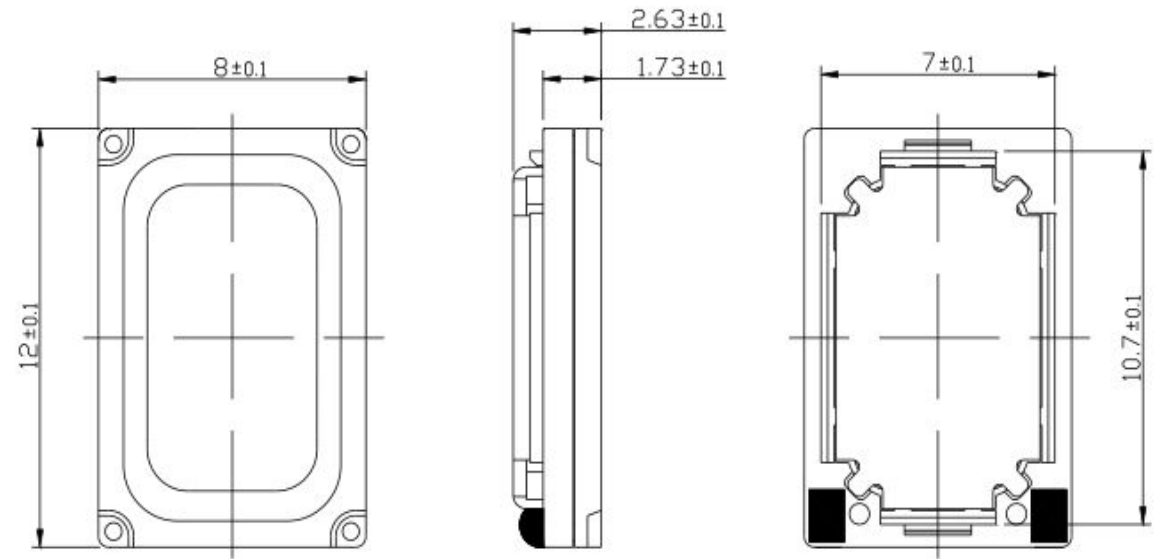
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## Dimensions

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



No.	Part Name	Material	Quantity
1	Yoke	Iron	1
2	Magnet	Nd-Fe-B	1
3	Plate	Iron	1
4	Frame	PPA	1
5	Voice Coil	Copper	1
6	Diaphragm	PEEK	1
7	Cap	PPA	1

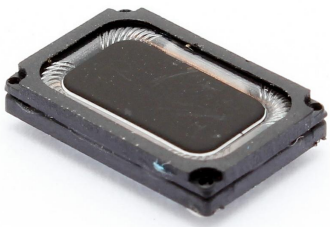


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