BID

Believe in dreams

SPECIFICATION

SHEET FOR APPROVAL

（Revision：X1）

CUSTOMER:

PRODUCT: DYNAMIC SPEAKER

BID PART NUMBER:

CUSTOMER PART NUMBER:

TITLE:W11×L34×H4.0 ohms/ROHS

	PREPARED	CHECKED	APPROVED	R&D CHOP
SIGNATURE (CHOP)				
DATE				

CUSTOMER COMMENT:

SIGNATURE: _____

DATE: _____

常州星启电子科技有限公司

BID ELECTRONIC TECHNOLOGY CO,,LTD.

ADD:NO 201 ZOUXIN ROAD,ZHONGLOU ZONE CHANGZHOU CITY,JIANGSU PROVINCE,

FAX:(86-519)83337596

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REVISION HISTORY

NO.	Revision	Comment	Page No.	Date
1	X1	Closed release	All involved sheets	2018-01-05

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ISSUED DATE	2018-01-15			
REVISION	X1			

1. SCOPE

This document contains required，electrical，acoustic，mechanical，package and reliability test requirements.

2.Environmental Requirement

This loudspeaker including all components, soldering joints and glue must be halogen free, in RoHS requirements and other banned or restricted substances according to customer's requirements.

3.Electrical Requirements

3.1 DC Resistance	3.8±10% ohms
3.2 Rated Impedance(in free air)	4±15% ohms @2KHz,1Vrms input
3.3 Power Rating(in 1cc box)	3W
3.4 Short Term Max. Power(in 1cc box)	5W

4.Acoustical Requirements

4.1 Sound Pressure Level(in 5cc box)	93±3dB @2Vrms/0.1m@2KHz
4.2 Bass Resonance Frequency (in 5cc box)	500Hz±20%2Vrms input
4.3 Rated Frequency Range	100Hz~10KHz
Frequency Response	See Figure1

Typical frequency response(see Figure 1) measured with baffle,at distance =0.1m in 5cc box at 2.0Vrms.

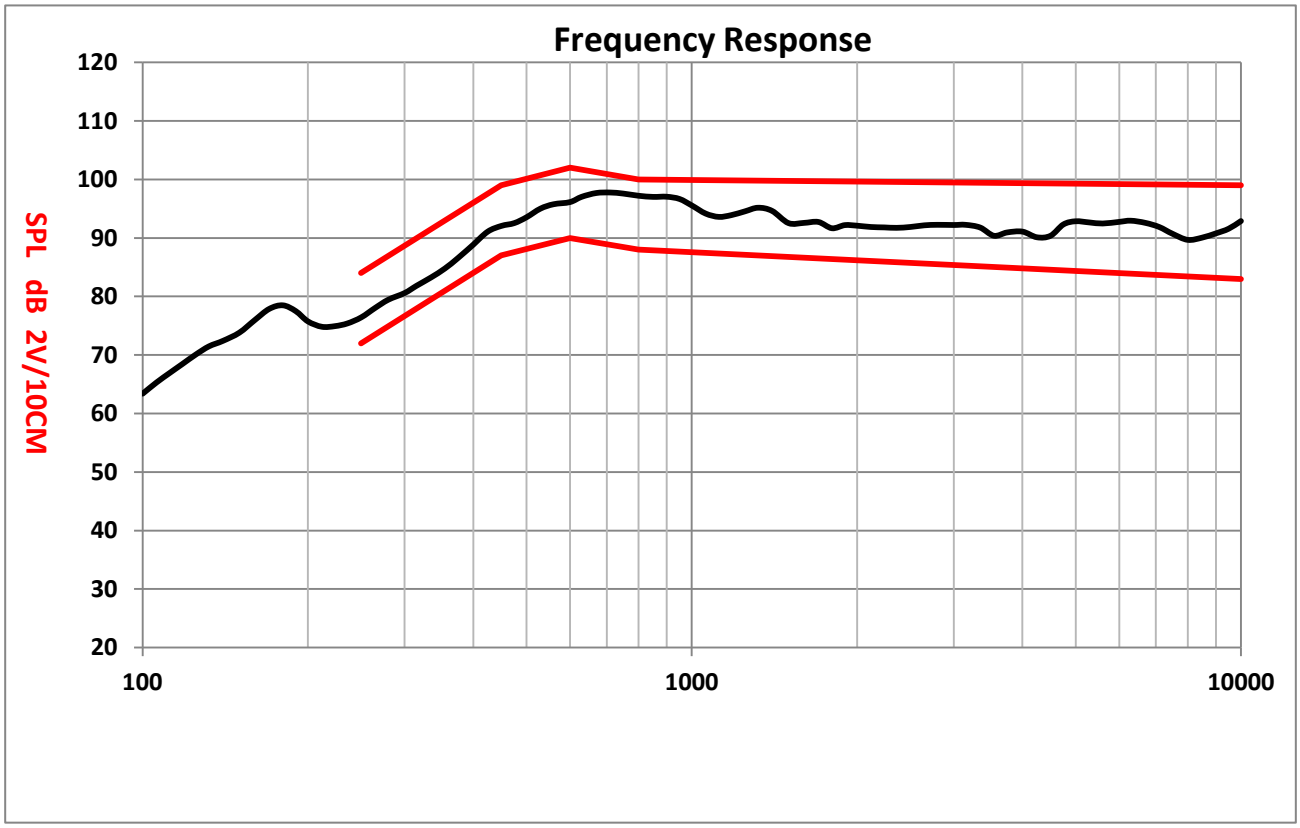


Figure 1, Typical Frequency Response

Frequency	Upper limits	Frequency	Lower Limits
[Hz]	[dBSPL]	[Hz]	[dBSPL]
250	82	250	72
450	98	450	87
600	100	600	90
800	100	800	88
10000	93	10000	85

Table 1, Test Limit for Frequency Response

4.4 Total Harmonic Distortion(THD):

Typical THD response(See Figure 2) measured with baffle,at distance=0.1m,

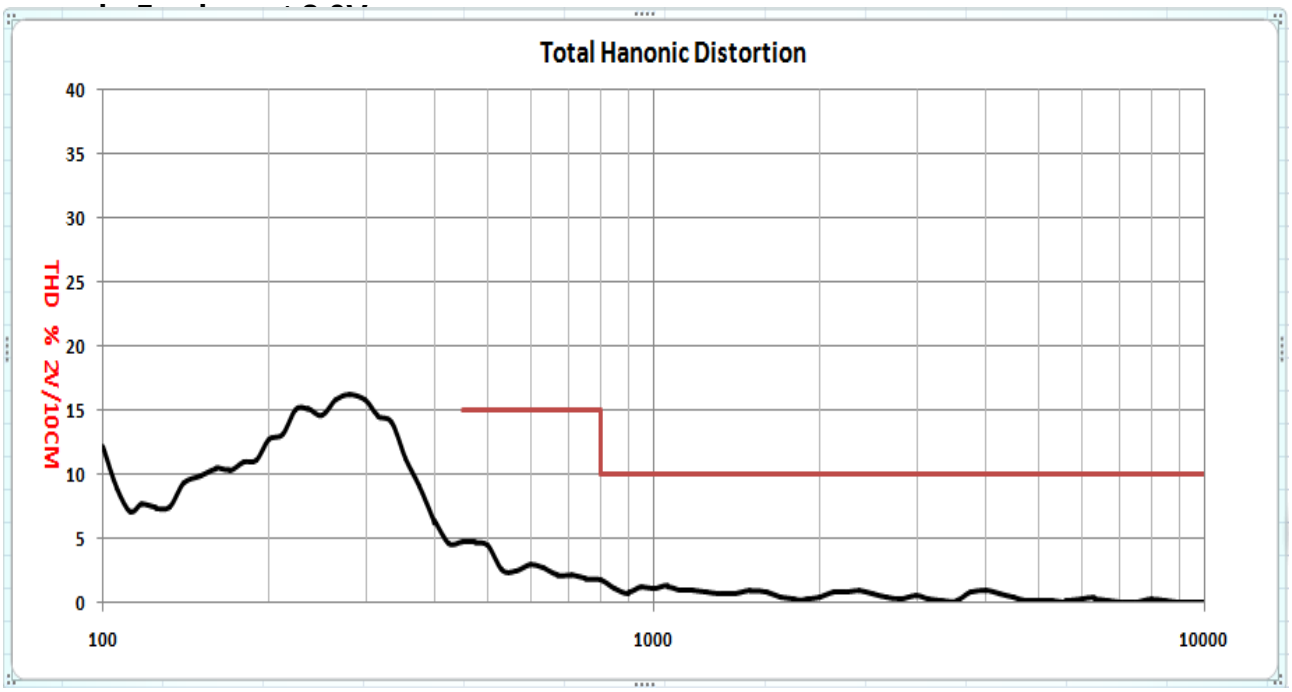


Figure 2 ,Typical THD Response

Frequency [Hz]	Limits [%]
500	15
800	10
1000	10
10000	10

Table2, Test Limit for THD

4.5 Rub & Buzz

A sine sweep among 100-5000Hz at 2.0Vrms will not result in any buzzing or extraneous sound(in 5cc box).

5.Polarity Requirements

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

6. Test Climatic Condition

Ambient temperature:15℃～35℃,preferably at 23℃

Relative humidity:25%～75%, preferably at 50%

Air pressure:86KPa～106KPa

7. Test Method

All data are measured at the test jig shown in Figure 3including a anechoic chamber with an IEC-Baffle, and the back of the loudspeaker is restricted to a 5ccm sealed back volume (not including the volume of the loudspeaker itself).

Measurement Microphone:

Measurements shall be conducted using a free-field-response microphone.

Measurement Distance and Orientation:

The acoustic tests are conducted at a distance of 10 cm from the loudspeaker. The measurement microphone shall be positioned on-axis with the loudspeaker. The test adapter is mounted on the baffle.

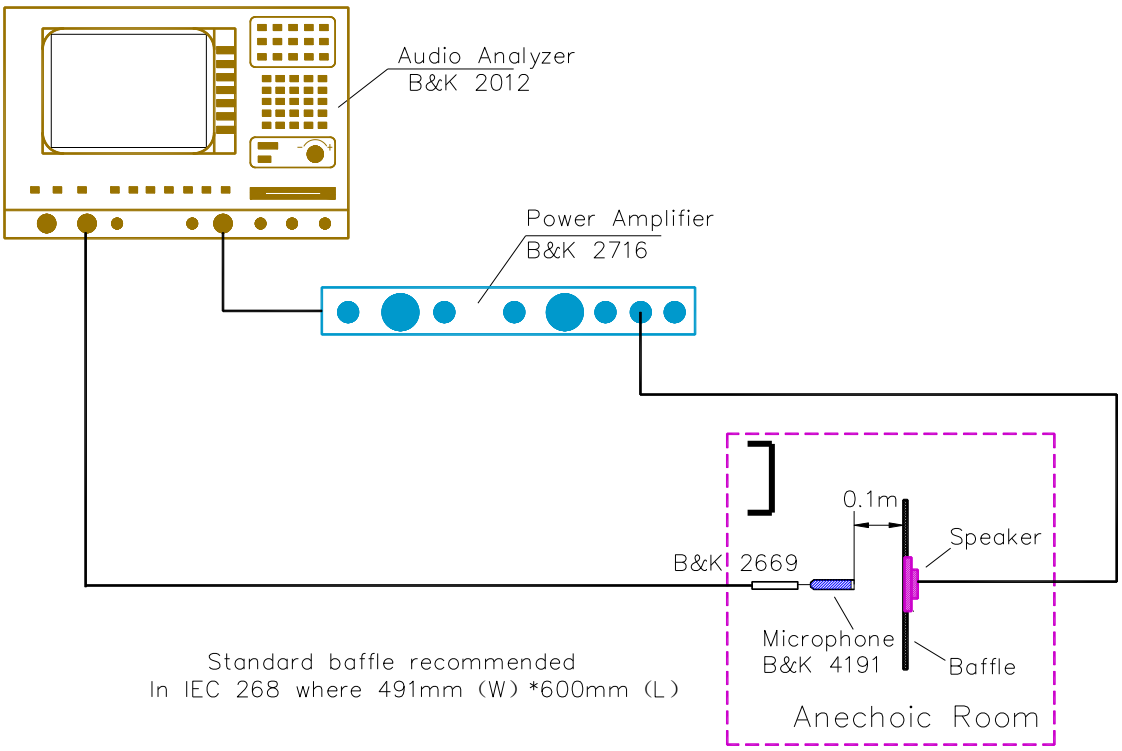


Figure 3 Speaker testing set up

8. General Requirements

8.1 Operation temperature range: -20℃ to +70℃

8.2 Storage temperature range: -40℃ to +85℃

9. General Reliability

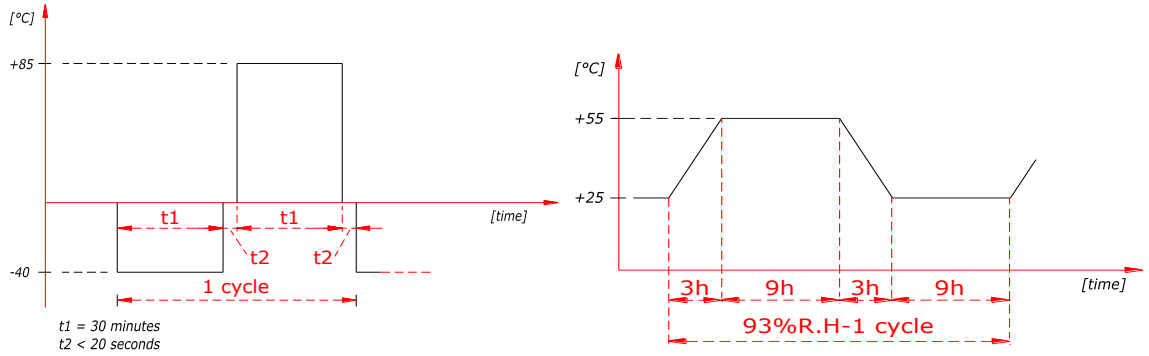
After test, the samples should be removed from testing chamber to lab environment with normal test climatic condition. Unless otherwise, the recovery period should be 2 hours at least before 2nd-measurement.

After reliability test, all samples must be meet the requirements specified in section 3 & 4. The sensitivity offset shall be ±3dB less than initial value.

9.1 Thermal shock

Testing condition as below：(transition <20s, total 10 cycles)

(Refer to IEC68-2-14)



9.2 Humidity heat cycle test

Testing condition as above：(total 6 cycles)

(Refer to IEC68-2-30)

9.3 Drop test

Speakers shall be assembled in a 100g fixture, drop samples 1.5m high, 3 times in each direction, total 18 times.

9.4 Operation life test(Speaker Phone Mode)

This test is conducted with the loudspeaker mounted in the test jig with 1cc back cavity. The test signal (according to IEC268-5,268-1) is a simulated program signal with crest factor of 2. The high-pass is 12dB/Oct. at 500Hz. Test signal shall be applied for 100 hours at normal ambient temperature. The Rated Noise Power shall be at least 1W without causing damage to the loudspeaker.

9.5 Short term max. Power (Speaker Phone Mode)

This test is conducted with the loudspeaker mounted in the test jig with 1cc back cavity. The test signal (according to IEC268-5,268-1) is a simulated program signal with crest factor of 2. The high-pass is 12dB/Oct. at 500Hz. The test signal in 1.5W level shall be applied at normal ambient temperature; the duration will be 1 second ON, 1min. OFF, 1 second ON, 1min. OFF, 1 second ON, 1min OFF….. The test shall be repeated 60 times.

10. Mechanical Layout and Dimensions

10.1 Mechanical layout for speaker(see Figure 4)

No.	Part Name	Materia	Qty.	Treatment	Remark
1	Frame	Plastic+ Steel	1		
2	Front cover	Copper	1		
3	Diaphragm	Polymer	1		
4	Magnet	Nd-Fe-B	1		
5	Inner pole plate	Steel	1		
6	Outer pole shoe	Steel	1		
7	Voice coil	Copper	1		
8	Leaf spring pad	Steel	2		

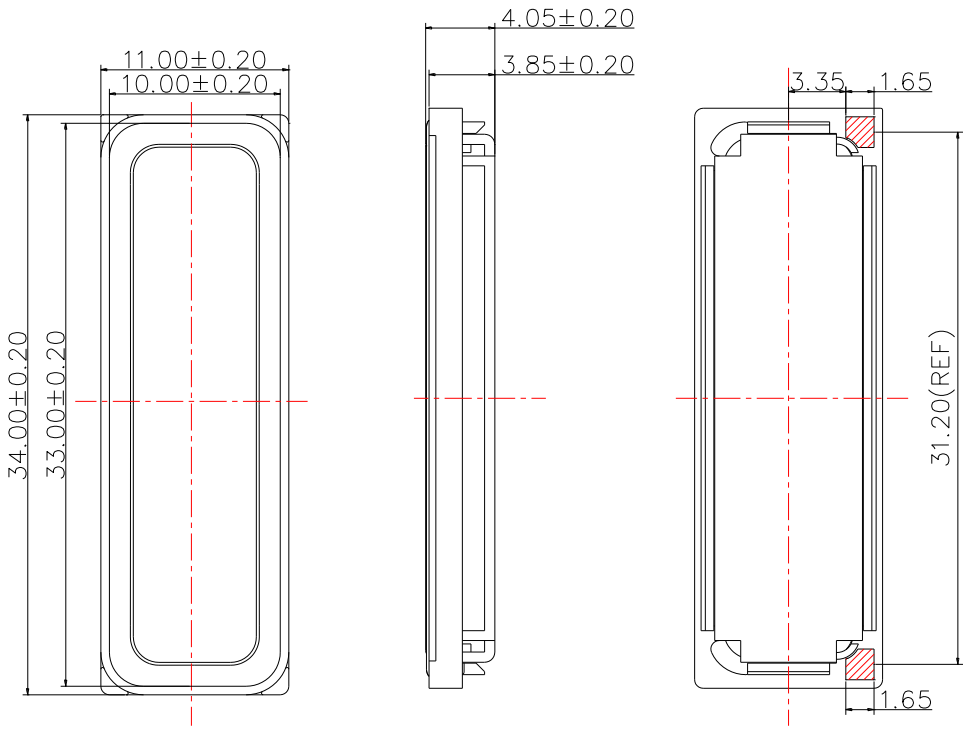


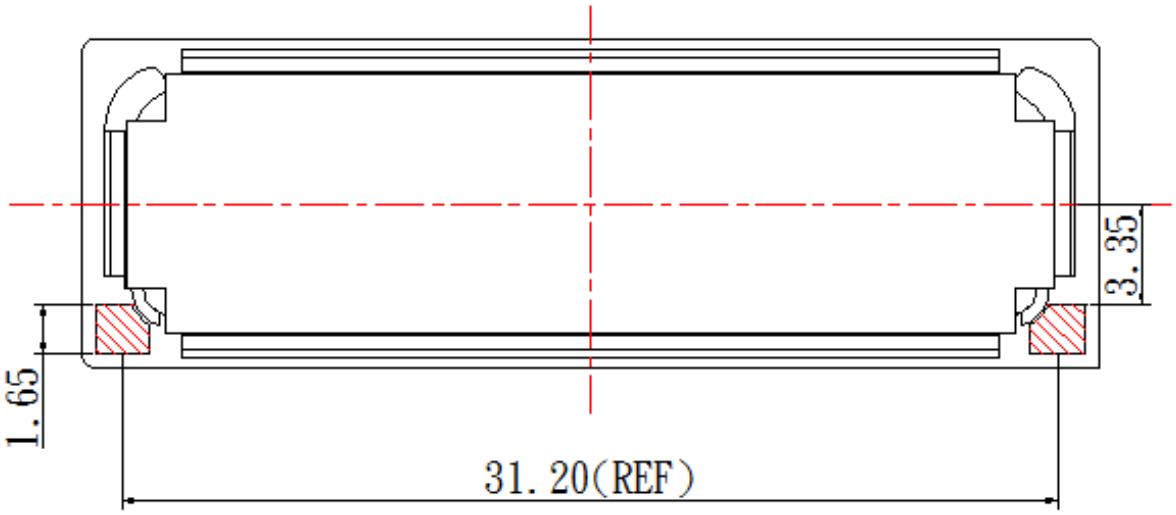
Figure4, Speaker layout profile

Note:

1、General unless otherwise noted : ±0.2mm

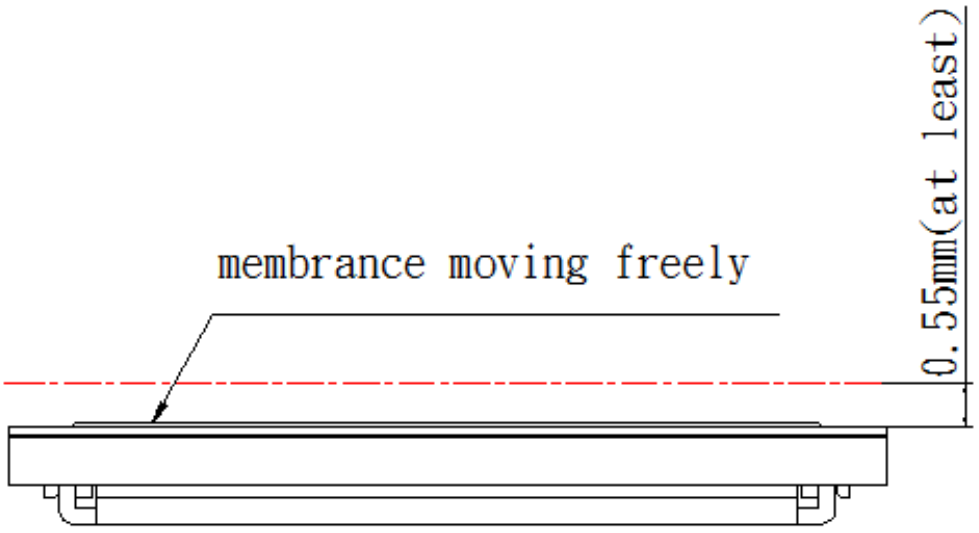
2、The minimum force of each spring shouldn't be smaller than 0.3N under working height.

10.2 Recommendation pad



10.3 Mounting precaution

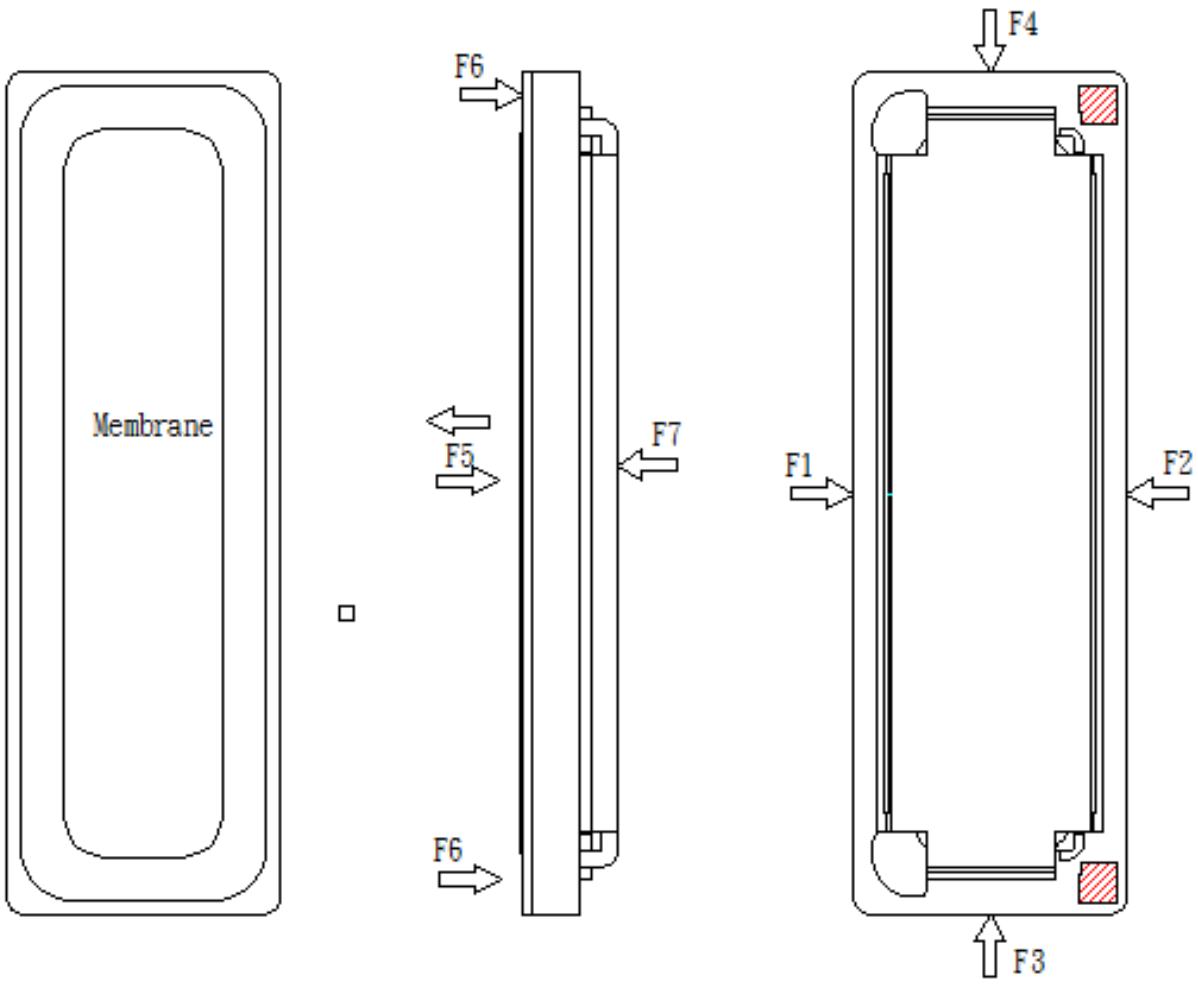
Keep clearance in front of the speaker, at least leave 0.55mm for membrane moving freely.



10.4Permitted force to Speaker

Max. allowable compression force

No.	from	to	Max. force	Remark
1	F1	F2	10N	Side force on frame
2	F3	F4	10N	Side force on frame
3	F5		0N	Push/Pull force Membrane
4	F7	F6	10N	Push force yoke



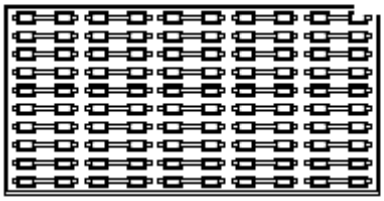
11. Weight

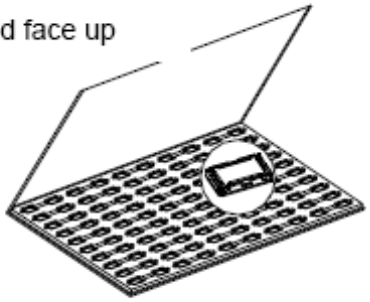
TBD±0.3g

12. Package

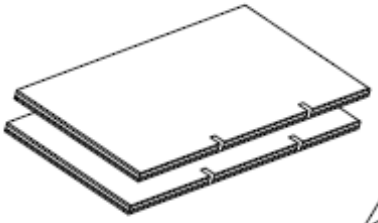
Product
Pad face up

Sponge packing
100 pcs per tray
100×10=1000 pcs

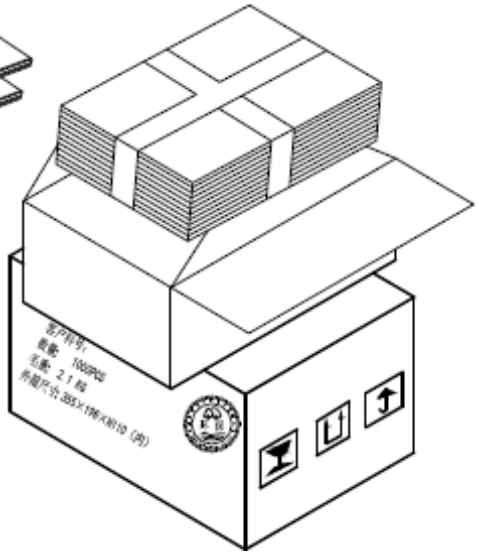




Carton
1000 pcs per carton
1000×2=2000pcs



Box
2 cartons per box
Total:1000×2=2000pcs per box
Box size:(L×W×H)
cm:35.5×19×11



13. Application Notes

TBD