Dynamic loudspeaker
15×11×2.5 mm

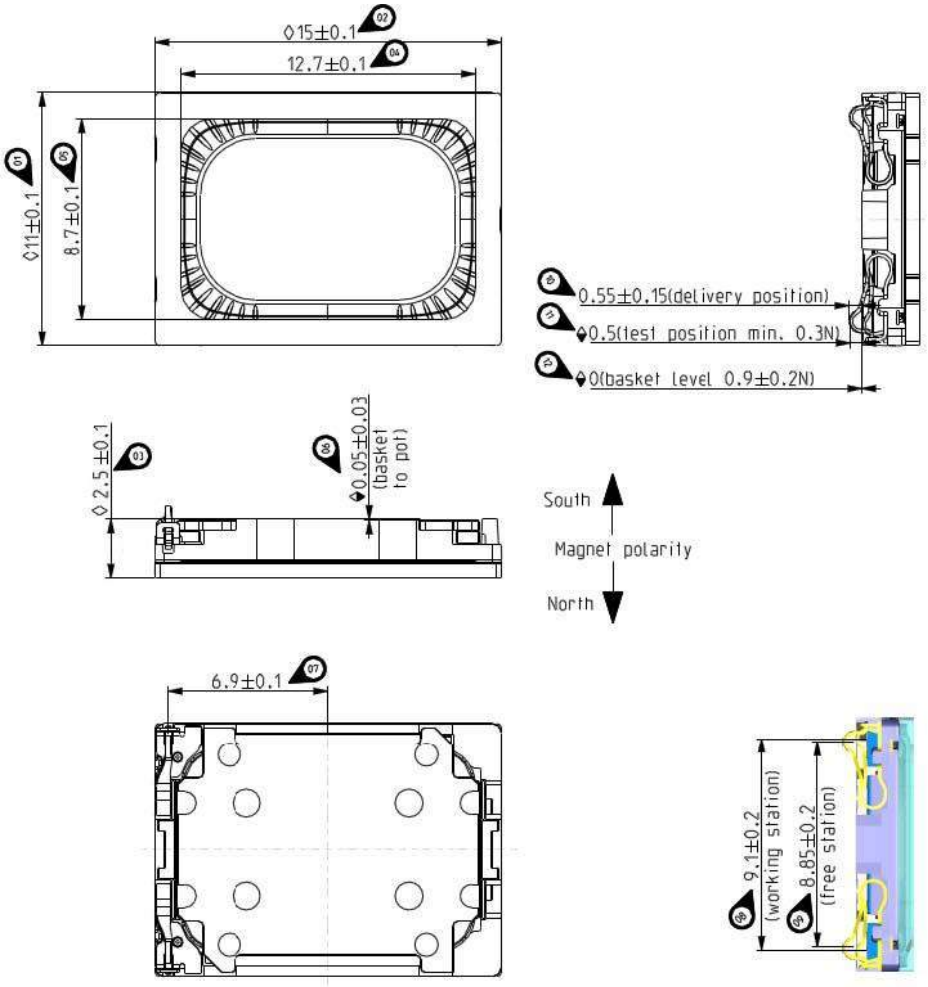
BR1511L025YN8

Revision

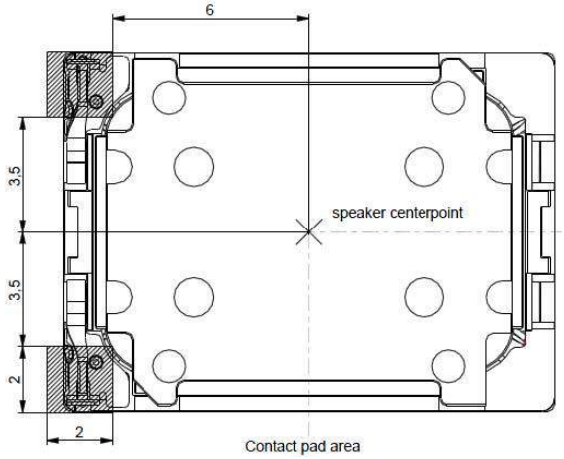
Date	Version	Status	Changes	Approver
2018/12/19	V0.1	Draft	First release	AX

1. Mechanical Characteristics

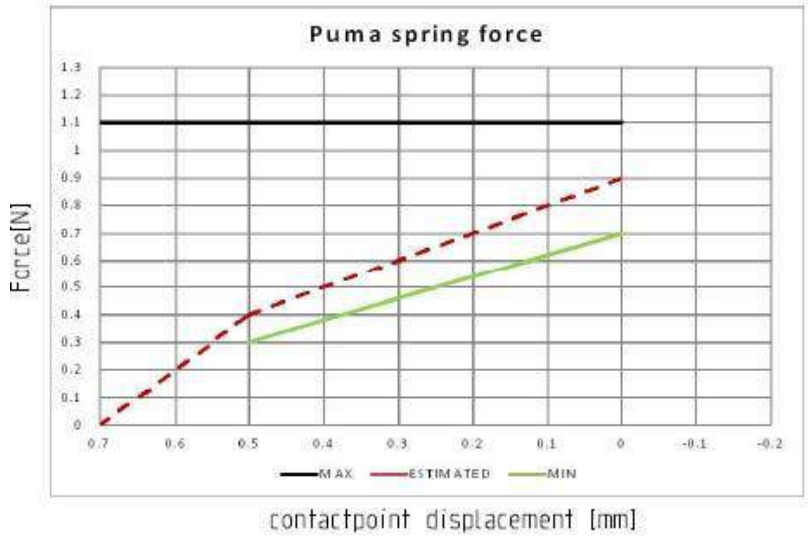
1.1. Mechanical Drawing



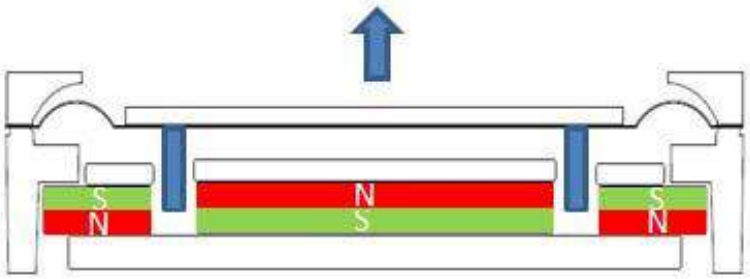
1.2. PWB Layout

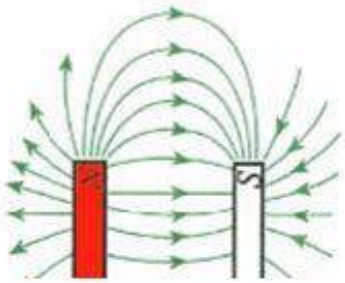


1.3. Spring force

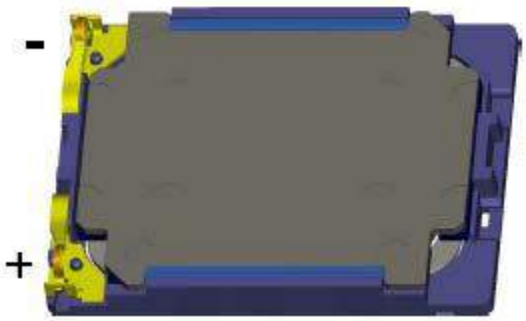


1.4. Magnetic polarity



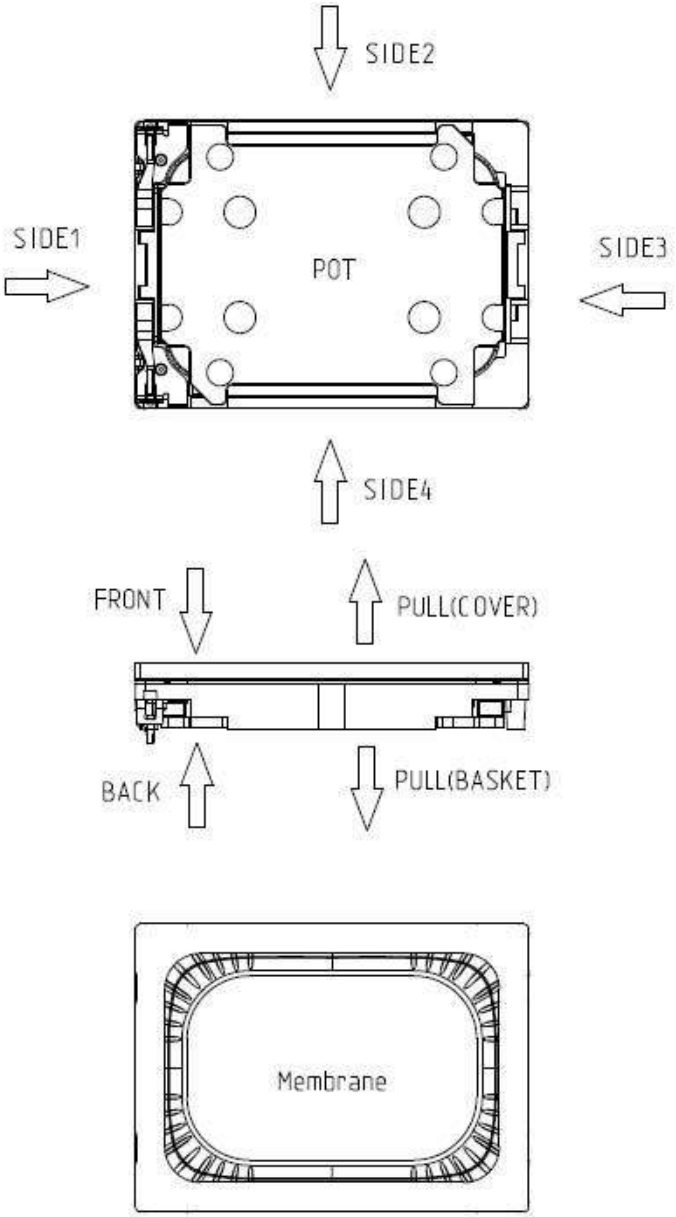


Positive voltage on pin +
Moves the membrane in direction of arrow



1.5. Force Layout

STATICAL FORCES ON DIFFERENT STATES OF COMPONENT			
STATE	MIN. SURFACE OF PRESSURE [mm_2]	MAX. PERMANENT FORCE [N]	MAX. HANDLING FORCE [N]
FROM FRONT TO BACK	-	15	20
FROM SIDE 1 TO SIDE 3	3	10	15
FROM SIDE 2 TO SIDE4	10	10	15
TO POT	-	10	15
TO MEMBRANE	-	0	0
PULL FORCE OF YOKE	-	10	15
PULL OFF FORCE	-	10	15



1.6. Material List

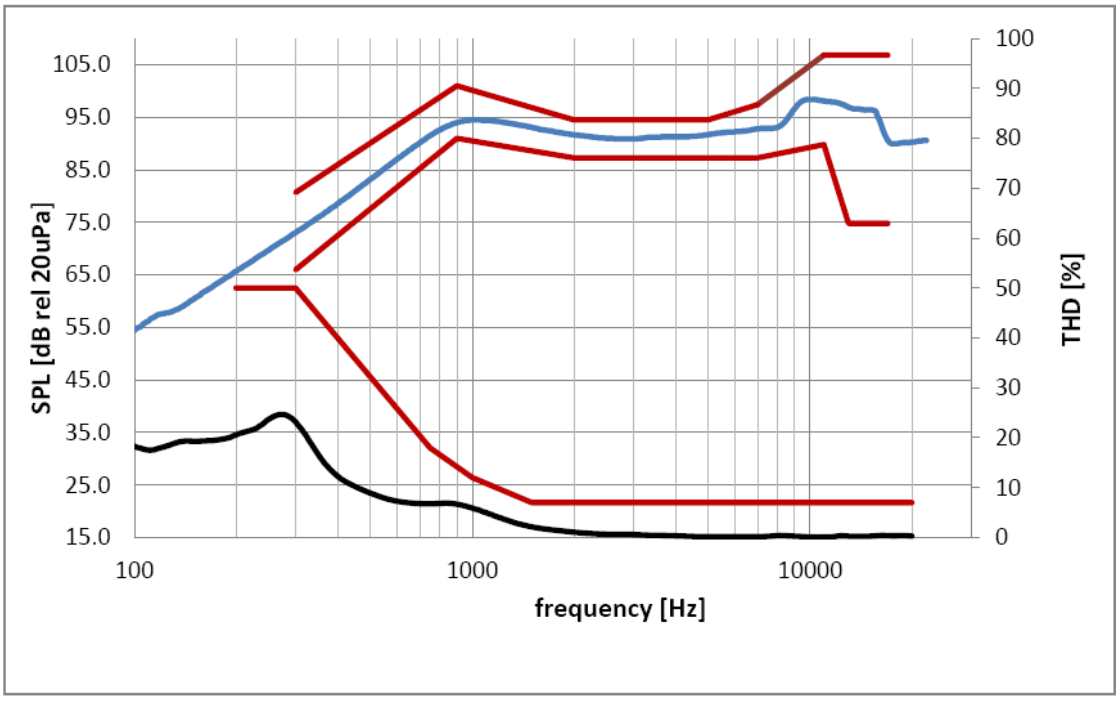
1） MATERIAL of BASKET: Polycarbonate and steel
2） MATERIAL of MEMBRANE: Compound Foil
3） MATERIAL of POT: soft magnetic Iron
4） MATERIAL of MAGNET: Nd Fe B
5） MATERIAL of CONTACT CrNi-Steel, gold plated
6） MATERIAL of COVER: Polycarbonate
7） DIMENSION: 11x15x2.5mm
8） MASS: 1.4g

2. Electro-Acoustic Characteristics

2.1. Frequency Response

Typical frequency response measured on baffle according to chapter 2.4

(distance d=1cm, calculated to 10cm,P=800mW,1ccm)



SPL limit:				THD limit	
FRES(Hz)	Min(dB)	FRES(Hz)	Max(dB)	FRES(Hz)	THD(%)
300	66	300	80.7	200	50
900	91	900	101	300	50
2000	87.3	2000	94.5	750	18
7000	87.3	5000	94.5	1000	12
11000	89.8	7000	97.4	1500	7
13000	74.8	11000	106.8	20000	7
17000	74.8	17000	106.8		

2.2. Electro-acoustic Parameters

Loudspeaker mounted in 1cm³ measurement adapter acc. to 2.4

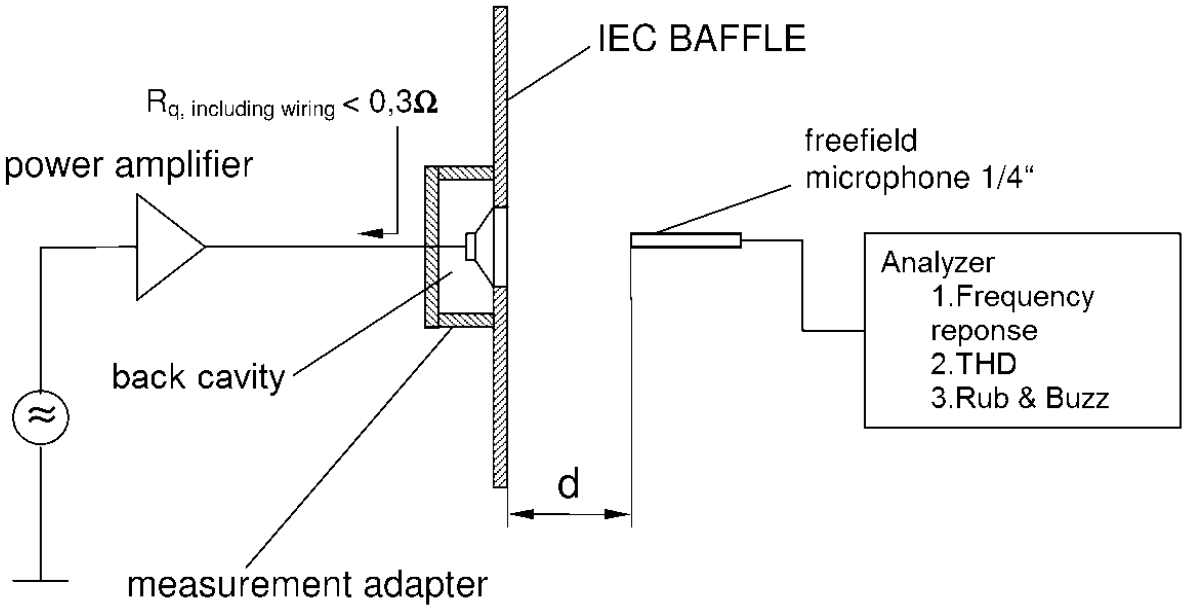
1. Rated impedance	Z:	8Ω
2. Voice coil resistance	R:	6.9Ω ± 10 %
3. Resonance frequency	F_0:	850Hz ± 10 %
4. Maximum linear excursion(peak to peak)	Xmax :	0.6mm
5. Characteristic sensitivity (@1W,1m)		
SPL at 2kHz		74±2dB
6. Measured characteristic sensitivity (at 0.7W in 3.16cm)		100 ± 3dB
1cc back cavity at the frequency range:		2k~5kHz
7. THD according to chapter 2.1		
8. Rub & buzz		no audible R&B at 800mW
9.Power handling		800mW
All acoustic measurements at 23±2°C		
10. Typical resonance frequency without back volume	F0	520Hz

2.3. Power Handling

Loudspeaker mounted in Lifetime test device (closed Box 1ccm, open front)
Signal IEC268-1 with high-pass 12dB/Oct. at 800Hz, crest factor 2, used for all operating lifetime tests

1. MAX.SHORT TERM POWER (1sec. ON / 60sec. OFF,60cyles) Ambient temperature 70°C	1200mW
2. MAX. CONTINUOUS POWER (1sec. ON / 2min. OFF,10cyles) Ambient temperature 70°C	1000mW
3. Max. noise power (PHC continuous) 500h Ambient temperature 70°C	800mW

2.4. Measurement Setup(Acoustics)



2.5. Measured Parameters

2.5.1. Sensitivity

SPL is expressed in dB ref 20μPa, computed according to IEC 268-5

Measurement set up according to chapter 2.4

This test is performed for 100% of products in the production line

2.5.2. Frequency Response

Frequency response is measured according to test set up in chapter 2.4 and checked against the tolerance window defined in chapter 2.1. This Test is performed for 100% of products in the production line.

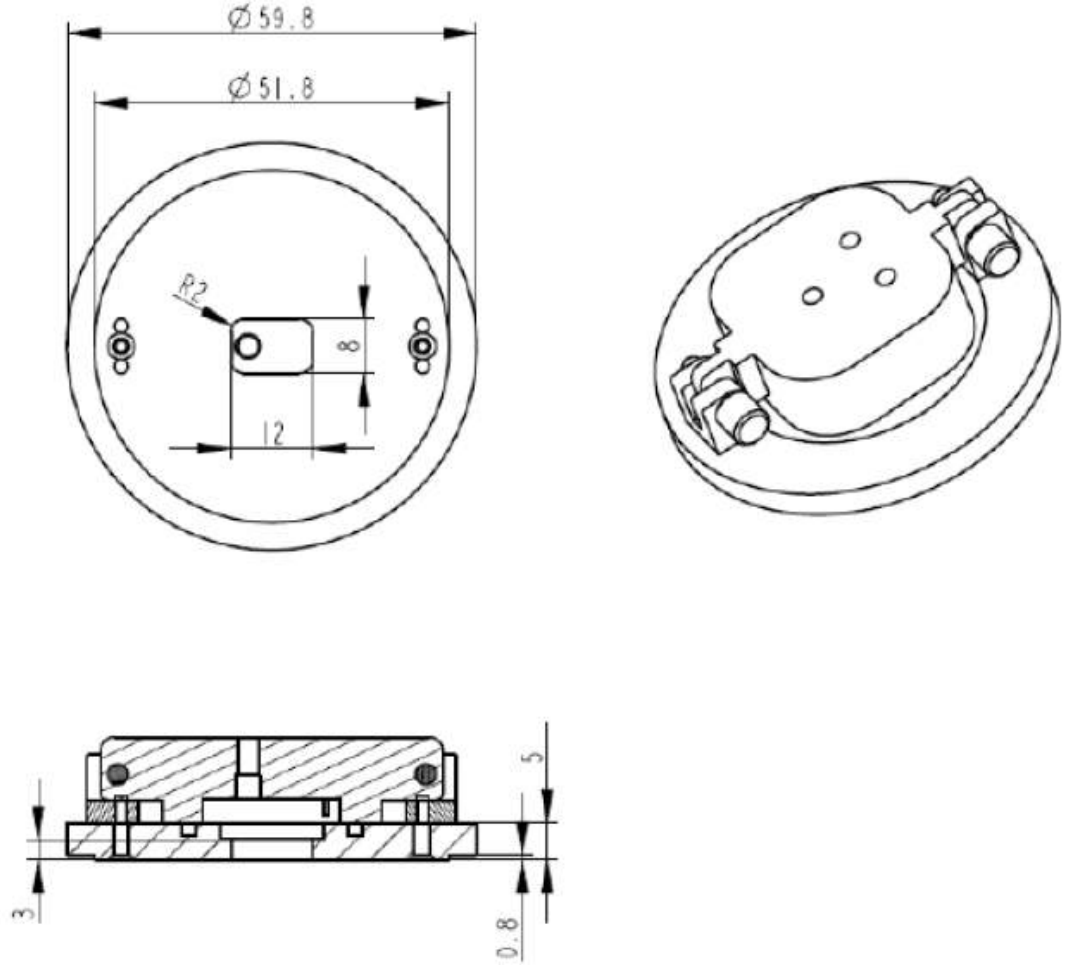
2.5.3. Total Harmonic Distortion (THD)

Total harmonic distortion (THD) is measured according to IEC 268-5 (2nd to 5th harmonics) and test set up in chapter 2.4 and checked against the tolerance window defined in chapter 2.1. This test is performed for 100% of products in the production line.

2.5.4. Rub& Buzz

300-5000Hz at 2.53Vrms with 1cc back cavity will not result in any buzzing or extraneous sound.

2.6. Measurement Adapter



3. Environmental Tests

20pcs fresh samples for each environmental test.
Immediately after reliability test, samples should be stored under climatic conditions such as normally exist in ordinary rooms. Unless otherwise noted, the recovery period should be 2 hours at least before performance test.
All samples after environmental test should meet the requirements specified in chapter 2.1 and 2.2.

3.1. Low Temperature Storage Test

Ref. EN 60068-2-1, -40 ±2°C, duration 168h, 2 hours recovery time.

3.2. High Temperature Storage Test

Ref. EN 60068-2-2, +85±2°C, duration 168h, 2 hours recovery time.

3.3. Long Term Operation Test

Ref. IEC60068-2-2. 168h. 1cc box Signal according to part 2 in chapter 2.3.

3.4. Short Term Maximum Power Test

60 cycles. 1cc box Signal according to part 1 in Chapter 2.3.

3.5. Rated Sweep Power Test

+23°C, 1cc box, test duration12h. signal is according to part 3 in Chapter 2.3.

4. Related Documents

Refer to general terms.

5. Legal Information

Refer to general terms.