



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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MODEL: SP-2309
PRODUCT: Dynamic Speaker
EDITION: B/2017

THIS SPECIFICATION COVERS OUR PRODUCT OF DYNAMIC SPEAKER

SPEAKER ELECTROACOUSTIC CHARACTERISTICS

sound pressure level	85dB(1.0W/0.1M) ±3dB @AVE 1.0 KHz, 1.2 KHz, 1.5KHz, 2.0 KHz
frequency response curve	As shown in Fig.3
resonance frequency (F0)	1500 ±20%Hz
rated noise power	0.1W
short-term max. power	0.15W
frequency range	F0 ~ 20KHz.
distortion	Less than 5% @ 1 KHz, input rated power
buzz, rattle, etc.	Not audible at 0.89V Sine wave between F0 ~ 20 KHz
test setup	Measuring conditions and procedures shown in Fig 1 & Fig 2
AC impedance	8Ω ±15%
magnet	Rare earth permanent (NdFeB) magnet φ6.4x1.5mm
polarity	When positive voltage is applied to the terminal marked (+), diaphragm should be moved to the front.
dimension	ø 23.0 x 8.5 mm
weight	3.2g

GENERAL REQUIREMENTS

operating temperature range	-20°C ~ +60°C
storage temperature range	-30°C ~ +70°C
standard test conditions	
temperature	5°C ~ 35°C
relative humidity	45% ~ 85%(RH)
air pressure	860 mbar ~ 1060 mbar



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RELIABILITY TESTS

After these tests , the change of S.P.L will be within $\pm 3\text{dB}$

HIGH TEMPERATURE TEST

high temperature	$+85^{\circ}\text{C}\pm 3^{\circ}\text{C}$
duration	96 hours (leave 3 hours in normal temperature and then check)

LOW TEMPERATURE TEST

low temperature	$-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ (leave 3 hours in normal temperature and then check)
duration	96 hours

HUMIDITY TEST

temperature	$+40^{\circ}\text{C}\pm 3^{\circ}\text{C}$
relative humidity	92%~95%
duration	96 hours

VIBRATION

10Hz ~55Hz ~10Hz sine-wave sweep 15 minutes 5G(constant)	
X, Y, Z	3 directions, 2 hours each, total 6 hours

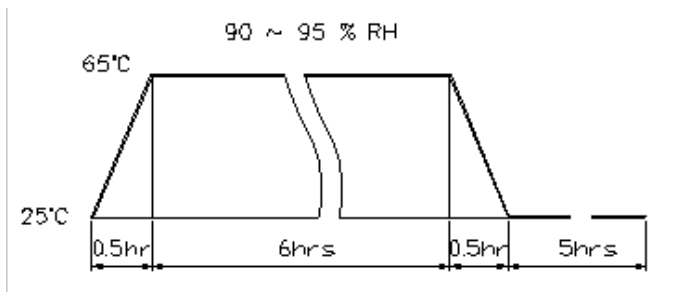
THERMAL CYCLE TEST

The part will be subjected to 5 cycles. One cycle shall be 12 hours and consist of:

low temperature: $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$

high temperature: $+85^{\circ}\text{C}\pm 3^{\circ}\text{C}$

cycle: one hour/cycle each and then keep 5 cycle in a room temperature



FIX DROP TEST

Fix on jig then drop from 152cm height to the concrete floor

X, Y, Z	6 directions 5 times each, total 30 times
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FREE DROP TEST

Free drop from 100cm height to the concrete floor

X, Y, Z	6 directions, 1 time each, total 6 times
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LOAD TEST

Rated Power White noise is applied for 96 hours

TERMINAL STRENGTH TEST

Capable of withstanding 1kg load for 30 seconds without resulting in any damage or rejection

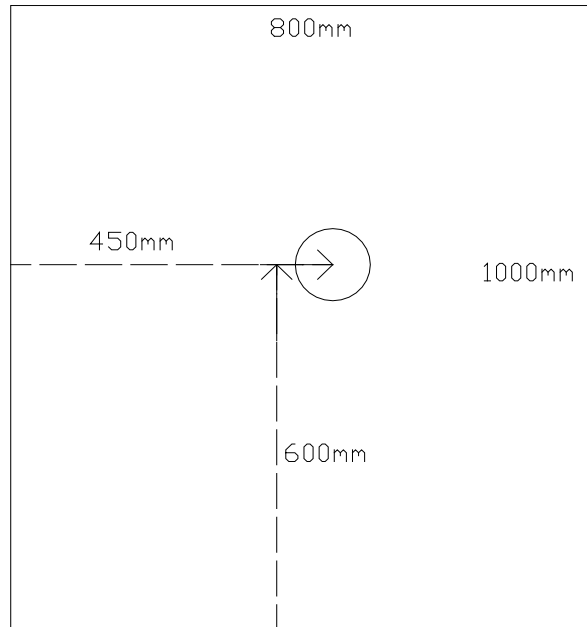
MAX POWER TEST

Max power 1 minute on - 2 minutes off for 10 cycles



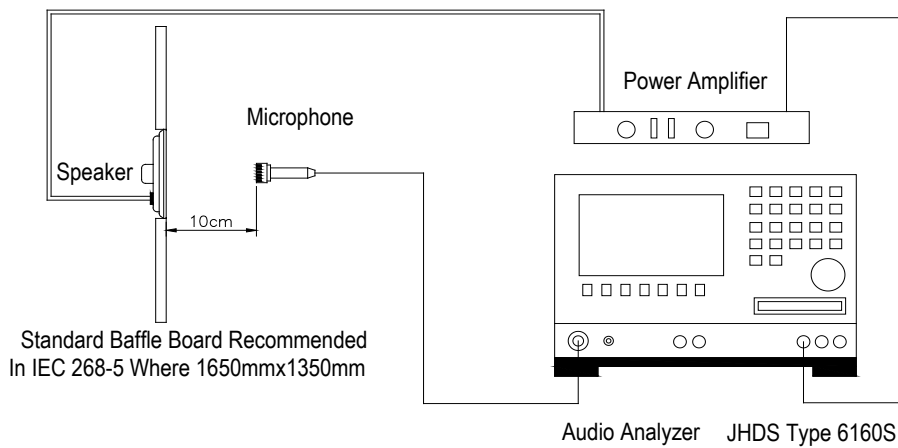
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MEASURING METHOD (SPEAKER MODE) (Fig 1)



BLOCK DIAGRAM FOR MEASUREMENT METHOD (Fig. 2)

Standard test condition of speaker

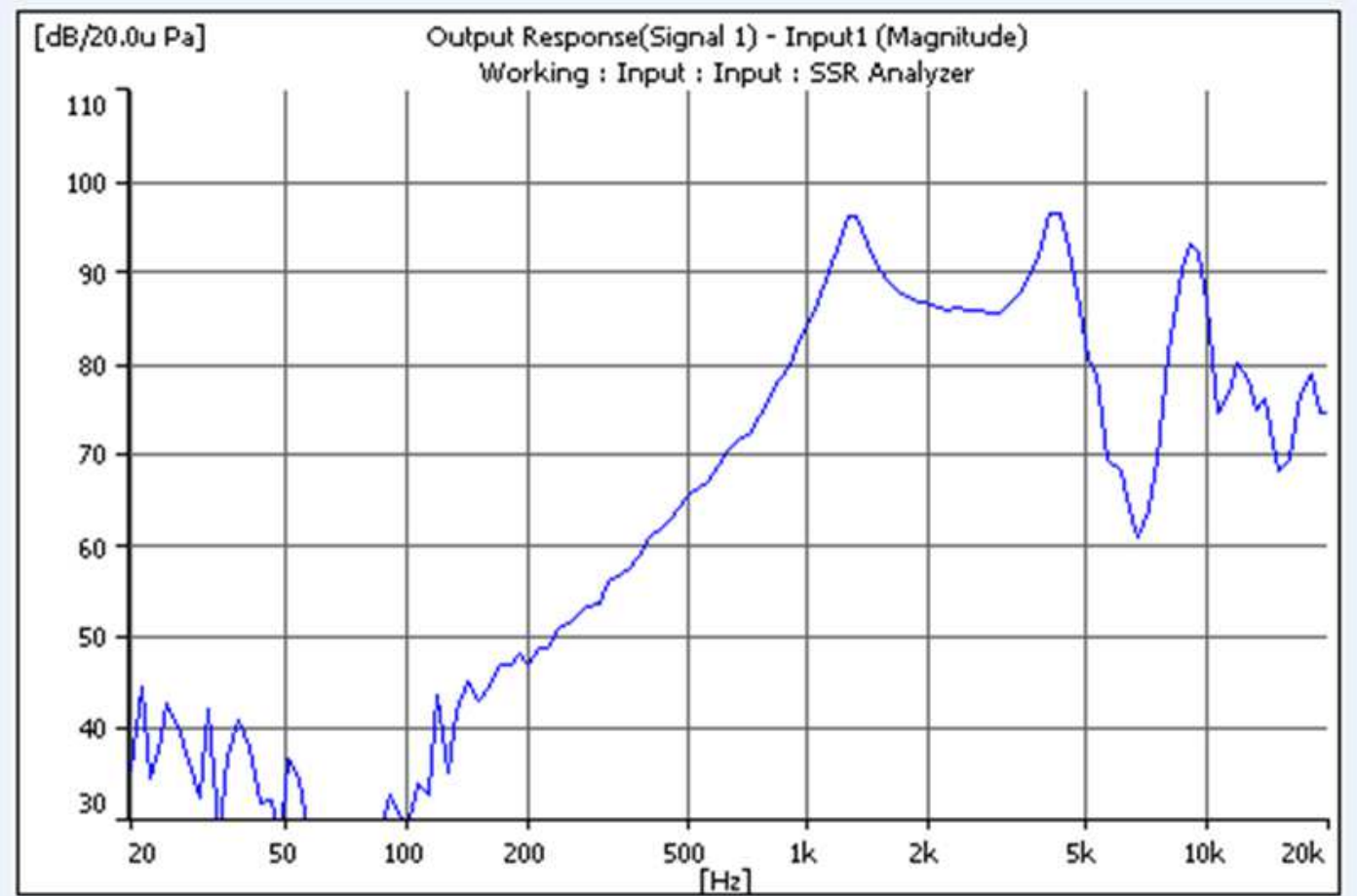




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FREQUENCY RESPONSE CURVE (Fig. 3)

The swept sine-wave frequency response of a Loud speaker should ideally not deviate more than indicated per Fig. 3



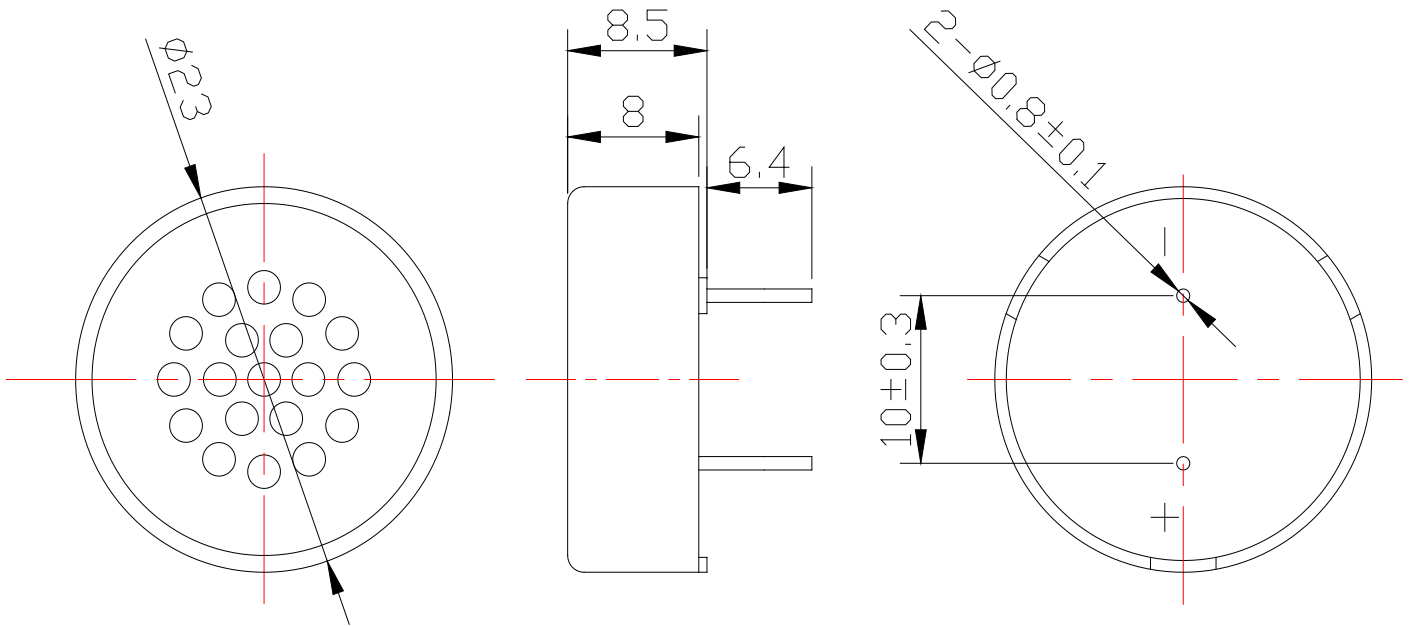


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DIMENSIONS

Tolerance: ± 0.5 unit: mm



no	item	quantity	material
1	Frame	1	ABS
2	PCB Terminal	1	FR4
3	Magnet	1	NdFeB
4	Plate	1	SPCC
5	Voice Coil	1	Cu
6	Diaphragm	1	PEN
7	Case	1	ABS777D



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PACKING

