SPECIFICATION

Customer : QUARTZ-1

Applied To :

Product Name : SPEAKER BOX

Model Name : KPB-4001-4360

Drawing No. : KFC4360

Signature of Appronal

Signature of KEPO

Approved by	Checkde by	Issued by	Date

ISO9001 Certificate

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1. Scope

This specification is applied to the dynamic speaker which is used all of the electrical acoustic product.
-- compact, rich sound
-- applications: mobile phone, PDA, notebook computer, etc. ..

2. General

2.1 Out-Diameter : 40 mm

2.2 Height : 14 mm

2.3 Weight : 23.5 g

2.4 Operating Temperature range:

-30~+63℃ without loss of function

2.5 Store Temperature range:

-40~+85℃ without loss of function

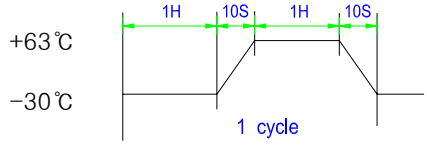
3. Electrical and Acoustic Characteristics.

Test condition : 15 ~ 35 ℃, 25% ~ 95% RH, 860~1060 mbar

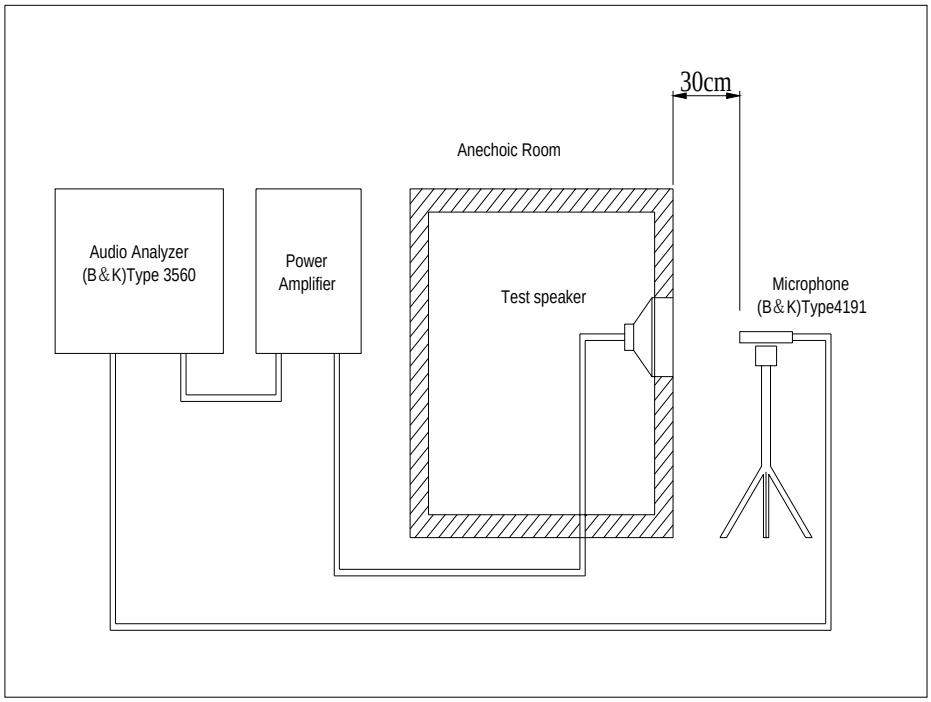
No	Items	Specification
1	Impedance	64 Ω ± 15% (1Vrms at 1KHz)
2	Sound Pressure Level	92 dB ± 3dB (0.25w / 0.3m Avg. at 1.5k,1.8k,2.0k,2.5kHz)
3	Resonance Frequency	1500 Hz ± 20%
4	Frequency Range	f0 ~4.5KHz
5	Input Power	Rated 0.25 W / Max. 0.5 W (White noise for 30 minute)
6	Distortion	5% Max. at 2kHz/4Vrms
7	Buss and Rattle	Should not be audible buzzes,rattles when the 4V sine wave signal swept at frequency range.
8	Polarity	When supplied plus D.C. voltage to (+) terminal, the cone diaphragm must move to forward.

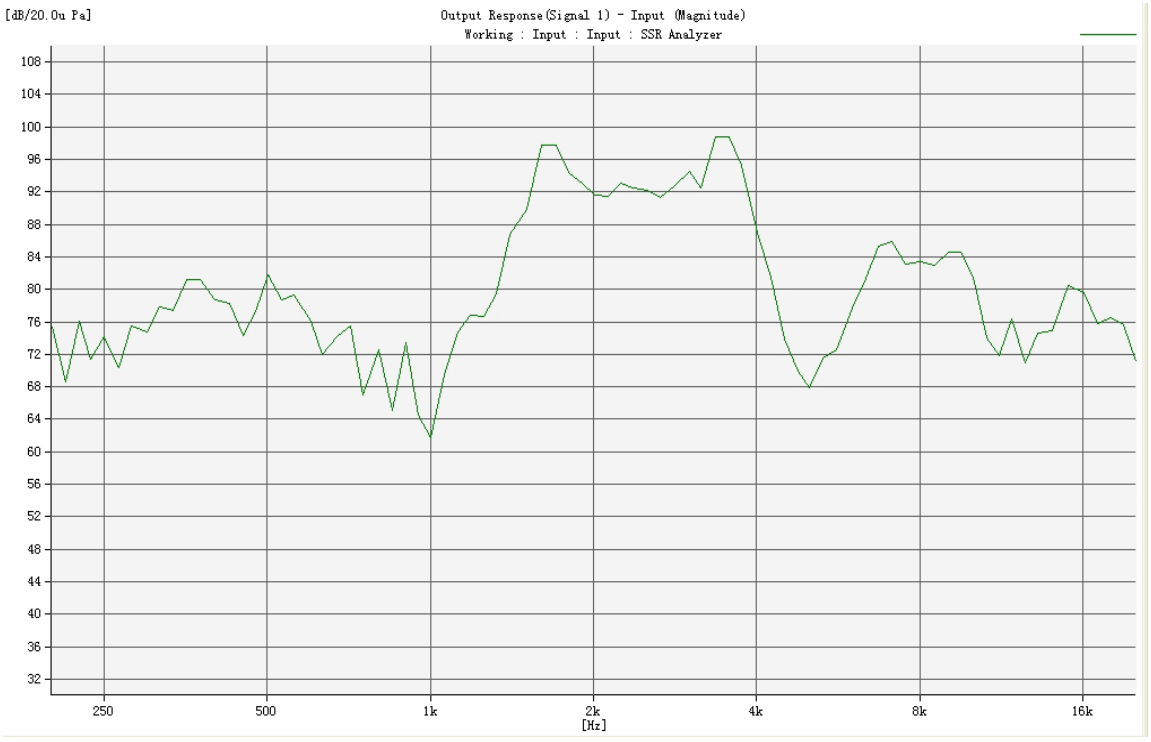
4. Reliability Test

After test(1~7item), the speaker S.P.L . difference shall be within ±3dB, and the appearance not exist any change to be harmful to normal operation (e.g. cracks,rusts,damages and especially distortion).

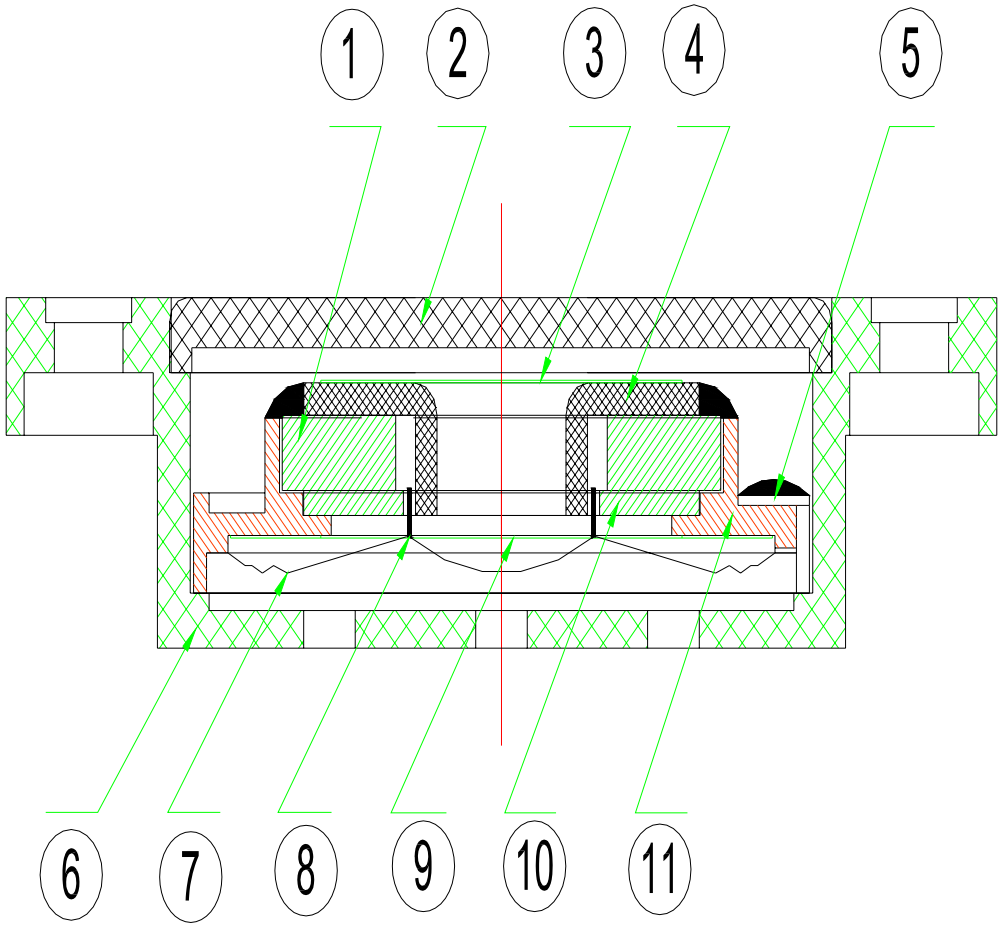
No	Items	Specification
1	High Temperature Test	After being placed in a chamber with +85±3 ℃ for 96 hours and then being placed in n condition for 1 hour, speaker shall be measured.
2	Low Temperature Test	After being placed in a chamber with −40±3 ℃ for 96 hours and then being placed in n condition for 1 hour, speaker shall be measured.
3	Humidity Test	After being placed in a chamber with 95%R.H. at +63±3 ℃ for 96 hours and then being placed in natural condition for 1 hour, speaker shall be measured.
4	ON/OFF Operation Endurance Test	Applying power 0.25W(20Hz~20kHz, sine wave frequency scan signal, scan speed 8ms), carry out operation patterns for 250 hours on/off operation, every on/off circle taks 4 second, 2s on and 2s off.
5	Thermal Shock Test	After being placed in a chamber at +63℃ for 1 hour, then speaker shall be pl in a chamber at −30℃ for 1 hour(1 cycle is the below diagram). After 4 above cycles, speaker shall be measured after being placed in natural condition for 10 Sec.. 
6	Vibration Test	Put the sampels in test equipment, vibrate at speed 4.4G(43.1m/s2) , vibration of amplitude 1.5mm ,33 Hz in X Y Z directions for 4 hours. speaker shall be measured.
7	Drop Test	The speaker when mounted in the jig which weight 85g~100g, shall with stand 15 times random drops from a height of 1.5 meter to a concrete floor faced with 5mm thick hard wood board.and be nothing mechanical damage.
8	Load test	After being applied loading white noise with input power 0.25W(4Vrms.) for 96 hours, then placed in natural condition for 1 hour, speaker shall be measured.
9	Insulation test	When they are measured with DC 100V the insulation resistance between v.c. terminal and frame must be more than 1 MΩ
10	High temperature operation Endurance Test	Apply power 0.5W(20Hz~20kHz, sine wave frequency scan signal, scan speed 8ms), temperature 65±3℃, carry out operation patterns f 48 hours.
11	Low temperature operation Endurance Test	Apply power 0.5W(20Hz~20kHz, sine wave frequency scan signal, scan speed 8ms), temperature −30±3℃, carry out operation patterns 48 hours.

5. Measurement Block Diagram & Response curve



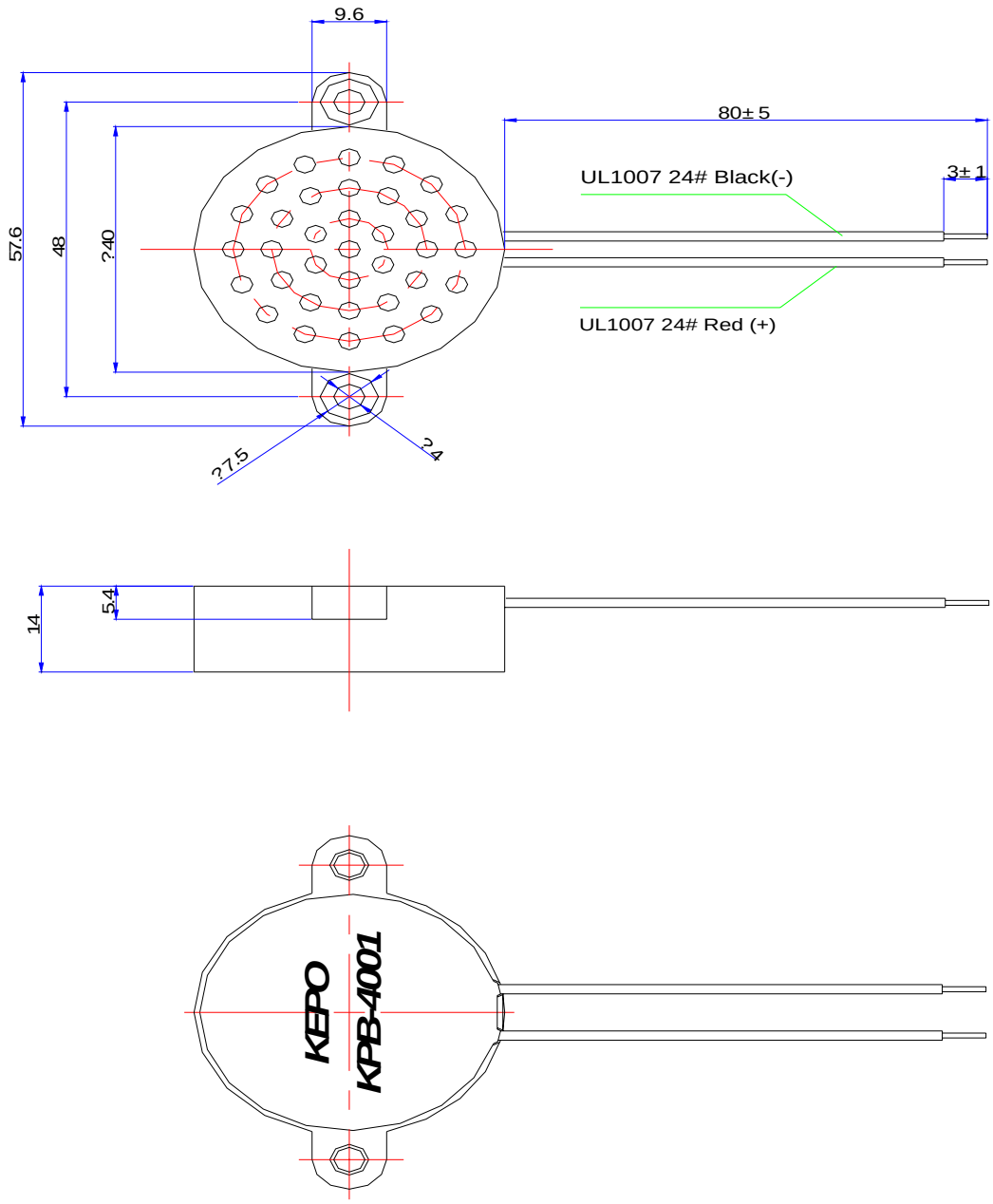


6. Structure



No.	Part Name	Q'ty	Material	Remarks
11	Frame		PBT	
10	Plate	1	SPC	
9	Screen2	1	2B	
8	Voice Coil	1	Copper	
7	Diaphragm	1	Pet	
6	BOX-773 frontCover	1	PC	
5	Terminal	1	Epoxy PCB	
4	Yoke	1	SPC	
3	Screen1	1	2B	
2	BOX-774 rearCover	1	PC	
1	Magnet	1	Y30	

7. Dimensions



FIRST ANGLE PROJECTION

UNIT : mm

Tolerance : ±0.2

8. Packing

Each minimum package unit of products shall be in a carton box and it shall be clearly marked with Part Number, quantity and outgoing inspection number.

There shall be no mechanical damage on products during transportation and/or in storage.

9. Revision

Rev. No.	DATE	PAGE	DESCRIPTION	BOM
1.0	2008-11-14		Primary	