

N&H Technology GmbH

# Approval Sheet

**Model Number: SGBD-N25IE090008**

Reference Number: 5-001

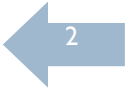
27.08.2015



N&H Technology GmbH

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47877 Willich



## 1. Purpose and the scope

This document contains the specific specifications (electrical and mechanical), inspection standard and the reliability standard for the purpose of the customer's approval.

## 2. Description

Note Book Speaker.

## 3. Applications

Feature Telephone, Cordless Phone, Computer, Instrument etc.

## 4. Product origin

In China

## 5. Test conditions

Test should be made under the conditions of room temperature ( $20 \pm 10^\circ \text{C}$ ) normal humidity ( $60 \pm 20\%$ ) and normal atmospheric pressure. In the case, however, that the judgment is questionable the test conditions are to be changed to room temperature  $20 \pm 2^\circ \text{C}$ , relative humidity  $60 \sim 70\%$  and normal atmospheric pressure..

## 6. Ozone guarantee

Certificate on the elimination of ozone layer destroying substances such as Freon.

## 7. Quality protection

The specifications of the mentioned model are based on this document. Other specifications outside than this document must be discussed with us before we insert into this approval document. It means that we will not guarantee the specifications outside than this approval document.

## 8. Warrant

The warranty period will commence upon the date of the receipt of the parts. In the event that the warranty is not specified on the purchasing order, the warranty period shall be half year from the date of delivery.

## 9. Soldering conditions

The speaker should not be exposed to extremely high temperatures for prolonged period of time. As excessive heat will degrade the internal structure of the unit, soldering should be conducted as quickly as possible.

Recommended temperature and time for soldering:

Hand soldering ( for ABS, Hi-Temp ABS, FR ABS, Nylon )

$300^\circ \text{C}$  Thermal iron 2 seconds

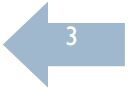
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## 10. Washing conditions

The products mentioned with “remove after washing “ could be washed by our recommended solvent.



## 11. Flux removing solvents

In the view of the recent requirement for total elimination of ozone-depleting chemicals, we have decided to recommend our customers to use deionized water for their cleaning process at the condition given below, instead of “CFC” that was conventionally used.

Cleaning solvent : deionized water

Solvent temperature : 55 ± 5 ° C

Immersion time : 5 ± 0.5 minutes

## 12. Signal input polarity

When a positive dc voltage is applied to the terminal marked (+) or red the diaphragm should move to the front..

## 13. Operation test

Must be normal at program source same as the power rating.

## 14. Operation test

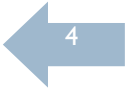
Items	Specifications	Conditions
Size	25.0 x 9.0 x 3.0 ( mm )	
Normal Power Rating	1.0 W (In 1.0cc Box)	
Maximum Power Rating	1.5 W (In 1.0cc Box)	
Impedance	8.0 Ω	± 15 % at 1000Hz / 1.0 V
Resonant Frequency ( <i>f<sub>0</sub></i> )	900.0 Hz	± 20 % at 1.0 V
Sound Pressure Level	89.0 dB	± 3.0 dB / 2.0V power / measuring distance at 3000Hz / 1.0cc Box
Measuring Distance	10.0 cm	
Frequency Range	<i>f<sub>0</sub></i> ~ 10.0 KHz	
Distortion	10.0 % Max	At 1000 Hz 1.0W
Housing Material	PPA	
Diaphragm Material	Peek	
Weight	1.5 g	
Operating Temperature	- 30.0 ~ + 60.0 ° C	
Storage Temperature	- 40.0 ~ + 85.0 ° C	
Buzzing and Rattles	2.83 V	Must be normal at this sine wave between

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## 15. Inspection Standard



Item tested	Standard	AQL	Level	Inspection by means of	Remarks
Sound Pressure Level	Should be within 89.0 ± 3.0 dB	1	II	Audio analyzer	± 3.0 dB / 2.0V power / measuring distance at 3000Hz / 1.0cc Box
Impedance	8.0 Ω	0.65	I	Impedance Meter	± 15 % measured at 1000 Hz at 1.0 V
Outer Diameter	25.0 x 9.0 ± 0.1 ( mm )	1.5	S-3	Electronic Calipers	To be measured at the maximum dia.
Height	3.0 ± 0.1 (mm )	1.5	S-3	Electronic Calipers	To be measured at the maximum height on the body only.
Rust		1	II	Visual	Any rust should not be accepted.
Stain		1.5	II	Visual	There should be no remarkable stains.
Adhesion		1.5	II	Visual	Adhesion should be made sufficiently and there should be no outflow of adhesive agent.
Other Appearance		1.5	II	Visual	

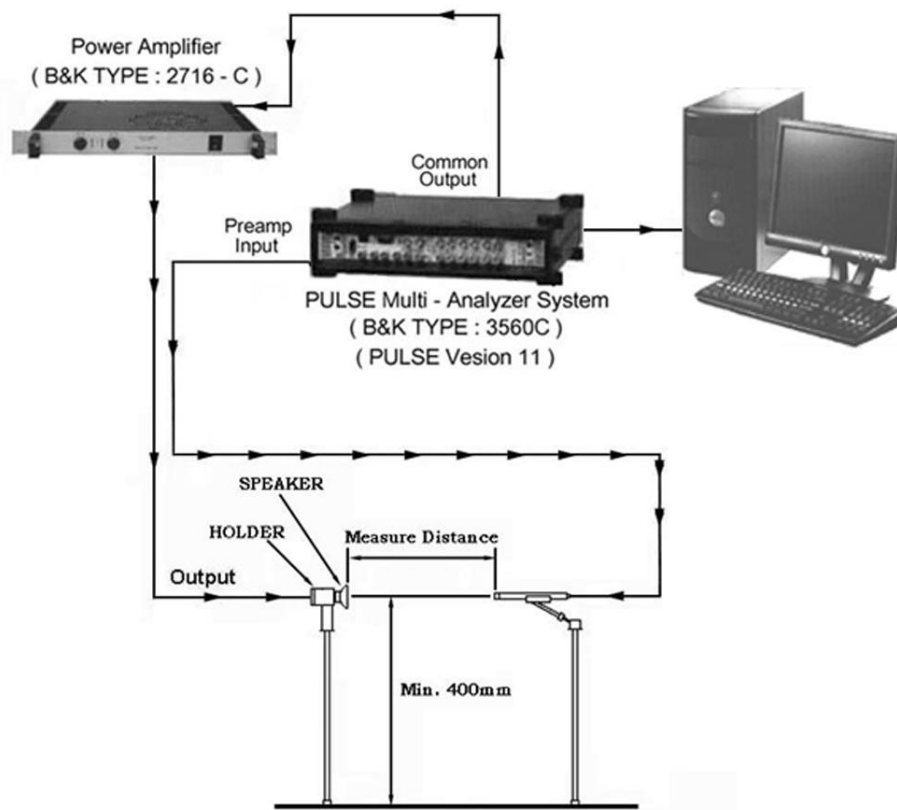
## 16. Reliability Test

Item	Method of the test	Standard
Storage in high Temperature	Storage in test box for 96 hours under the +70.0 ° C then expose to the room temperature for 1 hours	All specifications must be satisfied after the test.
Storage in low Temperature	Storage in test box for 96 hours under the -30.0 ° C then expose to the room temperature for 1 hours	
Load Test	Shall be normal after test at white noise source 0.5 W 96 hours	
Temperature Shock Test	Low temperature : - 20.0 ± 2.0 ° C High temperature : + 60.0 ± 2.0 ° C Cycle : 1 hour each temp. And then removal back to normal temp for 1 hour.	
Temp./ Humidity Cycle Test	Keep 96 hours at 90 to 95 %, + 40.0 ± 2.0 ° C then removal back to normal temperature for 6 hours	
Drop Test	Drop a speaker contained in normal box into a board 5.0 mm thick 10 times form a height 0.75 m and then test.	

## 17. Equipment List

Name	Model
Audio Analyzer	Bruel & kjaer
Acoustic Chamber	Bruel & kjaer
Audio Calibrator	Bruel & kjaer
Amplifier	Bruel & kjaer

**Fig.1 Measuring Method**

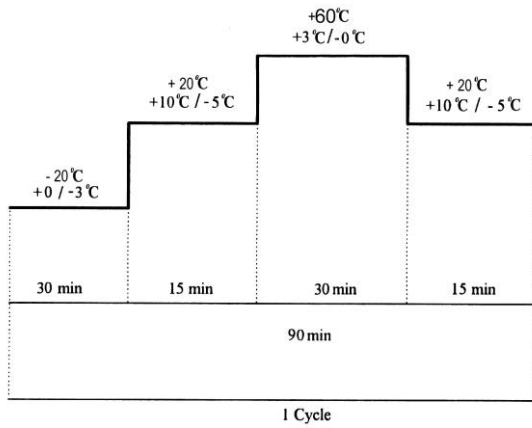


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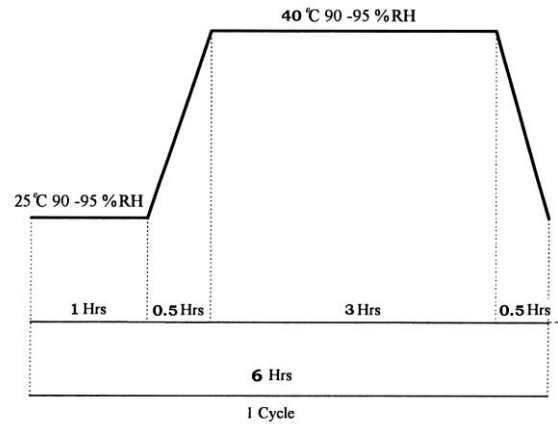
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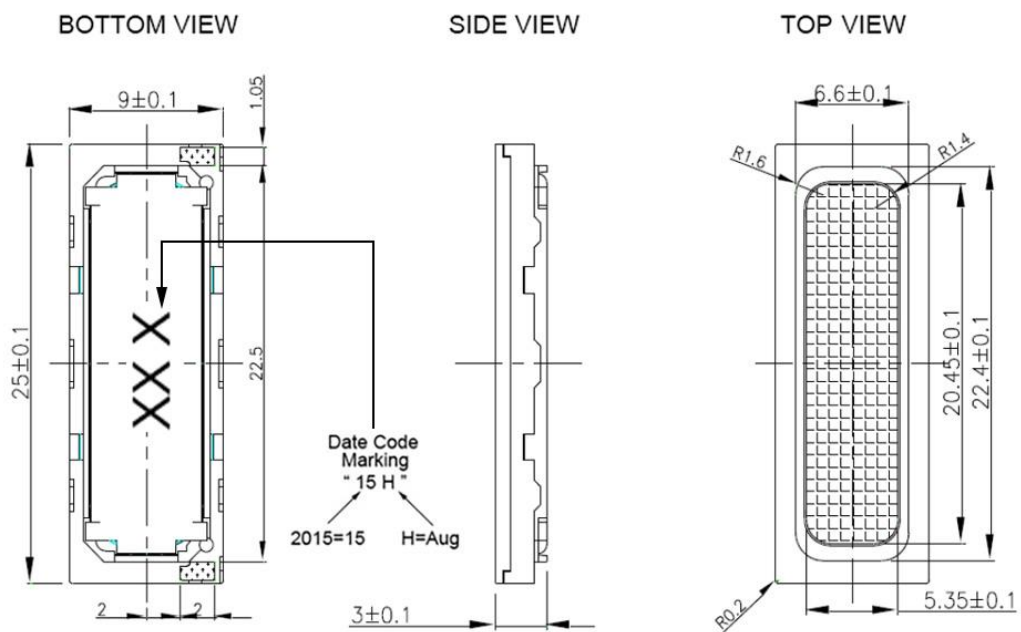
**Fig.2 Temperature Shock Test**



**Fig. 3 Temperature / Humidity cycle test**



## 18. Mechanical Draw



Unit : mm

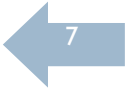
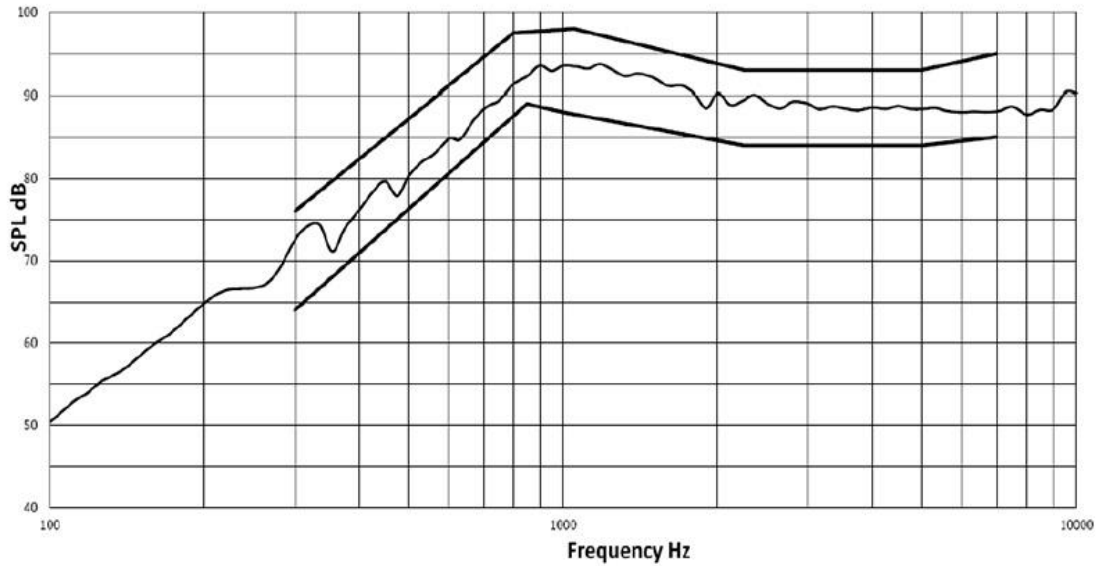
Tolerance :  $\pm 0.5$  mm

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## 19. Frequency Response



## 20. Packing Information

