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Document Type : Specification
Product Type : Speaker Sound Generator Component
Part number : HSM30A-8/001

A3 - update layout and format by Leo Sin on 14 May, 2002.		

1. Purpose and Scope

This document contains both general requirements, qualification requirements, and those specific electrical, mechanical requirements for this part.

2. Description

ø30 mm speaker sound generator with 2.54mm pin length, no polarity mark and with pin alignment.

3. Application

Telecommunication Equipment, Computers and Peripherals, Automotive, etc.

4. Component Requirement

4.1. General Requirement

4.1.1.	Operating Temperature Range	:	-40°C to +85°C
4.1.2.	Storage Temperature Range	:	-40°C to +90°C

4.2. Electrical Requirement

4.2.1.	Coil Impedance	:	8 ohm ± 2ohm
4.2.2.	Rated Power	:	0.15W
4.2.3.	Maximum Input Power	:	0.20W
4.2.4.	Resonance Frequency	:	1200 Hz ± 15%
4.2.5.	Frequency Range	:	600 Hz ~ 5000 Hz
4.2.6.	Sound Pressure Level at 1kHz. (0.15W, 10cm)	:	88 dBA ± 5dBA

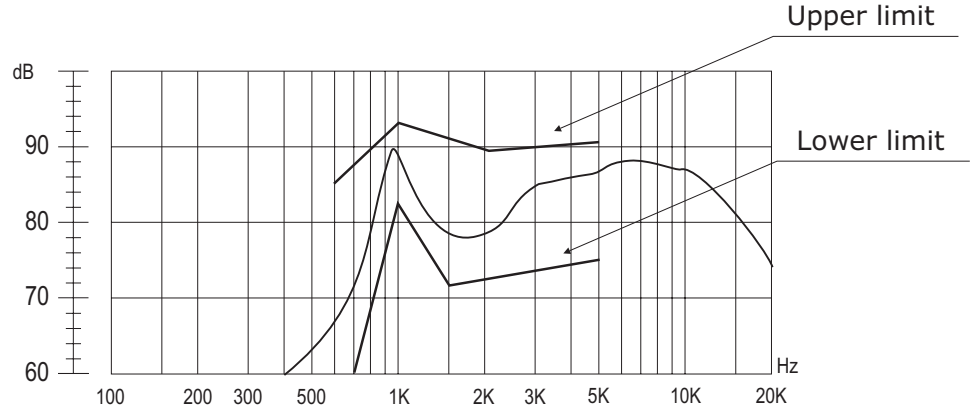

Figure 1. Frequency Response

4.3. Mechanical Requirement

4.3.1.	Layout and Dimension	:	See Section 6, Figure 3

4.4. Test Setup of SPL

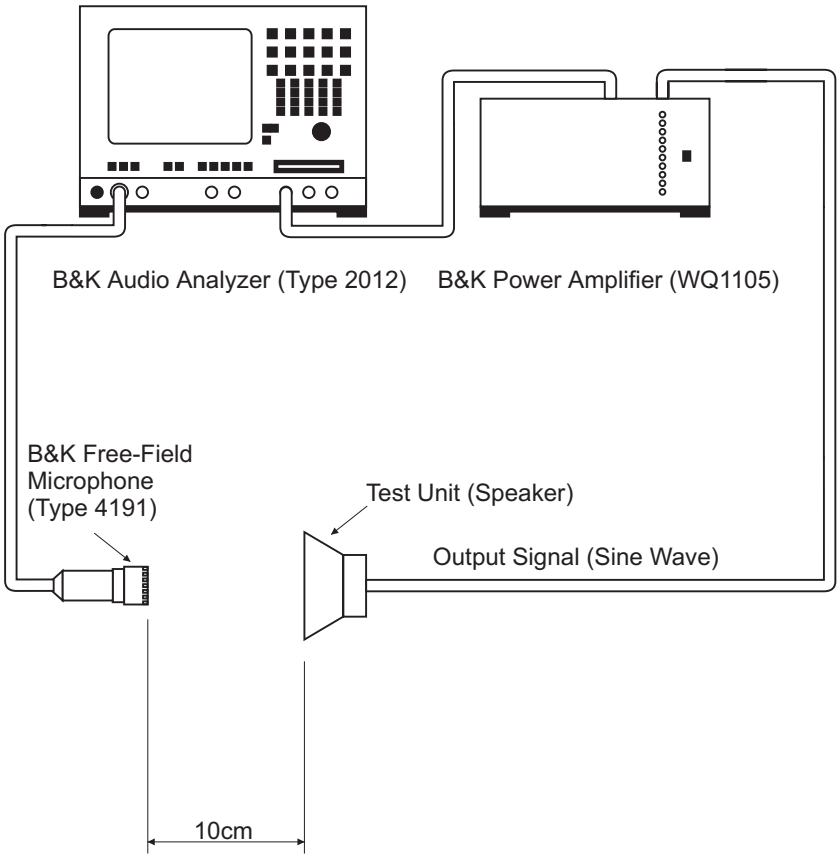

Figure 2. SPL Inspection Test Fixture

Notes : Apply rated signal from B&K Audio Analyzer (Type 2012) and B&K Power Amplifier (WQ1105). Measure SPL with microphone 10 cm from the test unit. Microphone to be in accordance with B&K Free Field Microphone (Type 4191). The microphone should be calibrated on a daily basis using an acoustic calibrator recommended by the manufacturer. Measurement should be carried out in a free field environment.

5. Reliability Test

5.1. **Operating Life** : Subject samples to room condition for 96 hours with rated power and resonance frequency. Components must be fully stabilized before data is taken, which may require up to a 2 hours soak.

5.2. **High Temperature** : Subject samples to +85°C and operate for 96 hours with rated power and resonance frequency. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.

5.3. **Low Temperature** : Subject samples to -40°C and operate for 96 hours with rated power and resonance frequency. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.

5.4. **Temperature Cycle** : Each temperature cycle shall consist of 30 minutes at -40°C, 15 minutes at +20°C, 30 minutes at +85°C and 15 minutes at +20°C.Test duration is for 10 cycles. Components must be fully stabilized at temperature extremes before data is taken, which may require up to a 2 hours soak.

5.5. **Static Humidity** : Precondition at room temperature for 1 hour. Then expose to +40°C with 90 to 95% relative humidity for 96 hours. Finally dry at room ambient for 2 hours before taking final measurement.

5.6. **Random Vibration** : Secure samples. Vibrated randomly 10Hz ~ 50Hz ~ 10 Hz with 1.52mm peak amplitude and 1 minutes sweep duration. The test duration is 2 hours per plane.

5.7. **Mechanical Shock** : Secure samples as required. Then subject samples to half sine wave pules (100m/s^2 for 16ms) for a total of 1000 ± 10 shocks.

5.8. **Drop Test** : Drop samples with package naturally from the height of 0.8m onto a wooden board six times.

6. Mechanical Layout

Unit : mm
Tolerance : Linear XX.X = ±0.3
XX.XX = ±0.05
Angular = ±0.25°
(unless otherwise specified)

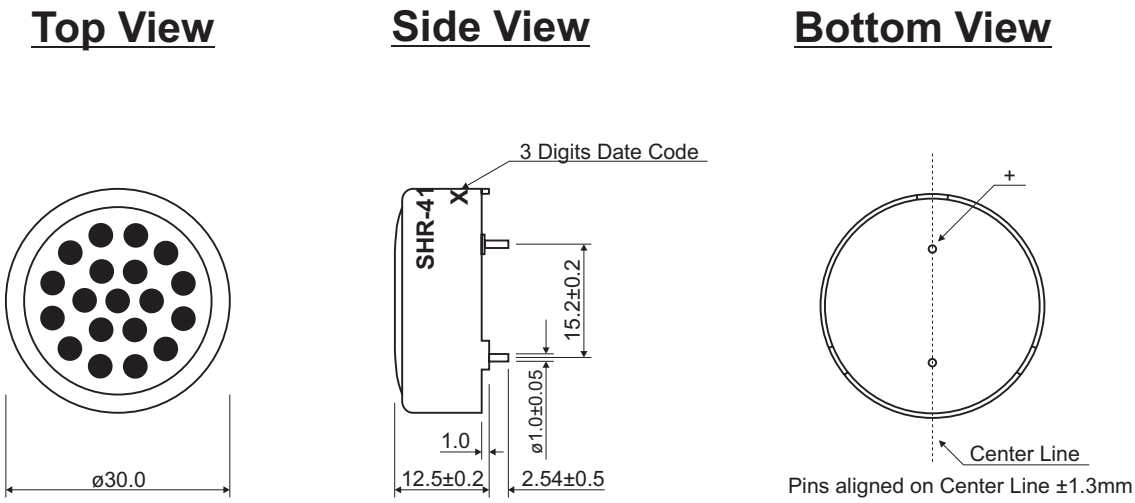

Figure 3. HSM30A-8/001 Mechanical Layout