

SPECIFICATION FOR APPROVAL

MODEL NO : **HM4522P-423-G**

CATALOGUE

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1. SCOPE	This specification shall be applied to electret condenser microphone(ECM)
2. MODEL NO.	HM4522P-423-G
3 ELECTRICAL CHARACTERISTICS	
Temp.	20° ± 2
Room Humidity	65% ± 5

NO.
 Parameter
 Symbol
 Condition
 Limits
 Unit
 Min.
 Center
 Max.

1

Sensitivity: S $f=1\text{kHz}$, $S.P.L=1\text{Pa}$, $0\text{dB}=1\text{V/Pa}$ -45 -42 -32 dB

Output impedance: Z_{OUT} $f=1\text{kHz}$ 2.2 $\text{K}\Omega$

Current Consumption: I_{DD5} $V_{CC}=2.0\text{V}$, $R_L=2.2\text{K}\Omega$ 150 500 μA

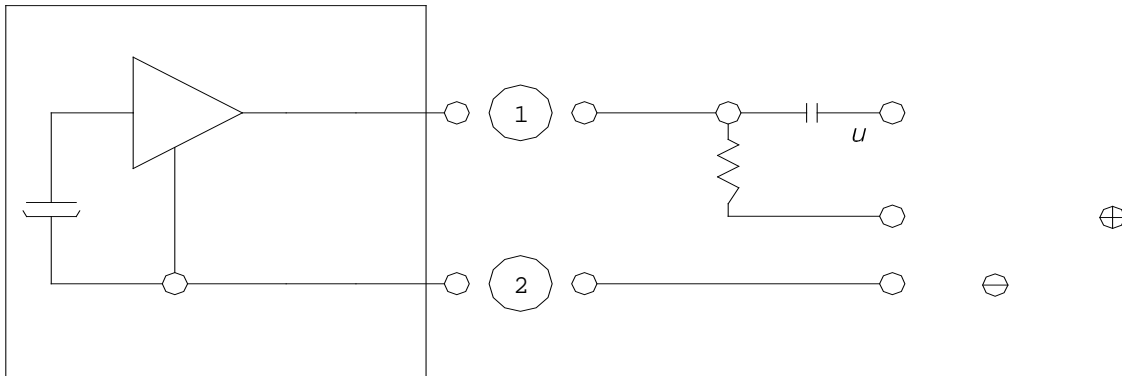
Signal to Noise Ratio: S/N $f=1\text{kHz}$, $S.P.L=1\text{Pa}$ 60 dB

Decreasing Voltage: $S-VS$ $V_{CC}=2.0\text{V}$ to 1.5V -3 dB

Operating Voltage: 1-10V

Maximum input S.P.L: 110 dB

4.MEASUREMENT CIRCUIT



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5. TYPICAL FREQUENCY RESPONSE CURVE (FAR FIELD)

Far Field Measurement Condition

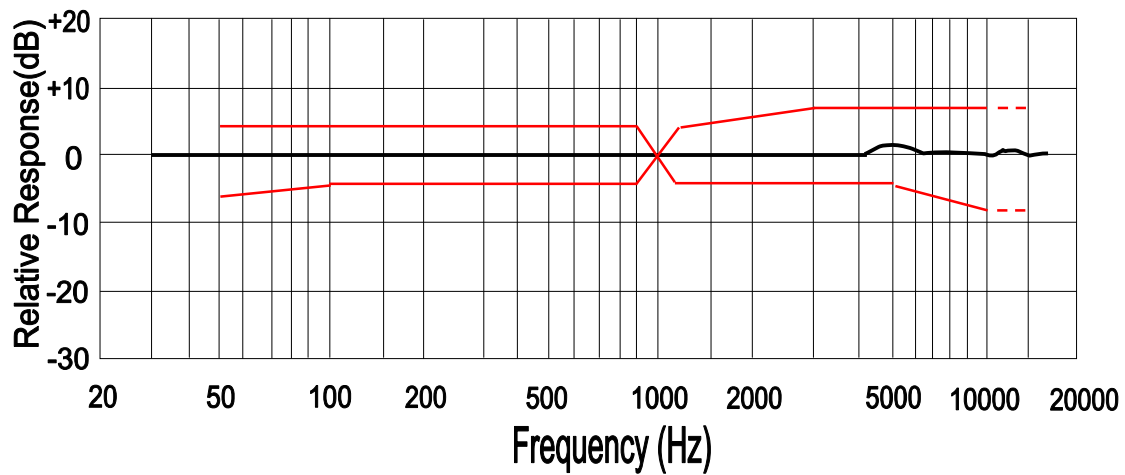
Temperature $20^{\circ} \pm 2$

Bias Voltage 2.0V (with 2.2K Ω series resistor 2.2K Ω Ohm)

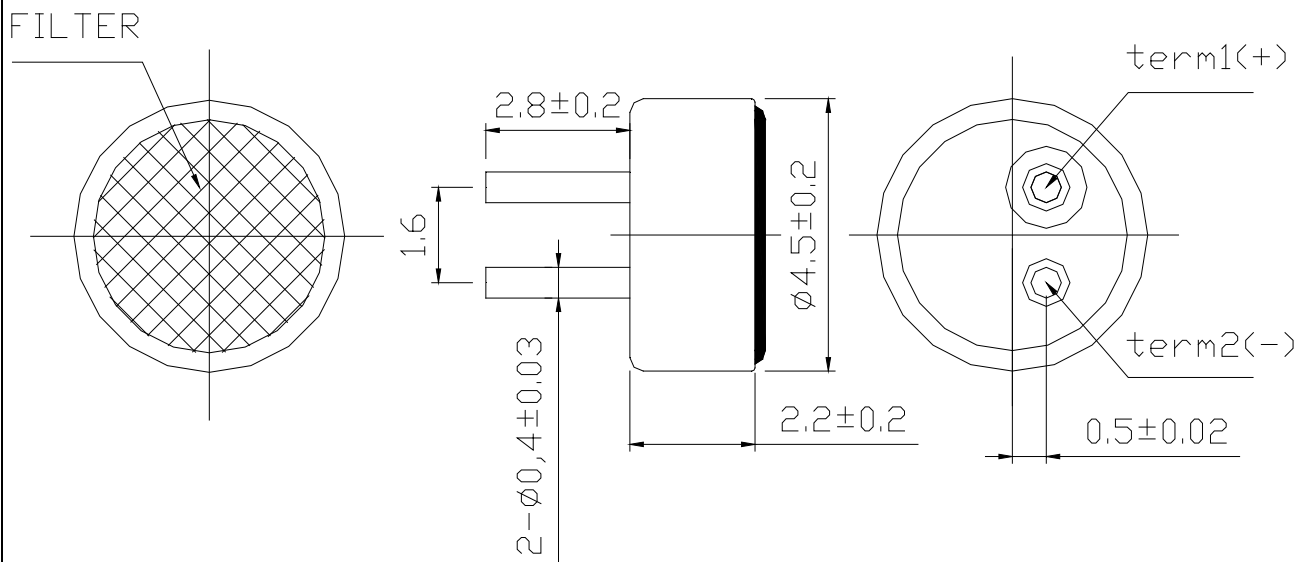
Acoustic stimulus :1Pa (94Db SPL at 1 **KHZ**) at 50cm from the loud-speaker.

The loud-speaker must be calibrated to make a flat frequency response input signal

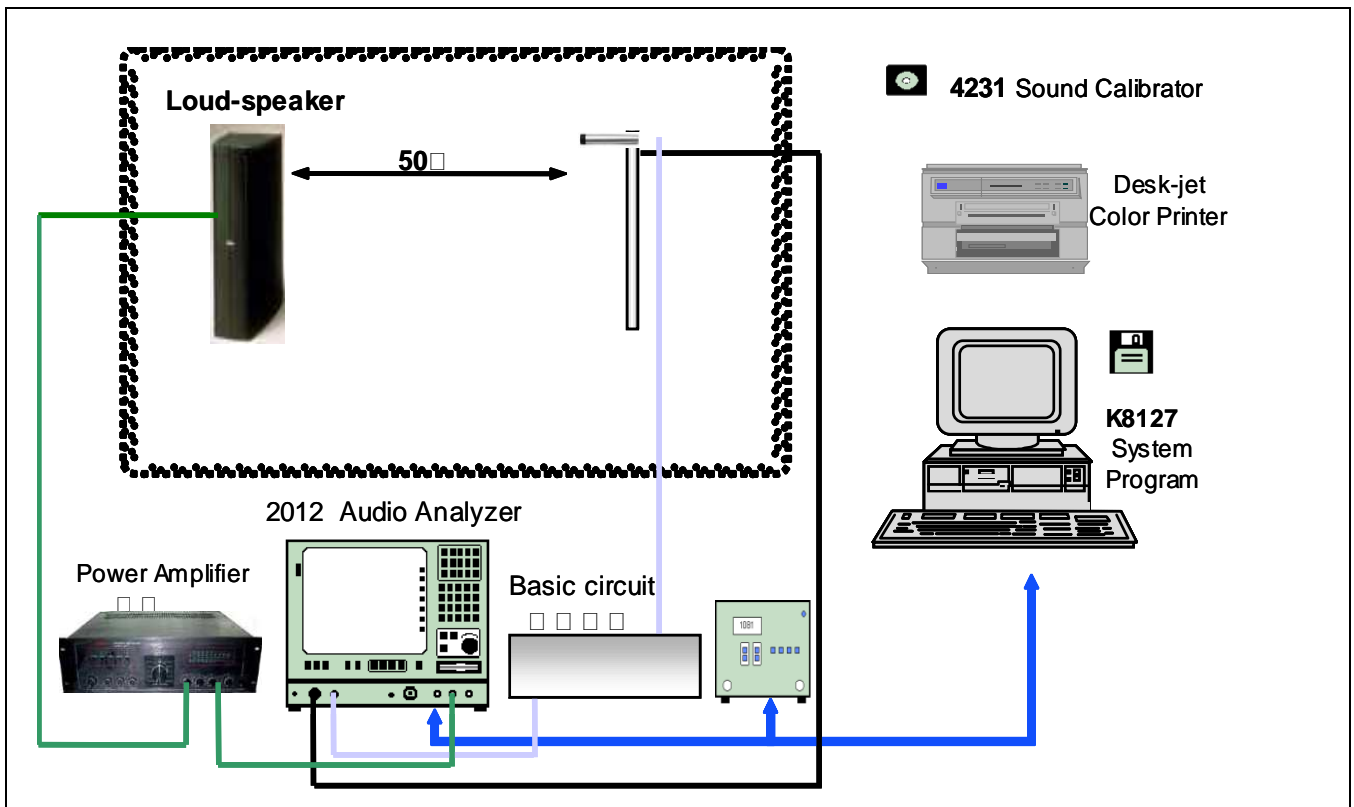
Position: The frequency response of microphone unit measured at 50cm from the loud-speaker



6. DIMENSIONAL DRAWING



7.RELIABILITY TEST	
7.1 VIBRATION TEST	1 minute frequency from 10Hz to 55Hz, amplitude 1.52mm, the vibration in three directions test 2 hours, the sensitivity deviation range of ± 3 dB
7.2 DROP TEST	Three directions with the regular packaging of free fall from 1 meter at the concrete floor, the sensitivity range of ± 3 dB deviation from the
7.3 TEMPERATURE TEST	-After exposure at 70 \square for 72 hours ,sensitivity to be within ± 3 dB from initial sensitivity (The measurement to be done after 3 hours of conditioning at room temperature -After exposure at -20 \square for 72hours,sensitivity to be within ± 3 dB from initial sensitivity (The measurement to be done after 3 hours of conditioning at room temperature
7.4 HUMIDITY TEST	After exposure at 40 \square and 90 \square relative humidity for 72 hours ,sensitivity to be within ± 3 dB from initial sensitivity (The measurement to be done after 3 hours of conditioning at room temperature)
7.5 TESTCONDITION	StandardTestCondition: a)Temperature:+15 \square ~+35 \square b)Humidity:45%-75% c)Pressure:86 kPa -106kPa Judgement Test Condition: a) Temperature:(20 \pm 2) \square b) Humidity:60%-70% c) Pressure:86 kPa -106kPa
8 TEMPERATURE CONDITIONS	
8.1 STORAGE TEMPERATURE	-20 \square - +70 \square
8.2 OPERATING TEMPERATURE	-20 \square - +70 \square
9.MEASUREMENT SYSTEM	



10. REGARDING THE SOLDERING OPERATION

Every ECM contains a FET with microphone body. This FET is easy to damage from excessive heat and electrical shock. Proper attention for the soldering work is required same as followings.

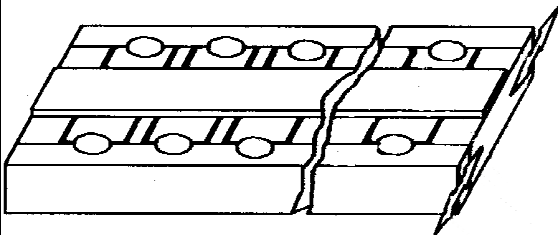
1 - Recommend to use 15W - 17W ceramic soldering iron and apply $270 \pm 10^\circ$ temperature range

2 - Soldering should be accomplished within 2 seconds at each terminal so as not to be overheated.

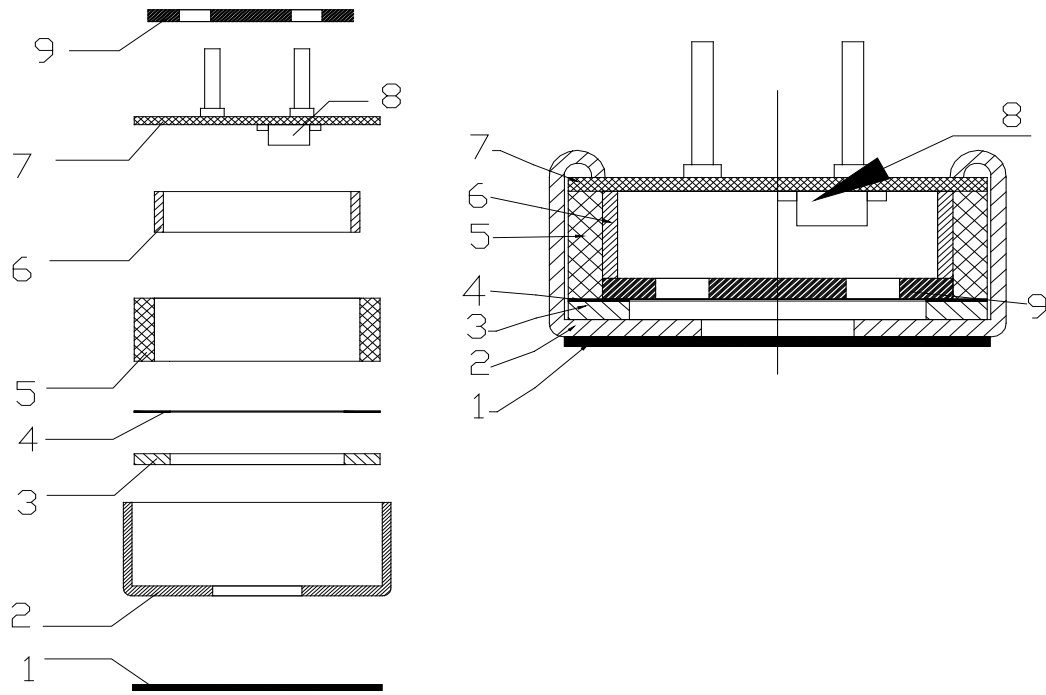
3 - ECM shall be soldered fixed on the metal block (heat sink) which has the higher radiation effects. Heat sink shall contact with each of ECM.

4 - The pin hole soldering shall be avoided.

5 - E.C.M may easily destroyed by the static electricity, and the countermeasure for eliminating the static electricity (the ground for soldering copper, for worktable and for human body) shall be executed.



12. LIST AND STRUCTURE OF MATERIALS



No.	Part name
1 □□□	FELT
2 □□	Case
3 □□	Diaphragm
4 □□	Spacer
5 □□	Housing Chamber
6 □□	Copper ring
7 □□□	P.C.B
8 □□	FET
9 □□	Back plate