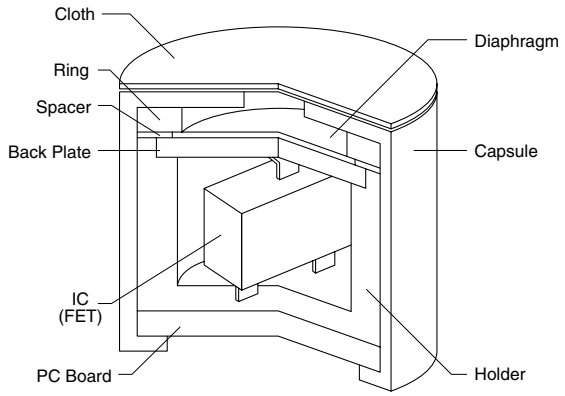
ELECTRET CONDENSER MICROPHONE (ECM)

※A microphone as an audio-electric converting device, whose audio pickup section has a structure of a condenser consisting of a diaphragm and a back plate opposite thereto, is called a condenser microphone.
The motion of the diaphragm by sound is picked up as a variation of capacitance between the diaphragm and the back plate.
In this case, usually, a voltage of tens or hundreds of volts should be applied extermally as a condenser polarizing voltage. However, electric charge can be maintained in a polymer film by the electret effect, thereby eliminating the polarizing direct-current high voltage. Such is an electret condenser microphone.
In structure, electret condenser microphones are grouped into the following three types according to where the electret film is used:

①Foil-type electret condenser microphone
The diaphragm itself is made of an electret polymer film.
②Back-type electret condenser microphone
Contrary to ①, a polymer film is adhered to the back plate.
③Front-type electret condenser microphone
The back plate is structurally eliminated. The diaphragm and the inside portion of the microphone capsule itself form the condenser. The electret is located inside the case.

Structural schema of Electret Condenser Microphone



Terminology

Sensitivity

The sensitivity is defined as the output voltage for a specified acoustic stimulus and load condition. In this catalog it is expressed in dBV/pa (dBV/10μbar).
In the case of dynamic types it is expressed as the open circuit voltage appearing at the output terminals.
In the case of electret type it is expressed with a specified resistive load and supply voltage since the output resistance tends towards constant current characteristic.

Output impedance

The output impedance represents the internal electric resistance within a microphone as seen from the side of output terminals of the microphone.
JIS C-5502 specifies 50,200,250,400 and 600 ohms as standard.
In the case of ECMs, the effective output resistance is determined mainly by the valve of load resistance. It can be made higher or lower by the value of load resistance with a corresponding change in sensitivity.

Frequency Response

The frequency response of a microphone is the data indicating which frequency range, from the lower to the higher range, the microphone has a certain sensitivity. In other words, it is the frequency range within whitch the microphone can receive sound. It is expressed as 50 Hz-15000 Hz.

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Electret Condenser Microphones Specifications Table

Omnidirectional

Model No.	Dimensions		Mass	Sensitivity	Impedance	Standard Power Supply	Current Consumption	Terminal Style			Chip-Condenser		Page No.
	Diameter (mm)	Height (mm)	(g)	(dB/Pa)	(kΩ)	(V DC)	(mA)	Lead Wire Type	PCB Type	Solderless Type	Built-In available	Soldered is available	
KUF4723	4.0	0.9	0.04	–45	2.2	2.0	0.5			●	●		3
KUR0023	4.0	1.5	0.08	–45	2.2	2.0	0.5	●	●	●	●		3
KUF4623	6.0	1.0	0.1	–45	2.2	2.0	0.5		●			●	4
KUF4523	6.0	1.2	0.1	–45	2.2	2.0	0.5		●	●	●		4
KUB4323	6.0	1.5	0.15	–44	2.2	2.0	0.5	●	●	●	●		4
KUF4323	6.0	1.5	0.15	–45	2.2	2.0	0.5	●	●	●	●		5
KUB4223	6.0	1.9	0.15	–40	2.2	2.0	0.5	●	●	●	●	●	5
KUB3323	6.0	2.2	0.2	–45	2.2	2.0	0.5		●	●	●		5
KUF3323	6.0	2.2	0.2	–45	2.2	2.0	0.5	●	●	●	●	●	6
KUB2823	6.0	2.7	0.2	–45	2.2	2.0	0.5	●	●	●	●	●	6
KUC3523	9.4	4.5	0.6	–45	1.0	4.5	0.8	●	●			●	6
KUC2123	9.4	6.5	0.8	–45	1.0	4.5	0.8	●	●			●	7
KUC4023	9.7	6.7	0.9	–45	1.0	4.5	0.8	●	●			●	7

Unidirectional

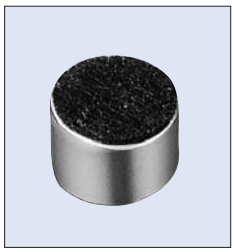
Model No.	Dimensions		Mass	Sensitivity	Impedance	Standard Power Supply	Current Consumption	Terminal Style			Chip-Condenser		Page No.
	Diameter (mm)	Height (mm)	(g)	(dB/Pa)	(kΩ)	(V DC)	(mA)	Lead Wire Type	PCB Type	Solderless Type	Built-In available	Soldered is available	
KUB8223	8.0	4.7	0.5	–45	1.0	4.5	0.5	●				●	8
KUB8023	9.4	6.5	1.0	–45	1.0	4.5	0.8	●				●	8
KUC8323	9.4	6.5	0.8	–45	1.0	4.5	0.8	●				●	8

※ KUC: ホイルエレクトレット / Foil Electret　KUB: バックエレクトレット / Back Electret　KUF: フロントエレクトレット / Front Electret

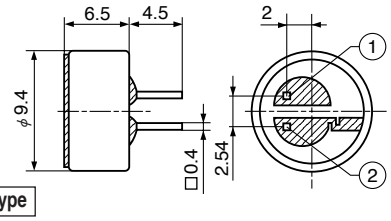
Electret Condenser Microphones (Omnidirectional)

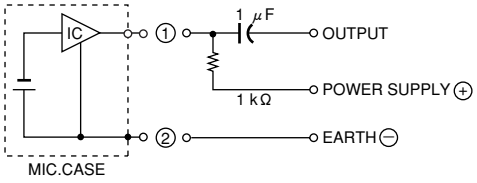
Unit: mm

KUC2123

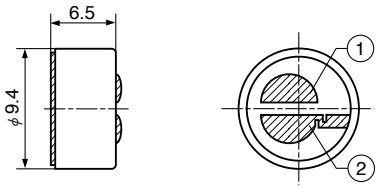


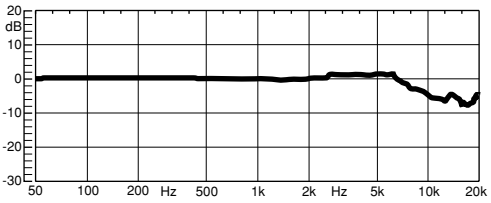
PCB Type





Lead Wire Type





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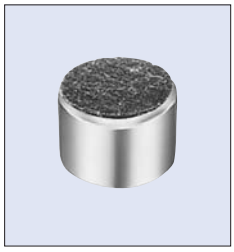
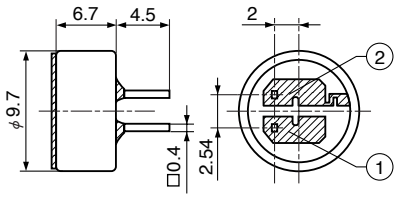
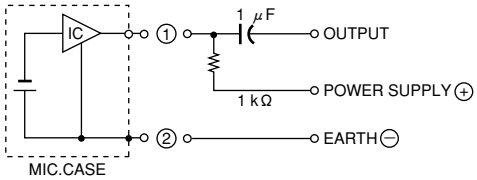


PCB Type





Lead Wire Type