

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 externally 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:

① Foil-type electret condenser microphone

The diaphragm itself is made of an electret polymer film.

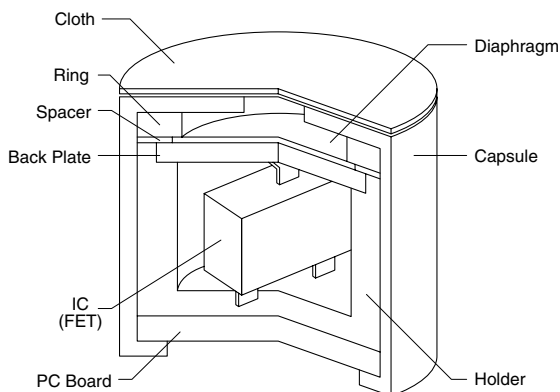
② Back-type electret condenser microphone

Contrary to ①, a polymer film is adhered to the back plate.

③ Front-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/10 μ bar).

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 value 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 which the microphone can receive sound. It is expressed as 50 Hz-15000 Hz.

Electret Condenser Microphones Specification List

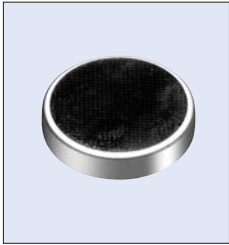
■ Omnidirectional

Model No.	Dimensions (mm)	Mass (g)	Sensitivity (dB/Pa)	Impedance (kΩ)	Standard Power Supply (V DC)	Current Consumption (mA)	Lead Wire Type	PCB Type	Solderless Type	Solder Reflow Type	Chip-Condenser Built-in available	Chip-Condenser Soldered is available
KUF4723	φ4 × 0.9	0.04	-45	2.2	2.0	0.5			○		○	
KUS0223	φ4 × 1.3	0.07	-45	2.0	2.0	0.5				○	○	
KUR0023	φ4 × 1.5	0.08	-45	2.2	2.0	0.5	○	○	○		○	
KUS0023	φ4 × 1.6	0.08	-45	2.2	2.0	0.5				○	○	
KUF4623	φ6 × 1.0	0.1	-45	2.2	2.0	0.5			○		○	
KUF4523	φ6 × 1.2	0.1	-45	2.2	2.0	0.5		○	○		○	
KUB4323	φ6 × 1.5	0.15	-44	2.2	2.0	0.5	○	○	○		○	
KUF4323	φ6 × 1.5	0.15	-45	2.2	2.0	0.5	○	○	○		○	
KUB3323	φ6 × 2.2	0.2	-45	2.2	2.0	0.5		○	○		○	
KUF3323	φ6 × 2.2	0.2	-45	2.2	2.0	0.5	○	○	○		○	○
KUB2823	φ6 × 2.7	0.2	-45	2.2	2.0	0.5	○	○	○		○	○
KUC3523	φ9.4 × 4.5	0.6	-45	1.0	4.5	0.8	○	○				○
KUC2123	φ9.4 × 6.5	0.8	-45	1.0	4.5	0.8	○	○				○
KUC4023	φ9.7 × 6.7	0.9	-45	1.0	4.5	0.8	○	○				○

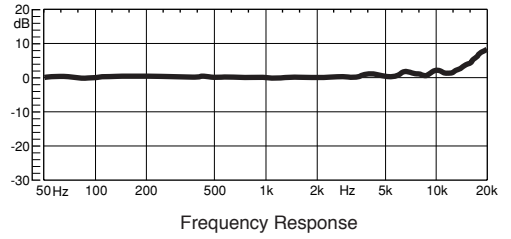
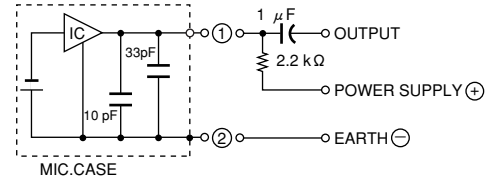
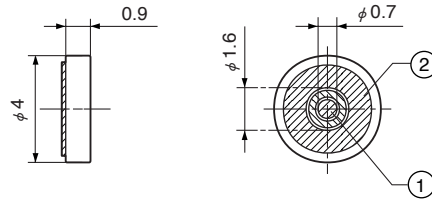
■ Unidirectional

Model No.	Dimensions (mm)	Mass (g)	Sensitivity (dB/Pa)	Impedance (kΩ)	Standard Power Supply (V DC)	Current Consumption (mA)	Lead Wire Type	PCB Type	Solderless Type	Chip-Condenser Built-in available	Chip-Condenser Soldered is available
KUB8223	φ8 × 4.5	0.7	-46	1.0	4.5	0.5	○	○		○	○
KUB8023	φ9.4 × 6.5	1.0	-45	1.0	4.5	0.8	○				○
KUB8923	φ9.4 × 4.7	1.0	-45	1.0	4.5	0.5	○			○	○

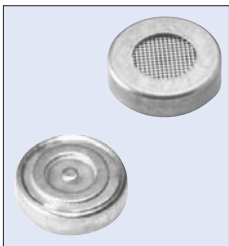
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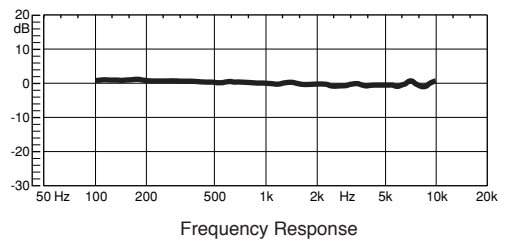
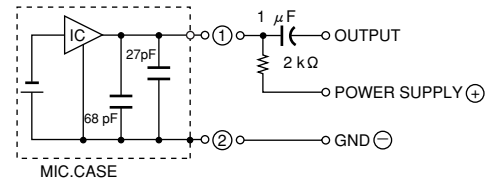
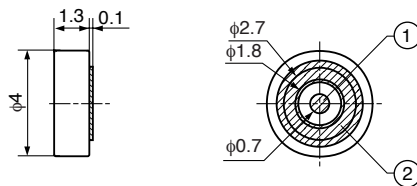
Solderless Type



KUS0223



Solder Reflow Type



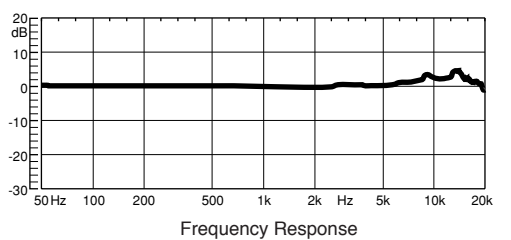
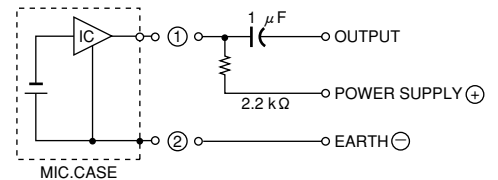
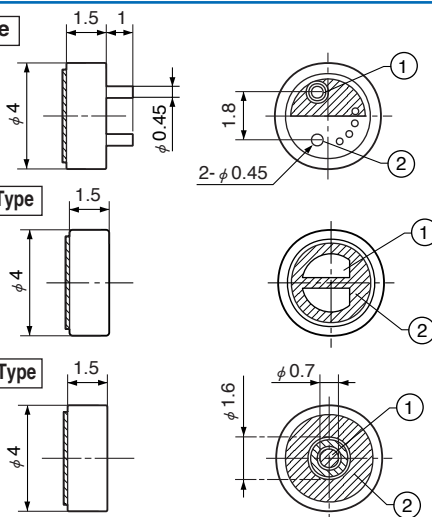
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PCB Type

Lead Wire Type

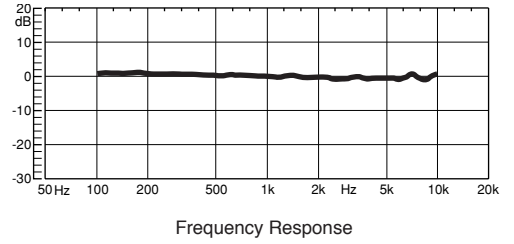
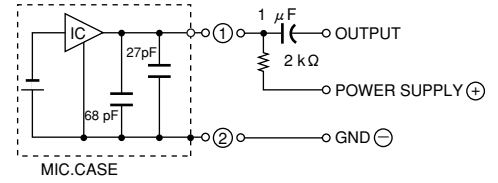
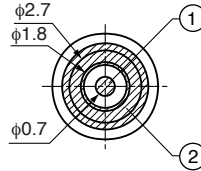
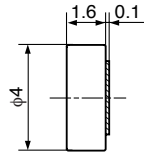
Solderless Type



KUS0023



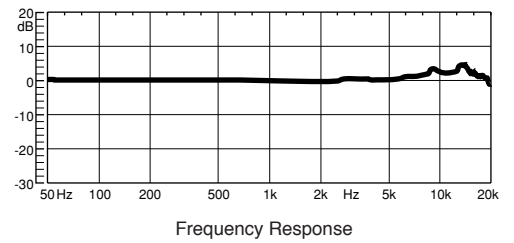
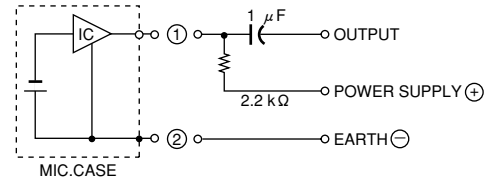
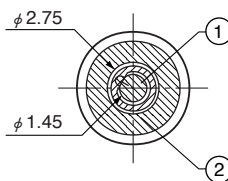
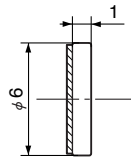
Solder Reflow Type



KUF4623



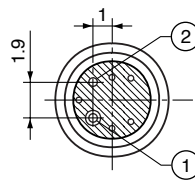
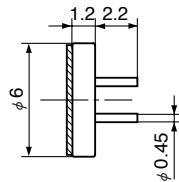
Solderless Type



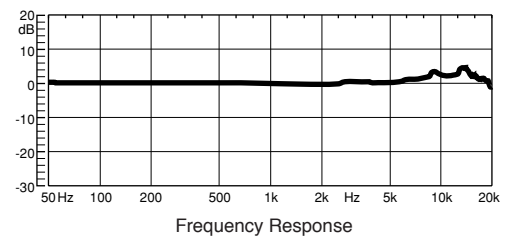
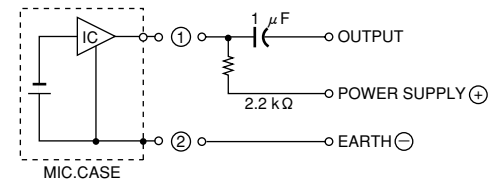
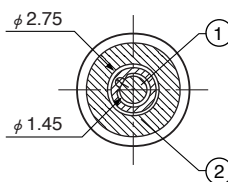
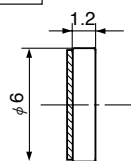
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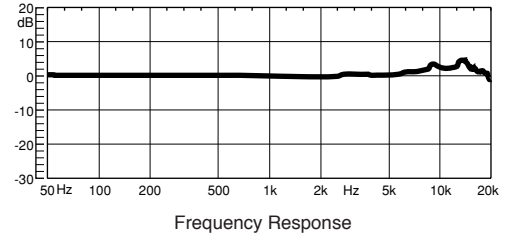
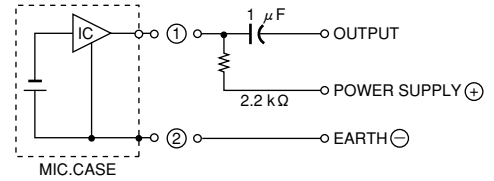
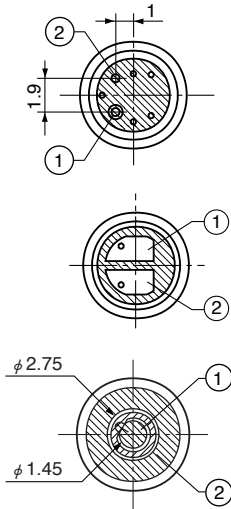
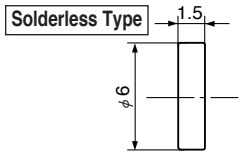
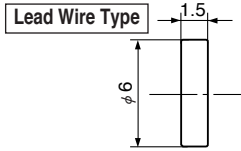
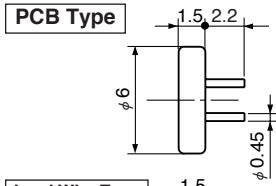
PCB Type



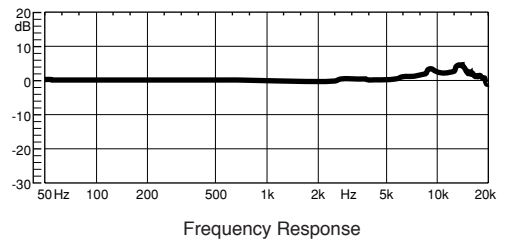
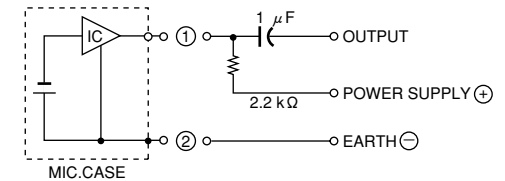
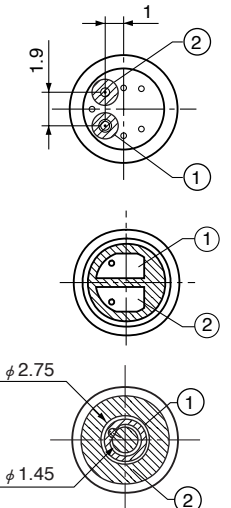
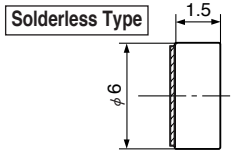
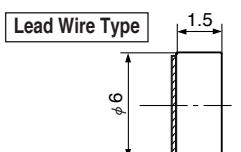
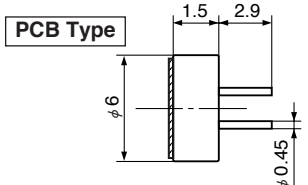
Solderless Type



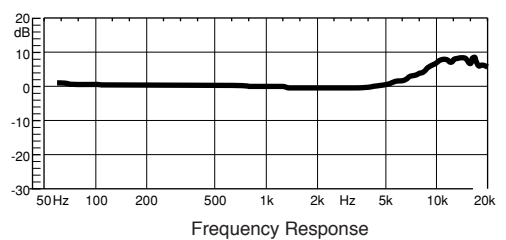
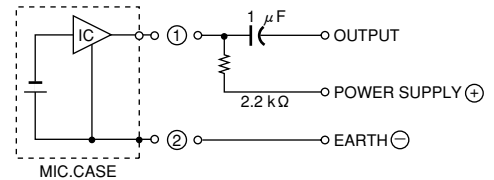
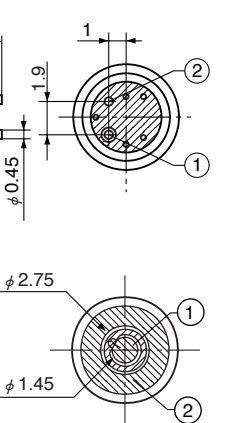
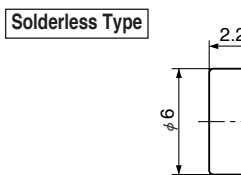
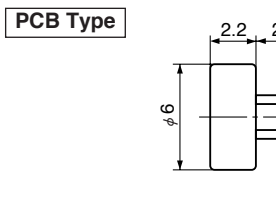
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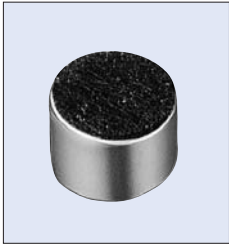
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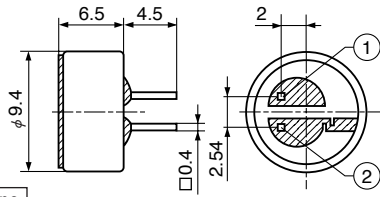
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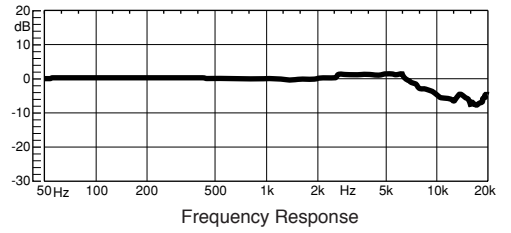
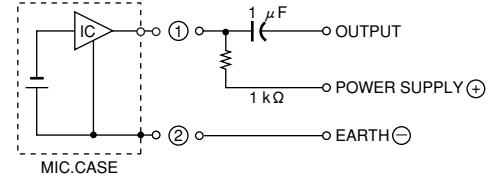
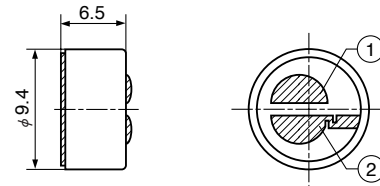
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PCB Type



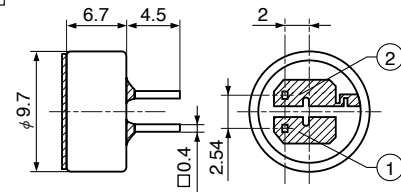
Lead Wire Type



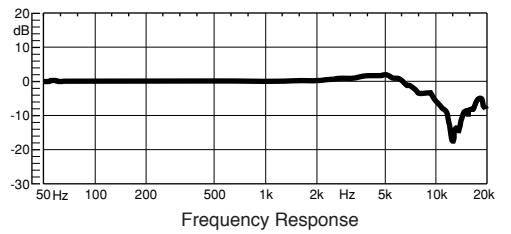
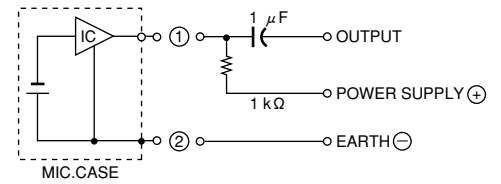
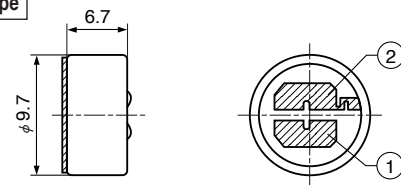
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PCB Type

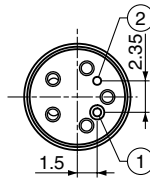
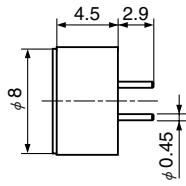


Lead Wire Type

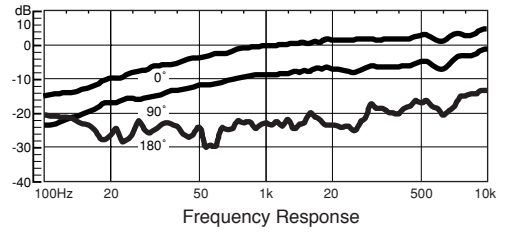
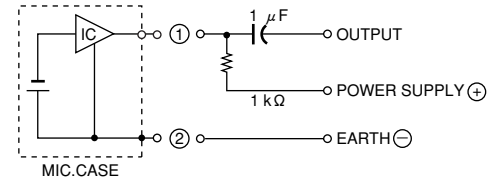
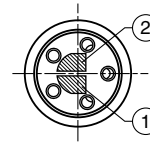
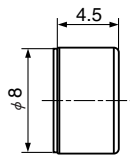


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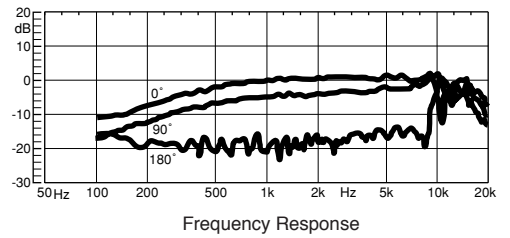
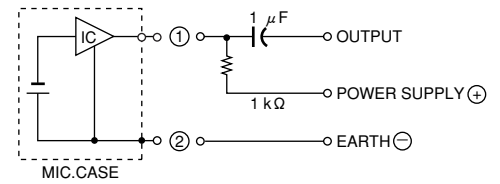
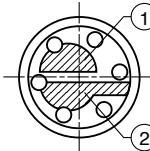
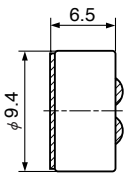


Lead Wire Type



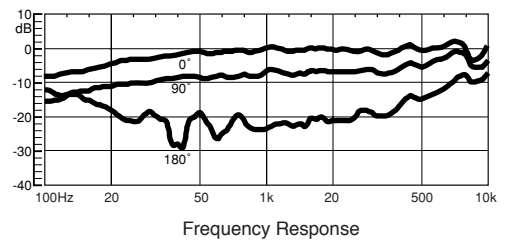
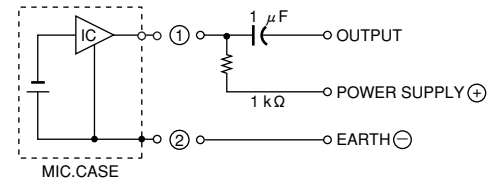
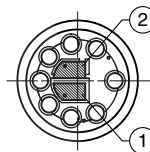
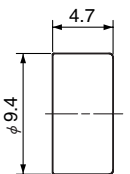
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Lead Wire Type



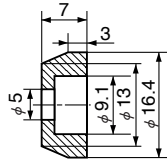
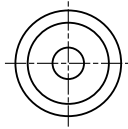
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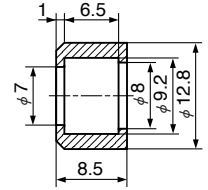
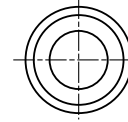




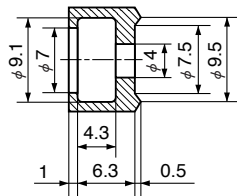
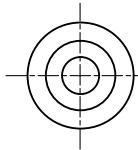
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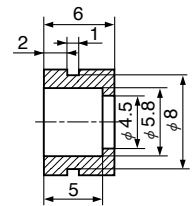
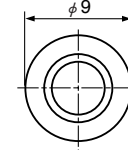
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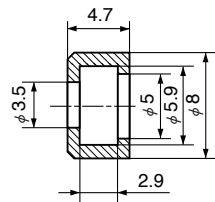
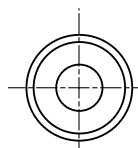
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KCU2027



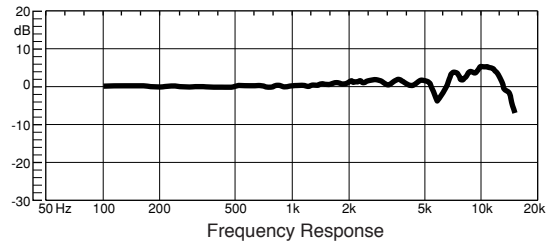
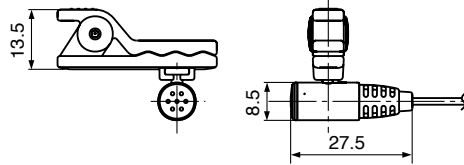
KCU2085



■ Microphones

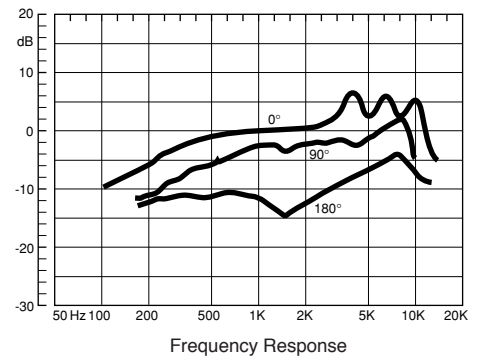
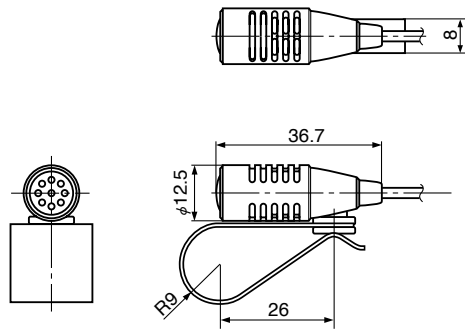
Model No.	Type	Directivity	Impedance (Ω)	Sensitivity (dB/Pa)	SN Ratio (dB)	Maximum Input S.P.L (dB)	Cord Plug	Mass (g)
HHM7672	ECM	Non directional	2.2K	-41.5	55	100	3.5DIA 2 Poles	10
HHM7582		Uni directional	1K	-45	55	100		12
HHM7632			1K	-42.5	55	100		17
KHM8712			1K	-45	56	120		23.5
HHM8862			1K	-45	55	100		53
HHM8962			1K	-40.5	36	100		21

HHM7672



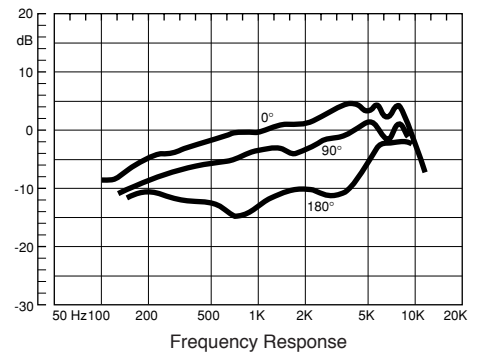
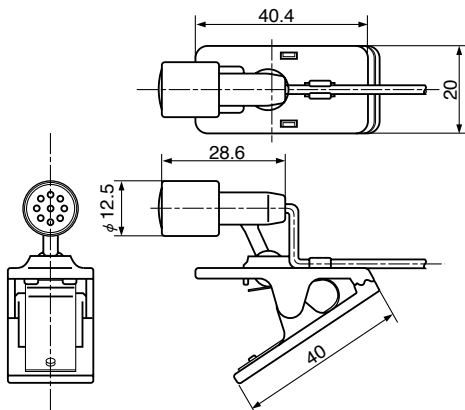
Plug : JIS C 6560

HHM7582



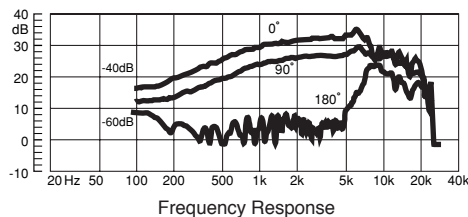
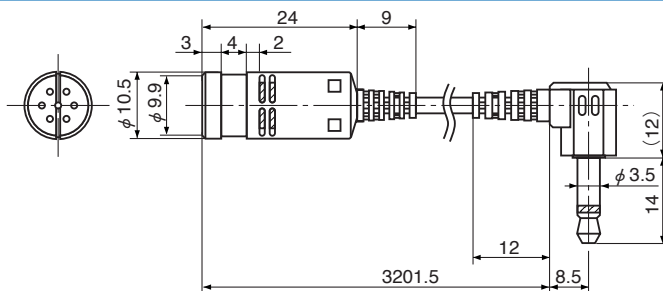
Plug : JIS C 6560

HHM7632



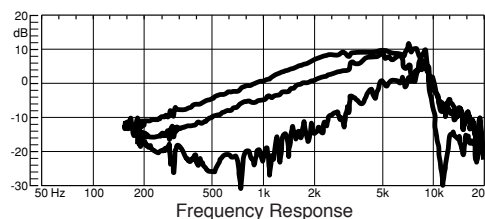
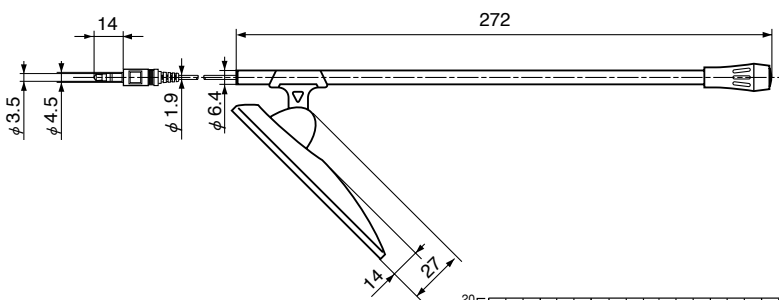
Plug : JIS C 6560

KHM8712



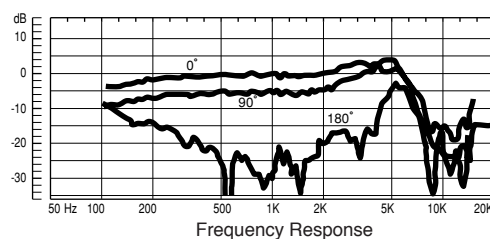
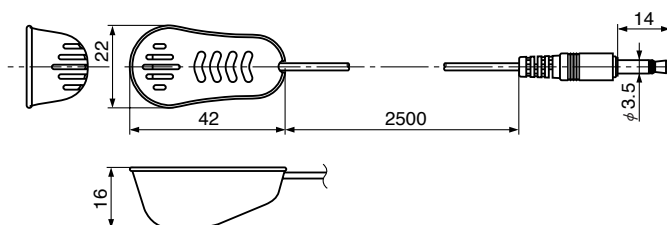
Plug : JIS C 6560

HHM8862



Plug : JIS C 6560

HHM8962



Plug : JIS C 6560