

ELECTRET MICROPHONE BASICS

The actual microphone is formed by a very thin sheet of Teflon-like film that is permanently electrostatically charged. This is achieved by heating the material and then cooling while it is held in a strong electric field.

This thin film is connected to the metal body of the electret capsule but insulated from the pick-up plate. The mylar film and the pick-up plate form a capacitor. The charge on the film produces a voltage difference between it and the pick-up plate. ($V = Q/C$)

As the mylar film is moved by the sound waves it changes the distance between it and the pick-up plate and changes the capacitance value as the distance between the 'plates' increases and decreases.

Most electrets capsules contain a FET (field effect transistor) which converts the very high impedance of the 'capacitor' voltage into a more useful form. It consists of a FET with the gate connected to the pick-up plate, and the source connected to the ground (metal body) and the drain connection taken to a pin as the output.

