Abstract：Taking commercial Teflon FEP films of different thickness by DuPont Co. as an example, the authors examine the influence of sample thickness on deposited charge density, the internal and the external electric field of a film electret, and charge storage stability under the same charging conditions by means of the heat pulse technique, isothermal surface potential decay, and open-circuit TSD (thermally stimulated discharge) measurement. The relation between the shift of the mean charge depth charged at different high temperatures and the thickness of the sample was studied by the heat pulse technique and the measurement of the conductivity glow curve. The influence of thickness on the properties of a film electret is shown to be significant. The mean charge depth charged at the same high temperature for a thicker electret is deeper, which is attributed to the influence of bulk conductivity