The memory cell characteristics of the FBC (Floating Body Cell) have been experimentally verified by using 0.175µm cell array for the first time. The most important device characteristics for realizing the FBC is the threshold voltage difference (ΔVth) of the cell transistor between “1” state and “0” state. A ΔVth of 0.4V has been obtained, which leads to 99.77% function bit yield of 96Kbit ADM (Array Diagnostic Monitor). The retention time of 5sec has been realized at the room temperature.