

MEMCAPACITOR DEVICES, FIELD EFFECT TRANSISTOR DEVICES, AND NON-VOLATILE
MEMORY ARRAYS

ABSTRACT

A memcapacitor device includes a pair of opposing conductive electrodes. A semiconductive material including mobile dopants within a dielectric and a mobile dopant barrier dielectric material are received between the pair of opposing conductive electrodes. The semiconductive material and the barrier dielectric material are of different composition relative one another which is at least characterized by at least one different atomic element. One of the semiconductive material and the barrier dielectric material is closer to one of the pair of electrodes than is the other of the semiconductive material and the barrier dielectric material. The other of the semiconductive material and the barrier dielectric material is closer to the other of the pair of electrodes than is the one of the semiconductive material and the barrier dielectric material. Other implementations are disclosed, including field effect transistors, memory arrays, and methods.

Fig 1.