Semiconductor Device with High-k Gate Dielectric and Quasi-Metal Gate, and Method of Forming Thereof

ABSTRACT OF THE DISCLOSURE

A process and apparatus for a semiconductor device is provided. A device comprises a first transistor having a first charge carrier type. The first transistor comprises a high-k gate dielectric and a first doped electrode. The first charge carrier type comprises one of p-type and n-type and the first doped electrode comprises the other of p-type and n-type. The device further comprises a second transistor having a charge carrier type opposite the first charge carrier type. The second transistor comprises the high-k gate dielectric, and a second doped electrode, wherein the second doped electrode comprises the other of p-type and n-type.

(FIG. 1)