HIGH-K GATE DIELECTRIC STACK PLASMA TREATMENT TO ADJUST THRESHOLD VOLTAGE CHARACTERISTICS

ABSTRACT

0037 A method for treating a gate structure comprising a high-K gate dielectric stack to improve electric performance characteristics including providing a gate dielectric layer stack including a binary oxide over a silicon substrate; forming a polysilicon layer over the gate dielectric layer stack; lithographically patterning and etching to form a gate structure; and, carrying out at least one plasma treatment of the gate structure comprising a plasma source gas selected from the group consisting of H_2, N_2, O_2, and NH_3.

(FIG. 1)