ABSTRACT OF THE DISCLOSURE

N TYPE IMPURITY DOPING USING IMPLANTATION OF P2+ IONS OR AS2+ IONS

A method for using ion implantation to implant phosphorous or arsenic impurities into shallow source/drain regions or into polysilicon electrodes used in devices having shallow source/drain electrodes. A phosphorous source having an abundance of P_2^+ ions is used in an ion beam system adjusted to select P_2^+ ions. Since each ion contains two phosphorous atoms the ion beam requires twice the beam energy and half the beam density. This provides good wafer throughput and improved source life. An arsenic source having an abundance of As_2^+ ions can be substituted for the solid phosphorous source resulting in a beam of As_2^+ ions.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)