Title (en)

ION IMPLANTATION SYSTEM AND CONTROL METHOD

Title (de)

IONENIMPLANTATIONSSYSTEM UND KONTROLLVERFAHREN

Title (fr)

SYSTEME D'IMPLANTATION IONIQUE ET PROCEDE DE CONTROLE

Publication

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Application

EP 01944435 A 20010612

Priority

- US 0118822 W 20010612
- US 25008000 P 20001130
- US 73609700 A 20001213
- US 0033786 W 20001213
- US 25732200 P 20001219
- US 26726001 P 20010207

Abstract (en)

[origin: WO0243803A1] Ion implantation with high brightness, ion beam by ionizing gas or vapor, e.g. of dimers, or decaborane, by direct electron impact ionization adjacent the outlet aperture (46, 176) of the ionization chamber (80; 175)). Preferably: conditions are maintained that produce a substantial ion density and limit the transverse kinetic energy of the ions to less than 0.7 eV; width of the ionization volume adjacent the aperture is limited to width less than about three times the width of the aperture; the aperture is extremely elongated; magnetic fields are avoided or limited; low ion beam noise is maintained; conditions within the ionization chamber are maintained that prevent formation of an arc discharge. With ion beam optics, such as the batch implanter of Figure (20), or in serial implanters, ions from the ion source are transported to a target surface and implanted; advantageously, in some cases, in conjunction with acceleration-deceleration beam lines employing cluster ion beams. Also disclosed are electron gun constructions, ribbon sources for electrons and ionization chamber configurations. Forming features of semiconductor devices, e.g. drain extensions of CMOS devices, and doping of flat panels are shown.

IPC 8 full level

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Citation (search report)

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