

Title (en)

Method and device for generating ion beams with a large beam cross-section.

Title (de)

Verfahren und Vorrichtung zur Erzeugung von Ionenstrahlen mit grossflächigem Strahlquerschnitt.

Title (fr)

Procédé et dispositif pour la génération de faisceaux d'ions à grande section transversale.

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Application

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Priority

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Abstract (en)

[origin: EP0377445A2] A method and device for generating ion beams with a large beam cross-section are described. An ion beam, which is used for dry etching during production of microelectronic components, must have a high beam quality (small divergence, few impurities, high current density). In the case of known large-area ion beam sources, the ions are extracted from the plasma with the aid of grids. Because of the field pattern at the grid points, the use of the grid has a disturbing effect on the beam quality. The method according to the invention has no grid at all, the ions being accelerated with the aid of metal cylinders. In this case, a pulsed generation of ions and a pulsed acceleration ensures that the ions can be accelerated by fields only when they are moving in regions in which the field is virtually homogeneous. As a result of the high beam quality achieved in this manner, the ion beam is suitable for the production of very small structures in the sub-micrometer region. <IMAGE>

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