

Title (en)

PARALLEL CHARGED PARTICLE BEAM EXPOSURE SYSTEM.

Title (de)

BELICHTUNGSSYSTEM FÜR PARALLEL GELADENEN TEILCHENSTRAHL.

Title (fr)

SYSTEME D'EXPOSITION A FAISCEAU DE PARTICULES CHARGEES EN PARALLELE.

Publication

**EP 0069728 A4 19830708 (EN)**

Application

**EP 81901109 A 19810410**

Priority

US 22762081 A 19810123

Abstract (en)

[origin: WO8202623A1] Parallel exposure electron beam lithography system for directly writing an integrated circuit pattern simultaneously at a plurality of locations on the surface of a resist-coated semiconductor wafer. An electron source (110) produces an electron beam which is used to illuminate an object aperture (150). A screen lens (160) consisting of a multiplicity of holes breaks up the flood electron beam emanating from the object aperture (150) into a multiplicity of beams in parallel and focuses them on a resist-coated substrate (190). Each hole in the screen lens acts like a small aperture lens when a positive potential is applied to the wafer (190) with respect to the screen lens (160). A pair of octupole deflectors (210) electronically control the angle with which the electron beam strikes the screen lens (160). This controls the deflection of the images beneath each of the screen lenses. An interferometer-controlled stage moves in a direction orthogonal to the direction of beam deflection and, in conjunction with the synchronous blanking of the flood electron beam, effectively scans out a predetermined integrated circuit pattern under each lens. Alternatively, an ion source may be used with an ion-sensitive resist coated substrate or ions may be implanted directly into a substrate.

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**H01J 37/04**

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CPC (source: EP)

**G03F 7/70716** (2013.01); **G03F 7/70816** (2013.01); **H01J 37/3007** (2013.01)

Citation (search report)

- US 3619608 A 19711109 - WESTERBERG EUGENE R
- FR 2076567 A5 19711015 - COMMISSARIAT ENERGIE ATOMIQUE
- FR 2441266 A1 19800606 - CONTROL DATA CORP [US]

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