



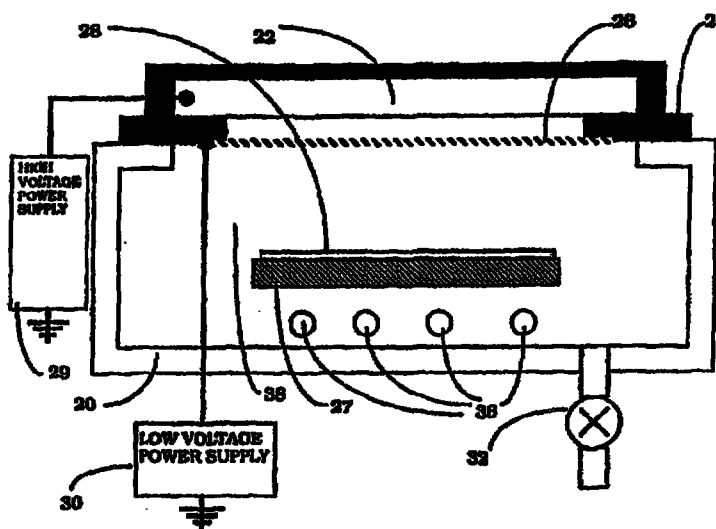
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(54) Title: METHOD FOR CURING SPIN-ON-GLASS FILM UTILIZING ELECTRON BEAM RADIATION



## (57) Abstract

An electron beam exposure method is described which provides a means of curing spin-on-glass (28) formed on a semiconductor wafer (27) which insulates the conductive metal layer and planarizes the topography in the process of manufacturing multilayered integrated circuits. The method utilizes a large area, uniform electron beam exposure system, including a cathode (22), an anode (26) and power supplies (29, 30), in a soft vacuum environment. A wafer (27) coated with uncured siloxane spin-on-glass (28) is irradiated with electrons of sufficient energy to penetrate the entire thickness of the spin-on-glass and is simultaneously heated by infrared heaters. The wafer (27) is exposed to a predetermined dose of electrons (44) while simultaneously raised to a peak temperature in a soft vacuum environment. The electron beam and infrared heaters are then extinguished and the substrate or wafer (27) cooled before removing from vacuum.