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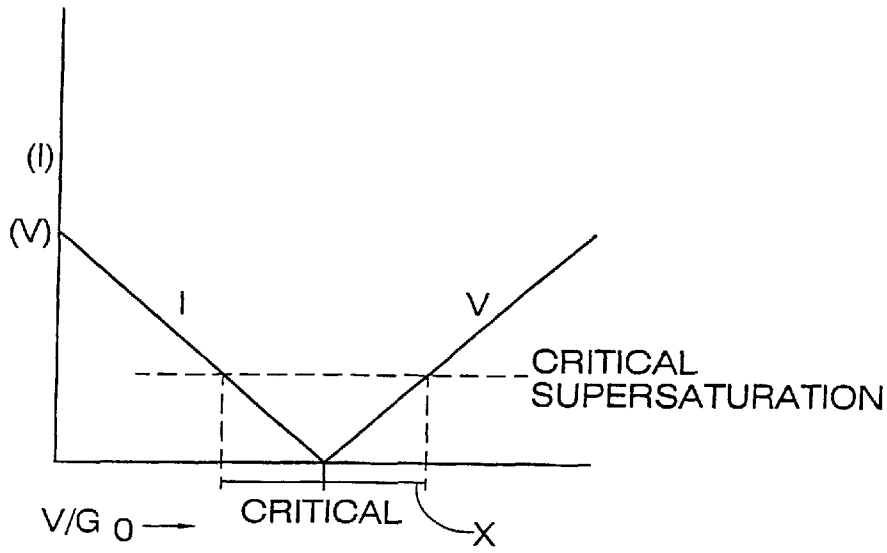
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(54) Title: METHOD FOR THE PRODUCTION OF LOW DEFECT DENSITY SILICON




(57) Abstract: A process for the preparation of a silicon single ingot in accordance with the Czochralski method. The process for growing the single crystal silicon ingot comprises controlling (i) a growth velocity, v, (ii) an average axial temperature gradient, G0, during the growth of a constant diameter portion of the crystal over a temperature range from solidification to a temperature of no less than about 1325 C to initially produce in the constant diameter portion of the ingot a series of predominant intrinsic point defects including vacancy dominated regions and silicon self interstitial dominated regions, alternating along the axis, and cooling the regions from the temperature of solidification at a rate which allows silicon self-interstitial atoms to diffuse radially to the lateral surface and to diffuse axially to vacancy dominated regions to reduce the concentration intrinsic point defects in each region.

WO 03/004734 A1