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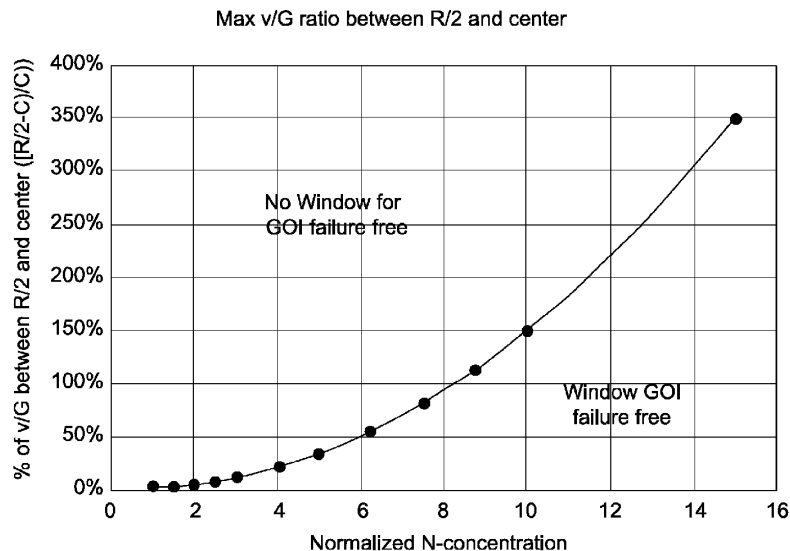


FIG. 8

(57) Abstract: Methods for producing single crystal silicon wafers for use in insulated gate bipolar transistors are disclosed. The methods may involve determining the radial profile of a ratio between (i) a growth velocity, v, and (ii) an axial temperature gradient, G for an ingot with relatively low oxygen. Based on the radial v/G profile, a nitrogen concentration which widens the v/G window to produce Perfect Silicon free of COP and gate oxide failures may be selected.

[Continued on next page]

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