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(21) International Application Number: PCT/US98/16093 (22) International Filing Date: 3 August 1998 (03.08.98) (30) Priority Data: 08/907,795 8 August 1997 (08.08.97) US (71) Applicant: MEMC ELECTRONIC MATERIALS, INC. [US/US]; 501 Pearl Drive, P.O. Box 8, St. Peters, MO 63376 (US). (72) Inventors: KIM, Kyong-Min; 1199 Whitmoor Drive, St. Charles, MO 63304 (US). CHANDRASEKHAR, Sadasiv- am; 16373 Westboro Circle Drive, St. Louis, MO 63017 (US). (74) Agents: HEJLEK, Edward, J. et al.; Senniger, Powers, Leavitt & Roedel, 16th floor, One Metropolitan Square, St. Louis, MO 63102 (US).		(81) Designated States: CN, JP, KR, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

(54) Title: NON-DASH NECK METHOD FOR SINGLE CRYSTAL SILICON GROWTH

(57) Abstract

A non-Dash neck method of preparing a single crystal silicon rod, pulled in accordance with the Czochralski method. The process is characterized in that a large diameter, dislocation-free seed crystal is allowed to thermally equilibrate prior to initiation of silicon rod growth, in order to avoid the formation of dislocations resulting from thermal shock to the crystal. The process is further characterized in that a resistance heater is used to melt the lower tip of the seed crystal to form a molten cap before it is brought into contact with the melt. The process yields a single crystal silicon rod having a short, large diameter neck which is dislocation-free, and which is capable of supporting a silicon rod which weights at least about 100 kilograms during growth and subsequent handling.

