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(21) International Application Number: PCT/AU95/00812 (22) International Filing Date: 1 December 1995 (01.12.95) (30) Priority Data: PM 9822 2 December 1994 (02.12.94) AU (71) Applicant (for all designated States except US): PACIFIC SOLAR PTY. LIMITED [AU/AU]; 82-86 Bay Street, Botany, NSW 2019 (AU). (72) Inventors; and (75) Inventors/Applicants (for US only): GREEN, Martin, Andrew [AU/AU]; Unit 4, 13-17 River Road, Wollstonecraft, NSW 2065 (AU). WENHAM, Stuart, Ross [AU/AU]; 8 Rouse Place, Illawong, NSW 2234 (AU). SHI, Zhengrong [AU/AU]; 10 Blandford Avenue, Waverley, NSW 2024 (AU). (74) Agent: F. B. RICE & CO.; P.O. Box 117, 28a Montague Street, Balmain, NSW 2041 (AU).		(81) Designated States: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, LS, MW, SD, SZ, UG). Published With international search report.

(54) Title: METHOD OF MANUFACTURING A MULTILAYER SOLAR CELL**(57) Abstract**

A semiconductor structure and method of forming the structure, where a supporting substrate or superstrate (12) provides the mechanical strength to support overlying thin active regions. The thin dielectric layer (11) deposited over the substrate or superstrate (12) serves to isolate the deposited layers from the substrate from optical, metallurgical and/or chemical perspectives. A seeding layer (13) is then deposited, the seeding layer being of n-type silicon with appropriate treatments to give the desired large grain size. This layer may be crystallized as it is deposited, or may be deposited in amorphous form and then crystallized with further processing. A stack of alternating polarity layers (14, 15, 16, 17) of amorphous silicon or silicon alloy incorporating n-type or p-type dopants in the alternating layers is then deposited over the seeding layer. Solid phase crystallization is then performed to give the desired grain size of 3 μm or larger which can be achieved by extended heating of the layers at low temperature.

