PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : H01L 31/0352 — A1

(11) International Publication Number: WO 95/27314

(43) International Publication Date: 12 October 1995 (12.10.95)

(21) International Application Number: PCT/AU95/00184

(22) International Filing Date: 31 March 1995 (31.03.95)

(30) Priority Data:
PM 4834 31 March 1994 (31.03.94) 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*): WENHAM, Stuart, Ross [AU/AU]; ~~8 Rouse Place, Hlawong, NSW 2234 (AU)~~. GREEN, Martin, Andrew [AU/AU]; 10 Blandford Avenue, Waverley, NSW 2024 (AU).

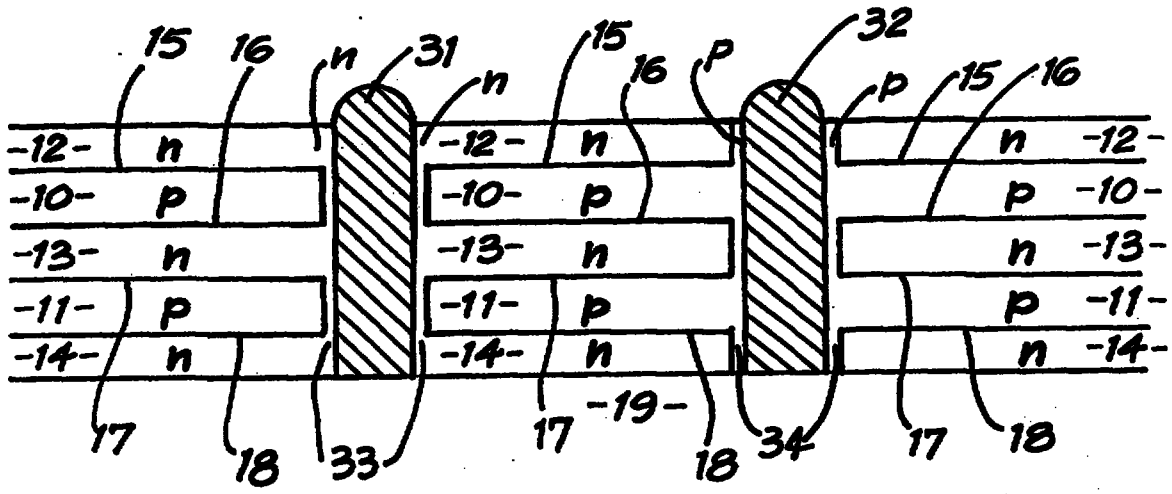
(74) Agent: F.B. RICE & CO.; 28A Montague Street, P.O. Box 117, Balmain, NSW 2041 (AU).

(81) Designated States: 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, LT, LU, LV, MD, MG, MN, MW, MX, NL, 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, MW, SD, SZ, UG).

Published
With international search report.

Address updated (PF23)
gr copy
+
IPER & annexes

(54) Title: MULTIPLE LAYER THIN FILM SOLAR CELLS WITH BURIED CONTACTS



(57) Abstract

A multilayer solar cell structure includes a stack of alternating p-type and n-type semiconductor layers (10, 11, 12, 13, 14) arranged to form a plurality of rectifying photovoltaic junctions (15, 16, 17, 18). Low-cost cells are manufactured from low-quality material which is optimized by employing very high doping levels in thin layers. Typically, the doping levels are greater than 10^{17} atoms/cm^3, and the thickness of the layers is related to carrier diffusion length in thickness. Contact is made to underlying layers by way of a buried contact structure comprising grooves extending down through all of the active layers, the walls of each groove being doped (33, 34) with n- or p-type impurities depending upon the layers to which the respective contact is to be connected and the grooves being filled or partly filled with metal contact material (31, 32).

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	**GB**	United Kingdom	**MR**	Mauritania
AU	Australia	**GE**	Georgia	**MW**	Malawi
BB	Barbados	**GN**	Guinea	**NE**	Niger
BE	Belgium	**GR**	Greece	**NL**	Netherlands
BF	Burkina Faso	**HU**	Hungary	**NO**	Norway
BG	Bulgaria	**IE**	Ireland	**NZ**	New Zealand
BJ	Benin	**IT**	Italy	**PL**	Poland
BR	Brazil	**JP**	Japan	**PT**	Portugal
BY	Belarus	**KE**	Kenya	**RO**	Romania
CA	Canada	**KG**	Kyrgystan	**RU**	Russian Federation
CF	Central African Republic	**KP**	Democratic People's Republic of Korea	**SD**	Sudan
CG	Congo			**SE**	Sweden
CH	Switzerland	**KR**	Republic of Korea	**SI**	Slovenia
CI	Côte d'Ivoire	**KZ**	Kazakhstan	**SK**	Slovakia
CM	Cameroon	**LI**	Liechtenstein	**SN**	Senegal
CN	China	**LK**	Sri Lanka	**TD**	Chad
CS	Czechoslovakia	**LU**	Luxembourg	**TG**	Togo
CZ	Czech Republic	**LV**	Latvia	**TJ**	Tajikistan
DE	Germany	**MC**	Monaco	**TT**	Trinidad and Tobago
DK	Denmark	**MD**	Republic of Moldova	**UA**	Ukraine
ES	Spain	**MG**	Madagascar	**US**	United States of America
FI	Finland	**ML**	Mali	**UZ**	Uzbekistan
FR	France	**MN**	Mongolia	**VN**	Viet Nam
GA	Gabon				

96 11403-8