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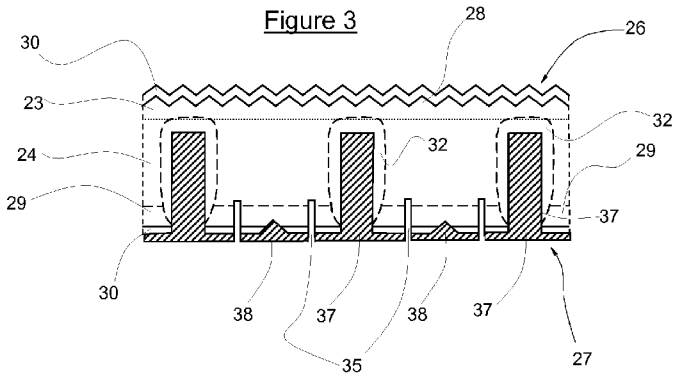
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(54) Title: DEEP GROOVED REAR CONTACT PHOTOVOLTAIC SOLAR CELLS

Figure 3



(57) Abstract: The invention provides photovoltaic concentrator solar cells and a method of forming these from a semiconductor wafer. The method has the steps of first doping the rear surface of said wafer so as to provide a first doped region. Depositing passivation layers on the front and rear surfaces. Forming a deep groove in the rear surface through the passivation layer and doping said rear surface so as to provide an oppositely doped second doped region in the deep groove. Then an opening is formed through the rear passivation layer to the first doped region; and electrical contacts are formed on the rear surface to electrically connect to the first and second doped regions. The photovoltaic concentrator solar cell has a semiconductor wafer with a passivation layer deposited on front and rear surfaces;and a first doped region at the rear surface. It also has a p-type contact in an opening from the rear surface to contact with said first doped region;an n-type electrical contact in a deep groove extending into the wafer from the rear surface; and a second doped region, doped from with the groove after formation thereof but prior to formation of the n-type electrical contact.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 7 339 110 B1 (MULLIGAN WILLIAM P [US] ET AL) 4 March 2008 (2008-03-04)	1-11, 13-22
Y	column 2, line 52 - column 3, line 50; figures 1-16 column 4, line 50 - column 5, line 45	12
X	KR 100 378 343 B1 (SAMSUNG ELECTRONICS CO LTD) 18 March 2003 (2003-03-18) * abstract; figure 2a	23

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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