MIS-IL SILICON SOLAR CELL WITH PASSIVATION LAYER TO INDUCE SURFACE INVERSION

Applicant: International Business Machines Corporation, Armonk, NY (US)

Inventors: Qing Cao, Yorktown Heights, NY (US); Kangguo Cheng, Schenectady, NY (US); Zhengwen Li, Scarsdale, NY (US); Fei Liu, Yorktown Heights, NY (US); Zhen Zhang, Ossining, NY (US)

Assignee: International Business Machines Corporation, Armonk, NY (US)

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ABSTRACT
The present invention relates generally to a photovoltaic solar cell device and more particularly, to a structure and method of inducing charge inversion in a silicon substrate by using a highly charged passivation layer on an upper side of the silicon substrate. A positively charged passivation layer comprising hafnium oxide may be formed on an insulating layer covering an upper surface of a p-doped silicon substrate and on a metal contact to induce a strong inversion layer in an upper portion of the p-doped silicon substrate.

18 Claims, 6 Drawing Sheets