

ABSTRACT

PRECURSORS FOR PHOTOVOLTAIC PASSIVATION

5 Deposition methods are disclosed for producing a passivation layer on a photovoltaic cell. Method includes depositing a passivation layer comprising at least a bi-layer further comprising a silicon oxide and a silicon nitride layer. In one aspect, the silicon precursor(s) used for the deposition of the silicon oxide layer or the silicon nitride layer, respectively, is selected from the family SiR_xH_y or selected from the family SiR_xH ,
10 silane, and combinations thereof, wherein in SiR_xH_y $x+y = 4$, $y \neq 4$ and R may be independently selected from the group consisting of C_1 - C_8 linear alkyl, wherein the ligand may be saturated or unsaturated; C_1 - C_8 branched alkyl, wherein the ligand may be saturated or unsaturated; C_1 - C_8 cyclic alkyl, wherein the ligand may be saturated, unsaturated, or aromatic; and NR^*_3 wherein R^* can be independently hydrogen; or linear,
15 branched, cyclic, saturated, or unsaturated alkyl. Photovoltaic devices containing the passivation layers are also disclosed.

FIGURE 1

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