

PHOTOVOLTAIC GENERATOR WITH DIELECTRIC
ISOLATION AND BONDED, INSULATED WAFER LAYERS

ABSTRACT OF THE DISCLOSURE

A photovoltaic generator device for producing an output sufficient to turn on a MOS-gated device consists of a plurality of planar photogenerators connected in series. Each of the photovoltaic generators is contained on its own respective insulated tub. The insulated tubs are formed by wafer bonding a junction-containing wafer to a handle wafer with a dielectric isolation layer between them. The individual tubs are formed at their sides by isolation trenches which enclose each tub and which extend to the dielectric layer between the junction-containing and handle wafers. Each tub is formed of an N body having a shallow P⁺ diffusion. N⁺ contact regions are formed in the N body and contact strips connect the devices of each of the tubs in series by connecting the P⁺ diffusions of one tub to the N⁺ contact of an adjacent tub.

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