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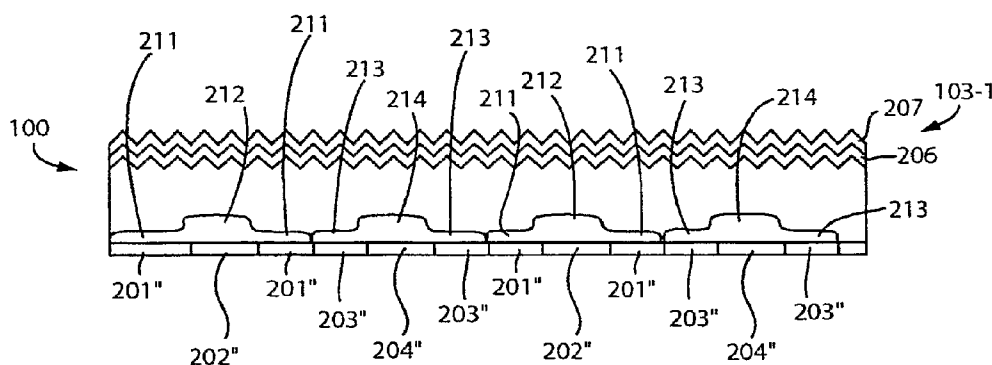
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(57) Abstract: In one embodiment, active diffusion junctions (211, 212, 213, 214) of a solar cell are formed by diffusing dopants from dopant sources (201, 202, 203, 204) selectively deposited on the back side of a wafer (100). The dopant sources (201, 202, 203, 204) may be selectively deposited using a printing method, for example. Multiple dopant sources may be employed to form active diffusion regions of varying doping levels. For example, three or four active diffusion regions may be fabricated to optimize the silicon/dielectric, silicon/metal, or both interfaces of a solar cell. The front side (103-1) of the wafer may be textured prior to forming the dopant sources (201, 202, 203, 204) using a texturing process that minimizes removal of wafer material. Openings to allow metal gridlines to be connected to the active diffusion junctions may be formed using a self-aligned contact opening etch process to minimize the effects of misalignments.

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