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SATO et al.(10) **Pub. No.: US 2024/0213308 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **SEMICONDUCTOR DEVICE**(52) **U.S. Cl.**(71) Applicant: **SHINDENGEN ELECTRIC**
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A semiconductor device includes, a semiconductor base body, an insulation layer that has an opening, and a surface electrode. The semiconductor base body includes a drift region, a p-type dopant region, and a peripheral dopant region. The p-type dopant region has a high concentration region that is formed in a region where the high concentration region overlaps with the p-type dopant region. A plurality of recombination centers are formed in the semiconductor base body, an inner peripheral end of the peripheral dopant region on the surface of the semiconductor base body is positioned on an inner peripheral side of an end portion of the opening, and a length from the inner peripheral end of the peripheral dopant region to the end portion of the opening is 0.01 μm or more to 130 μm or less.

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