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(54) **SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE**

(71) Applicant: **SUMITOMO ELECTRIC DEVICE INNOVATIONS, INC.**, Kanagawa (JP)

(72) Inventor: **Hiroaki KATO**, Kanagawa (JP)

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(57) **ABSTRACT**

A semiconductor device includes a substrate having a first surface and a second surface opposite to the first surface; a first nitride semiconductor layer having a third surface that is in contact with the second surface and a fourth surface opposite to the third surface, a recess being formed in the fourth surface; a second nitride semiconductor layer provided in the recess; and a first metal layer provided on the second nitride semiconductor layer. A through-hole is formed to penetrate the substrate, the first nitride semiconductor layer, and the second nitride semiconductor layers and expose the first metal layer. The semiconductor device further includes a second metal layer that is in contact with the first metal layer and that covers the first surface and an inner wall surface of the through-hole. The second nitride semiconductor layer contains impurity atoms at a concentration of 1.0×10^{18} cm^{-3} or greater.