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Investigation of the structural and electrical properties of air-annealed ruthenium thin films on 6H-SiC at different temperatures.

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Highlights:

- The RBS of the thin films showed oxidation and diffusion of Ru at 400 °C & 500 °C, respectively.
- The XRD analysis of the thin films indicated the formation of RuO₂ and RuSi at 600 °C.
- The ideality factor of the SBD was seen to decrease with the annealing temperature.
- The series resistance increased astronomically at 700 °C, indicating a damaged SBD.
- The failure mechanism of the SBD is due to deep inter-diffusion of Ru and Si at the interface.

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