Ketino Kaadze

'Classical' current-voltage characteristics of 4H-SiC p^+-n junction diodes

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The paper describes classical forward current-voltage characteristics of high-voltage 4H-SiC diodes at law current densities. These structures were investigated in the temperature range 297-640K. Here the current is a sum of recombination current in the space charge region and the diffusion current in the base whose thickness was about 50 µm. The current density caused by diffusion depends on lifetime in base and using this relationship the hole lifetime was measured about 10^{-9} s. It is found that this estimated value of lifetime (at low injection level) is about 600 tomes shorter than the lifetime at high injection level. The proceeding work is done also to explain this difference.