World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:8, No:01, 2014

Simulation of I–V Characteristics of Lateral PIN Diode on Polysilicon Films

Authors : Abdelaziz Rabhi, Mohamed Amrani, Abderrazek Ziane, Nabil Belkadi, Abdelraouf Hocini

Abstract : In this paper, a bedimensional simulation program of the electric characteristics of reverse biased lateral polysilicon PIN diode is presented. In this case we have numerically solved the system of partial differential equations formed by Poisson's equation and both continuity equations that take into account the effect of impact ionization. Therefore we will obtain the current-voltage characteristics (I-V) of the reverse-biased structure which may include the effect of breakdown.The geometrical model assumes that the polysilicon layer is composed by a succession of defined mean grain size crystallites, separated by lateral grain boundaries which are parallel to the metallurgic junction.

Keywords : breakdown, polycrystalline silicon, PIN, grain, impact ionization
Conference Title : ICECECE 2014 : International Conference on Electrical, Computer, Electronics and Communication Engineering
Conference Location : London, United Kingdom
Conference Dates : January 20-21, 2014