The electrical characterization of p-CdTe/n-Si (111) heterojunction diode

Mohammed A Razooqi, Ameer F Abdulameer, Adwan N Hameed, Rasha A Abdullaha, Ehsan I Sabbar

Abstract:

p-CdTe film has been deposited on n-Si (111) substrate by thermal evaporation technique. The prepared CdTe/Si heterojunction diodes have been annealed at 573K. The capacitance-voltage measurements have studied for the prepared heterojunctions under 2 KHz frequencies. The capacitance-voltage measurement indicated that these diodes are abrupt. The capacitance at zero bias, the built in voltage and the doping concentration increased after annealing process while the zero bias depletion region width is decreased. The carrier transport mechanism for CdTe/Si diodes in dark is tunneling-recombination. From current-voltage measurement at dark, the values of ideality factor are 2.9 and 3.8. The values of reverse saturation current are 3.77× 10-7 and 9.36× 10-8 Amperes.