The current-voltage (I-V) characteristic of the Au/n-GaAs/Au-Ge Schottky diode with native oxide interfacial layer has been studied as a function of hydrostatic pressure. The ideality factor and barrier height of the diode have shown hydrostatic pressure dependence. The pressure coefficient of the flat-band barrier height was found to be 10.3 meV/kbar and the flat-band barrier height at zero pressure was calculated as 0.854 eV. Additionally, the energy distribution of interface state density was determined from I-V characteristics for each hydrostatic pressure value.