

Turkish Journal of Physics

Turkish Journal

of


Physics

Space Charge Limited Current at High Fields in Al-Ge-Al Surface Barrier Devices

A. I. MUKOLU

Department of Physics, University of Ado Ekiti,
Ado-Ekiti-NIGERIA

Abstract: The current-voltage (I-V) characteristics of Aluminium-Germanium-Aluminium (Al-Ge-Al) surface barrier devices at different fields ($<1,000\text{V/cm}$) have been investigated. The results reveal that in the low field region ($<300\text{ V/cm}$), the conduction is ohmic while in the high field region ($>300\text{ V/cm}$), the current is proportional to the square of the applied voltage and is interpreted in terms of space charge-limited current. Also, the overall analysis of the results shows that the surface conductance (δ_s) of the samples increases with film thickness. The empirically determined values of δ_s vary from 0.40 to 0.93 $\Omega^{-1}\text{m}^{-2}$ as the thickness of the films increased from 500 to 2000 Å.

 [Keywords](#)
 [Authors](#)



phys@tubitak.gov.tr

[Scientific Journals Home](#)
[Page](#)

Turk. J. Phys., **25**, (2001), 385-392.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Phys., vol.25, iss.4.](#)