

Measurement of Neutron Irradiation Effect on Reverse Current Damage Constant α for Diode

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When the electronic components are exposed to neutron irradiation, electrical properties change by interaction of neutrons in these parts such as capacitance, reverse bias current, the minority carrier lifetime, etc. These changes are very important, so that may impair the performance of the device and disable it. So the measurement of the damage by neutrons in these parts is necessary. One of the most important parameters for expressing the damage to electronic components is a constant, α that is the inverse current of the damage. The constant (α) is the slope of the reverse current curve versus the radiation flux. The aim of this work is measurement of the damage reverse current of constant α for diodes 1N4007, BYV27 and BYV95 in various voltages and temperatures. These diodes have been irradiated at the Tehran Research Reactor by fission neutron spectrum. The results are in good agreement with the theoretical relations.

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