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Autometized Measurements of parameters DLTS digital

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In this work, the results of effective lifetime in epilayer are presented. method of directly evaluating the activation energy ΔE, capture cross section σ, and density N_T , of deep-level traps from the pulsed reverse bias capacitance transient is described. Even if the capacitance transient is digitized and stored on the above techniques, it is usually processed as if it were an analog signal [1]. The test samples used for this paper consisted of p+nn+ diodes fabricated on epilayer *n* type and substrate n+. The measures determined the kind of traps of this diode and explain the dependence of the reverse recovery time, and options to optimize.

The complexity and few methods to measure traps in the volume of an ultrafast power diode make the old methods are still being used relatively, despite its limitations. Deep level transient spectroscopy is used to find the parameters of the traps. This work focuses on obtaining the recombination center energy levels positions, the temperature dependence of these levels associated with the cross section capture, as well as analysis and verification of lifetime as an end result. The grain boundaries just provide the space charge region which guarantees the electrical measurability of the traps [2,3]. The band bending within the space-charge region results in a crossover point of the horizontal Fermi level and the trap energy that runs parallel to the bend band edges .As results we found a reverse recovery time of 25ns was obtained for Nt=2x1014cm-3, with a leakage current of less than 0.1mA , an on-state voltage of 1.05V and a breakdown voltage of greater than 600V at ambient temperature.

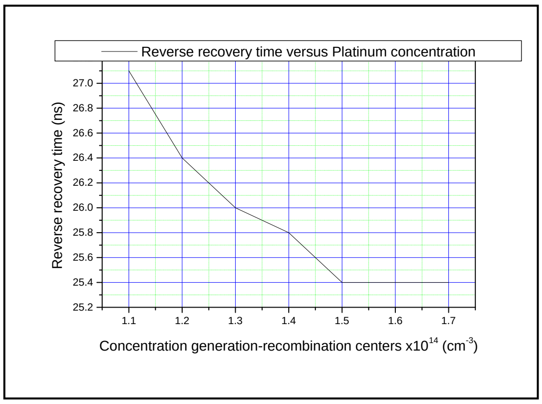

Figure 1: Reverse recovery time versus Pt trap density in the bulk of the diode

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