

### EXCESS CURRENT CARRIER DISTRIBUTION IN THE BASE REGION OF THE SEMICONDUCTOR MULTI-JUNCTION STRUCTURE

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#### ABSTRACT

A new approach to the theory of excess current carrier distribution in the homogeneous base region of the semiconductor multi-junction structure is proposed. Numerical analysis of this structure is performed taking into consideration an assumption that concentrations of excess electrons and holes in the semiconductor are equal (the neutrality principle). To obtain excess carrier distributions in this structure it is necessary to solve continuity equations of electron  $J_n$  and hole  $J_p$  current densities. A general solution is obtained and numerically calculated distributions of excess carriers and electrical potential for cases interesting from the point of view of their application in injection modulated thermal radiation structures destined for dynamic scene projectors are presented.