

EXTRACTION OF PHOTOCARRIERS
IN VARIABLE GAP LAYERS
WITH OHMIC CONTACTS

B.S. Sokolovskii, V.K. Pysarevskii, A.V. Nemolovskii

Institute of Applied Physics,
Ivan Franko Lviv National University
(49, General Chuprynka Str., Lviv 79044, Ukraine)

S u m m a r y

Regularities of the photocarrier extraction effect in variable gap semiconductor layers with constant band gap gradient and Ohmic contacts under conditions of homogeneous and local photoexcitation are studied theoretically. The spatial distributions of the photocarrier concentration as well as the field dependences of the effective lifetime of nonequilibrium carriers and photocurrent are analyzed in detail. It is shown that, in the case where an external field has a direction opposite to that of the quasielectric field, the region of negative differential photoconductivity can be realized on the field dependences of photocurrent, and the maximum photocurrent can substantially exceed the saturation photocurrent of homogeneous samples.