

PHOTOELECTRIC CHARACTERISTICS
OF SILICON PHOTSENSITIVE
STRUCTURES WITH NON-OHMIC
REAR CONTACTS

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S u m m a r y

Detailed studies of the dependences of open-circuit voltage on the irradiance level, $V_{OC}(P_L)$, the spectral dependences of short-circuit current, $I_{SC}(\lambda)$, and the spectral dependences of open-circuit voltage, $V_{OC}(\lambda)$, have been carried out for silicon photosensitive structures with nonmonotonous (possessing a maximum) dependence $V_{OC}(P_L)$. The peculiarities in the P_L -dependences were found to result from non-Ohmic properties of a rear contact in the investigated structures. The proposed model of the rear contact influence on the processes of generation, recombination, and collection of charge carriers in silicon photosensitive structures provides a quantitative agreement between theoretical and experimental dependences in a wide irradiance range. It has been demonstrated that the measurements of $V_{OC}(P_L)$ and $I_{SC}(P_L)$ dependences should be used as an additional method for the characterization of photosensitive structures, which allows one to get an additional important information concerning the properties of their rear contacts.