

**UNCLASSIFIED**

**AD 401 275**

**DEFENSE DOCUMENTATION CENTER**

**FOR**

**SCIENTIFIC AND TECHNICAL INFORMATION**

**CAMERON STATION, ALEXANDRIA, VIRGINIA**



**UNCLASSIFIED**

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

401 275

21

STEP  
24.2600

5) 17511

43935

0/030/62/002/008/002/005  
1046/1246

STIA  
FILE COPY

AUTHORS: ⑧ Subashiyev, V.K. and Ravich, Yu.I.  
TITLE: ⑥ Contribution to the theory of valve photoeffect on p-n junctions  
PERIODICAL: ⑬ TRANS. F.R.D.A. physica status solidi, v. 2: no. 8, (1962) 1043-1061, PP.

TEXT: The current-voltage characteristics are calculated for an illuminated p-n junction, allowing for an arbitrary spectral composition of the incident light and non-uniform properties of the n- and p-regions. The current flowing across the junction is found to consist of a component which is independent of the light intensity and varies exponentially with the applied voltage, and of a component which is independent of the applied voltage and varies in proportion to the illumination intensity (the dark and the short-circuit currents, respectively). The two components are expressible in terms of a special position function which, being independent of voltage and illumination, is calculated for the following cases: 1. The parameters characterizing the diffusion, the recombination and the drift of minority carriers are constant throughout the p- and the n-regions. 2. The parameter values change as a step-function. 3. A strong electric field

Card 1/2

Li

Contribution to the theory of valve photoeffect...

is maintained in the n-region. 4. The thickness of the n-region is small. Certain results of this work can be used in determining the dark current-voltage characteristics of p-n junctions with inhomogeneous p- and n-regions. There are 8 figures.

ASSOCIATION: Institut poluprovodnikov Akademii Nauk SSSR Leningrad (The Institute of Semiconductors, Academy of Sciences USSR, Leningrad)

SUBMITTED: May 18, 1962

Card 2/2