

OPTIMUM CONCENTRATION OF InSb
PHOTODIODE FOR MINIMUM LOW
REVERSE BIAS LEAKAGE CURRENT

*M. Moradi, M. Daraei, M. Hajian, M.A. Forghani,
M. Rastgoo, A.O. Alipour*

Semiconductor Component Industry
(*P.O. Box 19575-199, Tehran, Iran*)

S u m m a r y

We have investigated a relation between the impurity concentration and the leakage current for three types of InSb diodes. They were fabricated with different impurity concentrations on both sides of the junction such as $p-n$, p^+-n , and p^+-n^+ in order to achieve the minimal level of noise. It is shown that the leakage current at a low reverse bias has a minimum for the p^+-n diode structure (impurity concentration of order of $2 \times 10^{15} \text{ cm}^{-3}$ for the n -type and $1 \times 10^{18} \text{ cm}^{-3}$ for the p -type). Increasing the impurity beyond these values may cause the tunneling at a low reverse bias voltage close to zero, and decreasing the impurity causes increasing the diffusion current.