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Exact Analytical Solution of the Diode Ideality Factor of a pn Junction Device Using Lambert W-function Model

Habibe BAYHAN, A. Sertap KAVASOGLU
University of Muğla, Faculty of Art and Science, Department of Physics 48000 Muğla-TURKEY
e-mail: hbayhan@mu.edu.tr

Abstract: The paper presents a new analytical method for extracting the diode ideality factor of a p-n junction device using Lambert W-function model and the dark current-voltage data. The extracted values are found to be in good agreement with those calculated experimentally from dark current-voltage characteristics.

Key Words: Ideality factor; Lambert W-function; Solar cell.