

Preface

This is the **solution manual** for the textbook, **Fundamentals of Solid-State Electronics** (first edition, October 1991) (**FSSE**). It contains the solution of more than 100 FSSE problems assigned by this author and his colleagues in a one-semester junior-level introductory core course on solid-state devices from 1989 to 1996 at the University of Florida. A copy of the solutions was given to the students with their graded solutions.

This solution manual can be acquired by both students and instructors so that the students can study the methods of solution and acquire a deeper understanding of the underlying physics from the descriptions and essay solutions. Thus, it is not only a **teaching guide** for the instructors but also a **learning aid** for the students.

An extensive appendix on **transistor reliability** is added because of current manufacturing concerns on the operation time-to-failure of transistors. It contains descriptions of the fundamental causes of transistor instability and the solution of fundamental and applied problems. Four subjects are covered: interface trap, oxide trap, acceptor hydrogenation, and electromigration. The materials were taught in a senior transistor device and circuit reliability course by Toshikazu Nishida and this author and in a third-year advanced graduate course on semiconductor material and device physics by this author during 1988-1996 at the University of Florida.

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