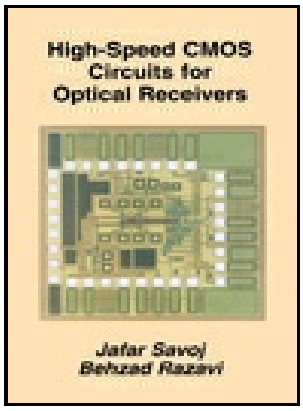
MOSFET modeling & BSIM3 users guide

Kluwer Academic Publishers - MOSFET Modeling & BSIM3 User's Guide



Description: -
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Electronic circuit design -- Data processing.
Metal oxide semiconductor field-effect transistors -- Computer simulation.MOSFET modeling & BSIM3 users guide
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Notes: Includes bibliographical references.
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Tags: #MOSFET #models

MOSFET

The resistivity can be lowered by increasing the level of doping, but even highly doped polysilicon is not as conductive as most metals.

MOSFET

As the voltage at the gate increases, there will be a point at which the surface above the depletion region will be converted from p-type into n-type, as electrons from the bulk area will start to get attracted by the larger electric field. We will understand the operation of a MOSFET as a switch by considering a simple example circuit.

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In older STI shallow trench isolation designs, radiation strikes near the silicon oxide region cause the channel inversion at the corners of the standard MOSFET due to accumulation of radiation induced trapped charges. MOS memory enabled higher performance, was cheaper, and consumed less power, than , leading to MOS memory overtaking magnetic core memory as the dominant technology by the early 1970s. However, the nMOS devices were impractical, and only the pMOS type were practical working devices.

Basic Electronics

The relative simplicity and low power requirements of MOSFETs have fostered today's microcomputer revolution. Electronics: The Life Story of a Technology.

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The JFET and BJT are preferred for accurate matching of adjacent devices in integrated circuits , higher and certain temperature characteristics which simplify keeping performance predictable as circuit temperature varies. These are each considered as two separate nonlinear capacitors, a bottom capacitance and a sidewall capacitance, calculated from the perimeters of the source and drain areas. To reduce the resulting current, the insulator can be made thinner by choosing a material with a higher dielectric constant.

MOSFET parameter extraction and spice modeling

Their further work demonstrated how to etch small openings in the oxide layer to diffuse dopants into selected areas of the silicon wafer. Silicon dioxide however has a modest dielectric constant.

Related Books

- Andar en torno (1985)
- Introduction to applied entomology
- Federal regulation of methadone treatment
- Future of the New Forest
- Ahhh! said stork