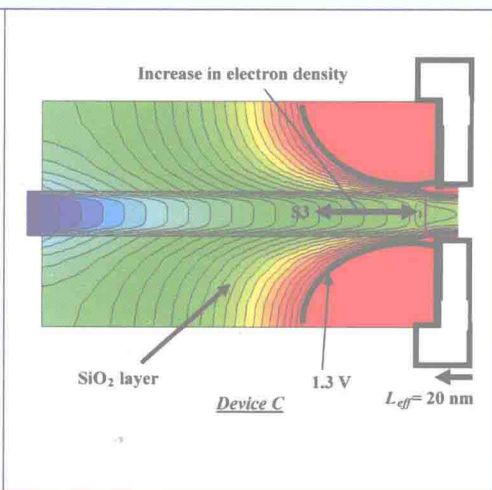
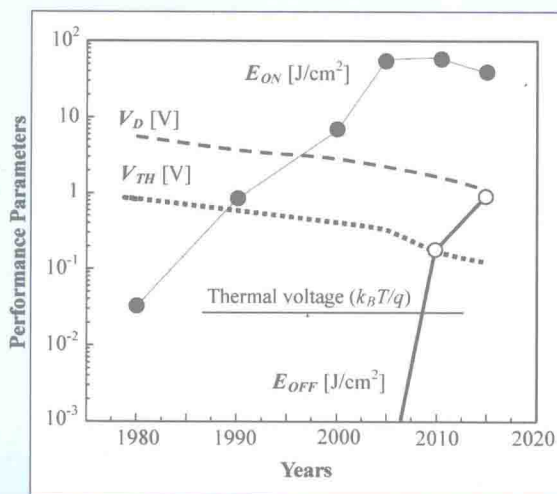


# MOS DEVICES FOR LOW-VOLTAGE AND LOW-ENERGY APPLICATIONS

YASUHISA OMURA | ABHIJIT MALLIK | NAOTO MATSUO



# MOS DEVICES FOR LOW-VOLTAGE AND LOW-ENERGY APPLICATIONS

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**MOS DEVICES FOR  
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# Preface

The twin goals of low-voltage operation and low power consumption have been pursued for 40 years, since the adoption of the scaling law. In the 1970s, however, the electronics industry did not pay much attention to the scaling law, despite its advantages, because nobody imagined at that time that the industry would grow so rapidly or that the global social infrastructure would be so thoroughly altered by the Internet.

Since the final decade of the twentieth century, the limitations of petroleum-related chemicals and the threat of global warming have compelled industry leaders and scientists to make serious efforts to find solutions. Population pressure is negatively impacting energy resources and global warming, giving the situation particular urgency.

Against this background, many kinds of monitoring technologies using sensors are being developed. However, the power consumption of such products is very high and high-power batteries are needed as a result.

We, the authors, are interested in the development of low-voltage and low-power semiconductor devices to contribute to the energy efficiency of electronic products. In this book we introduce the concept of “low energy” in discussing the above issues. The meaning of “low energy” is described in the following chapters in detail.

We hope that this book will be helpful in developing low-energy device technologies for the electronics industry and the world.

*Yasuhisa Omura, Osaka, Japan*

*Abhijit Mallik, Kolkata, India*

*Naoto Matsuo, Himeji, Japan*

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