

Preface

This special edition presents recent advances in processes for fabricating integrated circuits and power electronics devices based on silicon carbide. The contributions explore critical aspects of planar CMOS and MOSFET technologies, including contact formation, dielectric stack engineering, oxidation process analysis, and gate oxide integrity, all of which directly affect device reliability and performance.

Attention is also devoted to contact forming processes and minimisation of conduction loss for optimal efficiency in power semiconductor switches.

Some articles consider innovations related to post-deposition annealing and deep implantation processes.

The edition also highlights processes and techniques such as trench etching, super-junction technology, and the use of metal-oxide-semiconductor capacitors in advanced device structures.

By combining perspective materials processing techniques, device engineering, and circuit integration methods, this special edition provides a comprehensive overview of the state of the art in SiC-based power electronics device fabrication technologies, serving as a valuable resource for researchers, engineers, and practitioners in the field.