



# Handbook of Silicon Based MEMS Materials and Technologies, Second Edition (Micro and Nano Technologies)

From William Andrew

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## Handbook of Silicon Based MEMS Materials and Technologies, Second Edition (Micro and Nano Technologies) From William Andrew

The Handbook of Silicon Based MEMS Materials and Technologies, Second Edition, is a comprehensive guide to MEMS materials, technologies, and manufacturing that examines the state-of-the-art with a particular emphasis on silicon as the most important starting material used in MEMS.

The book explains the fundamentals, properties (mechanical, electrostatic, optical, etc.), materials selection, preparation, manufacturing, processing, system integration, measurement, and materials characterization techniques, sensors, and multi-scale modeling methods of MEMS structures, silicon crystals, and wafers, also covering micromachining technologies in MEMS and encapsulation of MEMS components.

Furthermore, it provides vital packaging technologies and process knowledge for silicon direct bonding, anodic bonding, glass frit bonding, and related techniques, shows how to protect devices from the environment, and provides tactics to decrease package size for a dramatic reduction in costs.

- Provides vital packaging technologies and process knowledge for silicon direct bonding, anodic bonding, glass frit bonding, and related techniques
- Shows how to protect devices from the environment and decrease package size for a dramatic reduction in packaging costs
- Discusses properties, preparation, and growth of silicon crystals and wafers
- Explains the many properties (mechanical, electrostatic, optical, etc.), manufacturing, processing, measuring (including focused beam techniques), and multiscale modeling methods of MEMS structures
- Geared towards practical applications rather than theory

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