1. Record Nr. UNINA9910299850503321

Autore	Nojiri Kazuo
Titolo	Dry Etching Technology for Semiconductors / / by Kazuo Nojiri
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-10295-8
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (126 p.)
Disciplina	537.622 620 621.3815
Soggetti	Electronic circuits Semiconductors Circuits and Systems Electronic Circuits and Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Contribution of Dry Etching Technology to Progress of Semiconductor Integrated Circuit -- Mechanism of Dry Etching -- Dry Etching of Various Materials -- Dry Etching Equipments -- Dry Etching Damage -- Latest Dry Etching Technologies -- Future Challenges and Outlook for Dry Etching Technology.
Sommario/riassunto	This book is a must-have reference to dry etching technology for semiconductors, which will enable engineers to develop new etching processes for further miniaturization and integration of semiconductor integrated circuits. The author describes the device manufacturing flow, and explains in which part of the flow dry etching is actually used. The content is designed as a practical guide for engineers working at chip makers, equipment suppliers and materials suppliers, and university students studying plasma, focusing on the topics they need most, such as detailed etching processes for each material (Si, SiO2, Metal etc) used in semiconductor devices, etching equipment used in manufacturing fabs, explanation of why a particular plasma source and gas chemistry are used for the etching of each material, and how to develop etching processes. The latest, key technologies are also

described, such as 3D IC Etching, Dual Damascene Etching, Low-k Etching, Hi-k/Metal Gate Etching, FinFET Etching, Double Patterning etc. Provides a comprehensive, systematic guide to dry etching technologies, from basics to latest technologies; Enables beginners to understand the mechanisms of dry etching, without complexities of numerical formulas/equations; Describes etching processes for all materials which are used in semiconductor devices, explains key etching parameters for each material, and explains why a particular plasma source and etching gas chemistry is used for each material; Discusses the device manufacturing flow and explains in which part of device manufacturing dry etching is actually used; Describes the types and plasma generation mechanism of etching equipment which are actually used in semiconductor fabs, such as CCP (Capacitively Coupled Plasma), Magnetron RIE (Magnetron Reactive Ion Etching), ECR (Electron Cyclotron Resonance) Plasma, and ICP (Inductively Coupled Plasma).