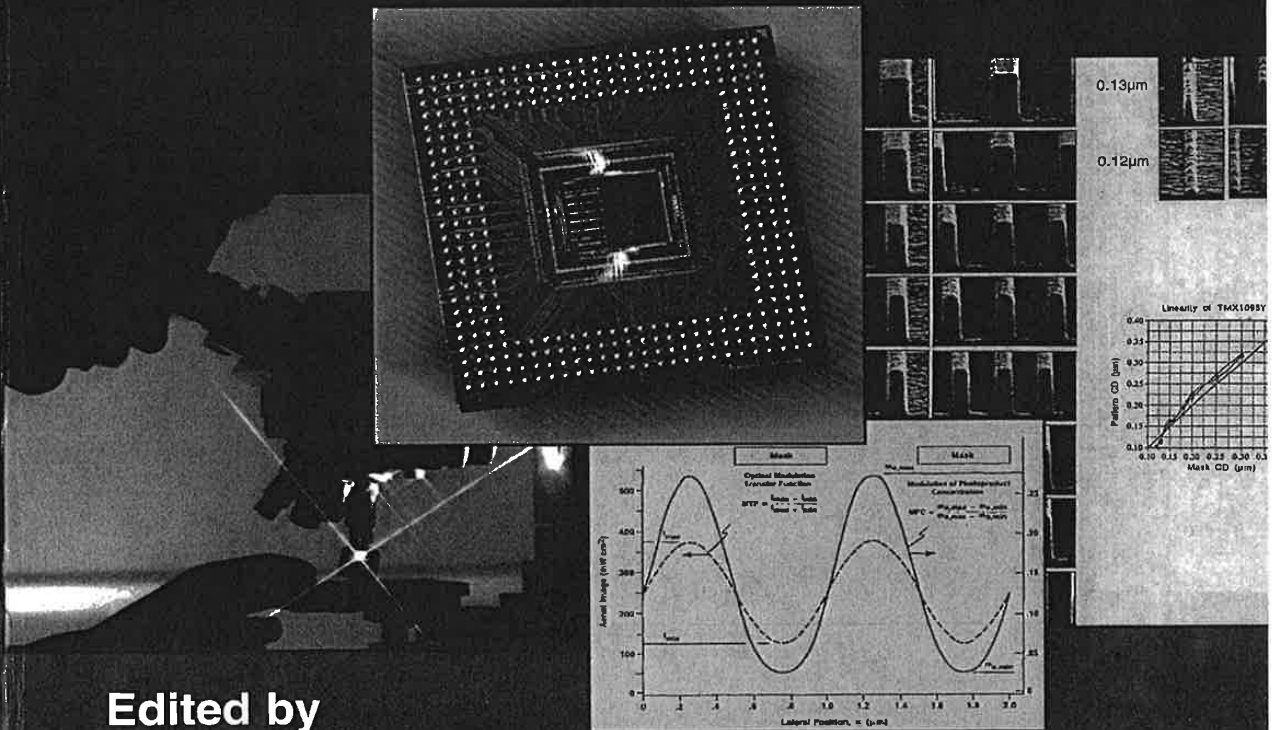


HANDBOOK of VLSI MICROLITHOGRAPHY

Principles, Tools, Technology and Applications • SECOND EDITION



Edited by
John N. Helbert



Gary E. McGuire, Series Editor
Stephen M. Rossnagel, Series Editor
Rointan F. Bunshah (1927-1999), Founding Editor

IP Bridge Exhibit 2015

Helbert

Handbook of VLSI Microlithography • Second Edition

np
T K
7874
H3494
2001
ENGI

**HANDBOOK OF
VLSI MICROLITHOGRAPHY
SECOND EDITION**

Principles, Technology, and Applications

**HANDBOOK OF
VLSI MICROLITHOGRAPHY
SECOND EDITION**

Principles, Technology, and Applications

Edited by

John N. Helbert

Motorola, Inc.
Phoenix, Arizona

**NOYES PUBLICATIONS
Park Ridge, New Jersey, U.S.A.**

**WILLIAM ANDREW PUBLISHING, LLC
Norwich, New York, U.S.A.**

T K
7874
H3494
2001
ENGI

Copyright © 2001 by Noyes Publications

No part of this book may be reproduced or
utilized in any form or by any means, elec-
tronic or mechanical, including photocopying,
recording or by any information storage and
retrieval system, without permission in writing
from the Publisher.

Library of Congress Catalog Card Number: 00-028173

ISBN: 0-8155-1444-1

Printed in the United States

Published in the United States of America by
Noyes Publications / William Andrew Publishing, LLC
13 Eaton Avenue
Norwich, NY 13815
1-800-932-7045
www.knovel.com

10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

Handbook of VLSI Microlithography / [edited] by
John Helbert.--2nd edition

p. cm.

Includes bibliographical references and index.

ISBN 0-8155-1444-1

1. Integrated circuits--Very large scale integration. 2. Microlithography.
I. Helbert, John N.

TK7874 .H3494 2001
621.3815'31--dc21

00-028173
CIP

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.