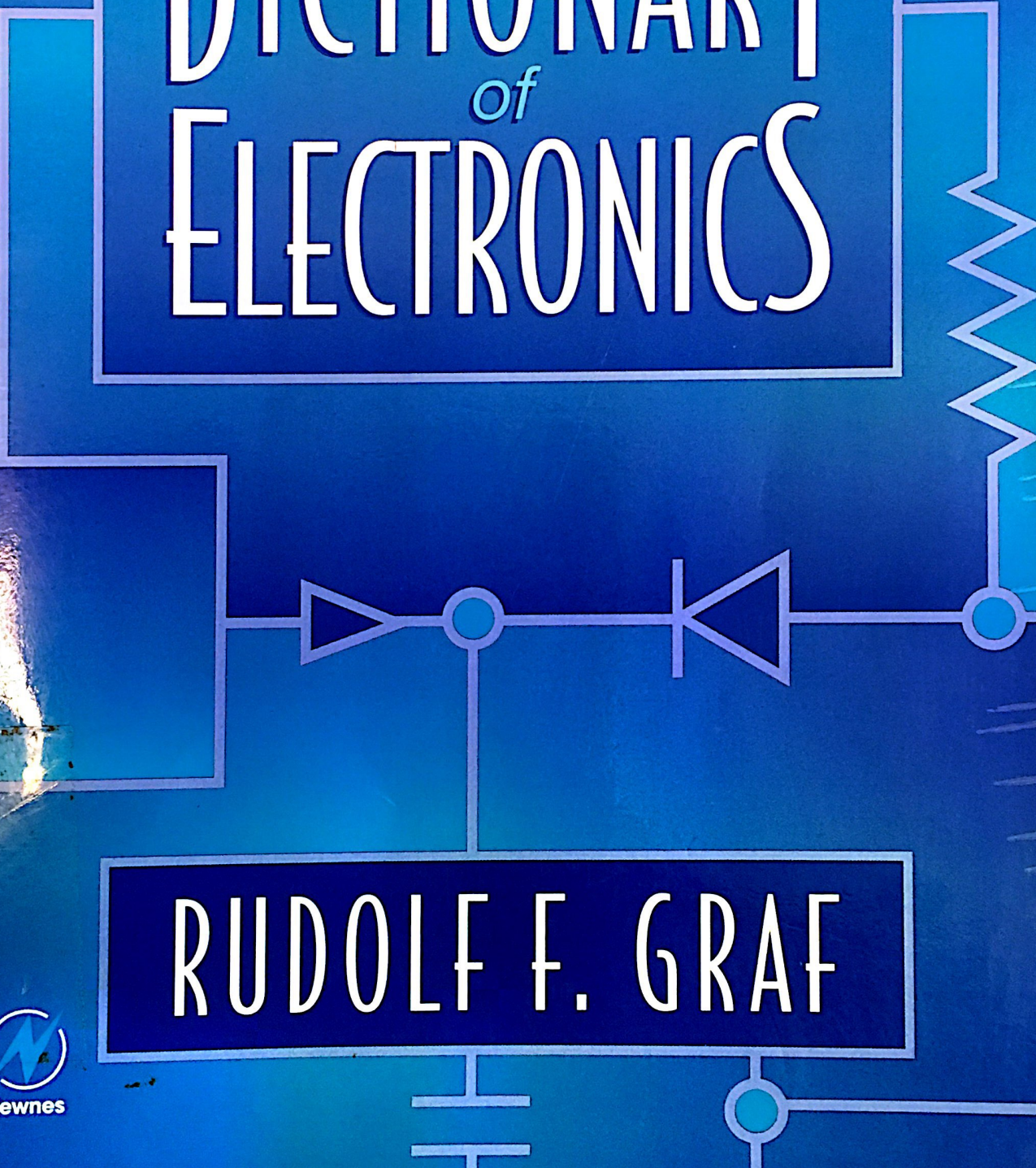


SEVENTH EDITION

MODERN DICTIONARY *of* ELECTRONICS



RUDOLF F. GRAF



Newnes

**MODERN
DICTIONARY
of
ELECTRONICS**

SEVENTH EDITION

REVISED AND UPDATED

Rudolf F. Graf




Newnes

Boston Oxford Auckland Johannesburg Melbourne New Delhi


Newnes is an imprint of Butterworth-Heinemann.


Copyright © 1999 by Rudolf F. Graf

 A member of the Reed Elsevier Group.

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

 Recognizing the importance of preserving what has been written, Butterworth-Heinemann prints its books on acid-free paper whenever possible.

 Butterworth-Heinemann supports the efforts of American Forests and the Global ReLeaf program in its campaign for the betterment of trees, forests, and our environment.

Library of Congress Cataloging-in-Publication Data

Graf, Rudolf F.

Modern dictionary of electronics / Rudolf F. Graf. — 7th ed.,
revised and updated.

p. cm.

ISBN 0-7506-9866-7 (alk. paper)

1. Electronics—Dictionaries. I. Title

TK7804.G67 1999

621.381'03—dc21

99-17889

CIP

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

The publisher offers special discounts on bulk orders of this book.

For information, please contact:

Manager of Special Sales

Butterworth-Heinemann

225 Wildwood Avenue

Woburn, MA 01801-2041

Tel: 781-904-2500

Fax: 781-904-2620

For information on all Butterworth-Heinemann publications available, contact
our World Wide Web home page at: <http://www.bh.com>

10 9 8 7 6 5 4 3 2 1

Typeset by Laser Words, Madras, India

Printed in the United States of America

mesh current—The current assumed to exist over all cross sections of a closed path in a network. It may be the total current in a branch included in the path, or a partial current that, when combined with the others, forms the total current.

message—1. An ordered selection of an agreed set of symbols for the purpose of communicating information. 2. The original modulating wave in a communication system. 3. An arbitrary amount of information whose beginning and end are defined or implied. 4. One or more blocks of data that contain the total information to be transmitted. 5. A group of characters that have a meaning when taken together and that always are handled as a group.

message center—Communication agency charged with the responsibility for acceptance, preparation for transmission, receipt, and delivery of messages.

message circuit—A long-distance telephone circuit used in providing regular long-distance or toll service to the general public, as opposed to a circuit used for private-line service.

message exchange—A service used between a communications line and a computer to perform certain communications functions and free the computer for other tasks.

message interpolation—Insertion of data between syllables or during speech pauses on a busy voice channel without noticeably affecting the voice transmission.

message precedence—Designations employed to indicate the relative order in which a message of one precedence designation is handled with respect to all other precedence designations.

message switching—1. The technique of data transmission in which data may be received, stored until the proper line is available, then retransmitted. No direct connection is set up between the originator of the data and its destination. 2. Routing messages between three or more locations by store-and-forward techniques in a computer.

message unit—1. A unit of measurement used in charging for local telephone messages, based on time and distance between the parties. 2. Call measurement for a call within a local service area for which charges are accrued.

message-waiting lamp—A small lamp on a telephone set that can be lighted (or flashed) from the switchboard (or call waiting panel) to notify a hotel or motel guest that a message is being held for him or her.

metadyne—British term for amplidyne. A direct-current machine used for voltage regulation or transformation. It has more than two brushes for each pair of holes.

metal—A material that has high electrical and thermal conductivity at normal temperatures.

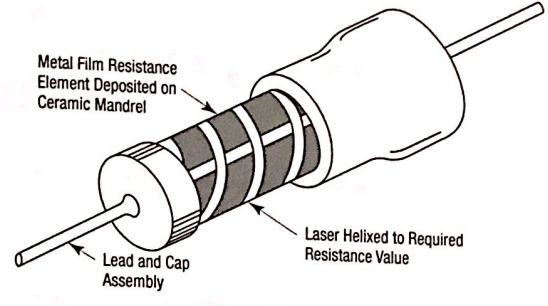
metal-base transistor—A transistor with a base of a thin metal film sandwiched between two n-type semiconductors, with the emitter doped more heavily than the base to give it a high electron-current-to-hole-current ratio.

metal detector—Also called metal locator. An electronic device for detecting concealed metal objects.

metal-etched mask—A mask formed by chemically etching openings in a metal film or plate where it is not protected by photoresist or other chemically resistant material.

metal film resistor—An electronic component in which the resistive element is an extremely thin layer of metal alloy vacuum-deposited on a substrate.

metal foil capacitor—A capacitor in which the electrodes consist of metal foils separated by a dielectric consisting of plastic film or paper.



Metal film resistor.

metal gate—Refers to the use of aluminum as the gate conductor instead of silicon or refractory metals.

metal halide lamp—A discharge lamp in which the light is produced by the radiation from a mixture of metallic vapor (for example, mercury) and the products of the disassociation of halides (for example, halides of thallium, indium, or sodium).

metal-insulator silicon—See MIS.

metallic circuit—A circuit in which the earth itself is not used as ground.

metallic insulator—A shorted quarter-wave section of transmission line, which acts as an electrical insulator at the transmitted frequency.

metallic noise—Weighted noise current in a metallic circuit at a given point when the circuit is terminated at that point in the nominal characteristic impedance of the circuit.

metallic rectifier—A rectifier in which the asymmetrical junction between dissimilar solid conductors presents a high resistance to current flow in one direction and a low resistance in the opposite direction.

metallic rectifier cell—An elementary rectifying device having only one positive electrode, negative electrode, and rectifying junction.

metallic-rectifier stack—A single structure made up of one or more metallic rectifier cells.

metallization—1. The deposition of a thin-film pattern of conductive material onto a substrate to provide interconnection of electronic components or to provide conductive contacts (pads) for interconnections. 2. A film pattern (single or multilayer) of conductive material deposited on a substrate to interconnect electronic components, or the metal film on the bonding area of a substrate that becomes a part of the bond and performs both electrical and mechanical functions. 3. The selective deposition of metal film on a substrate to form conductive interconnection between IC elements and points for connections with the outside world.

metallized capacitor—A capacitor that is made with dielectric film that has had metal vacuum-deposited on it. This thin metallization restricts the maximum current capacity, but at the same time provides a very high volumetric efficiency and a unique self-healing property. Any internal arcover (which could be triggered by a transient voltage spike) will usually clear itself by vaporizing the deposited metal film in the immediate area, thus extending the arc path beyond the sustaining gap length limit. Foil capacitors cannot clear in this manner and may therefore sustain the arcovers and short out.

metallized resistor—A fixed resistor in which the resistance element is a thin film of metal deposited on the surface of a glass or ceramic substrate.

metallizing—Applying a thin coating of metal to a nonmetallic surface. This may be done by chemical