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AS 1102 Parts 10¹ to 110 supersede AS 1102.1—1985,
AS 1102.2—1981, AS 1102.3—1983, AS 1102.4—1983,
AS 1102.5—1983, AS 1102.6—1982, AS 1102.7—1982,
AS 1102.10—1985, AS 1102.11—1985, AS 1102.13—1979 and
AS 1102.14—1979.

AS 1102, Part 13—1979
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Australian Standard 1102, Part 13—1979

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GRAPHICAL SYMBOLS FOR ELECTROTECHNOLOGY

MICROWAVE TECHNOLOGY



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Electrical and Electronic Manufacturers Association
Australian Institute of Refrigeration, Air Conditioning and Heating Inc.
Confederation of Australian Industry
Department of Construction
Department of Defence
Department of Industry and Commerce
Department of Transport
Department of Productivity
Electricity Supply Association of Australia
Institute of Draftsmen, Australia
Institution of Radio and Electronics Engineers, Australia
Melbourne and Metropolitan Board of Works
Railways of Australia Committee
Queensland Chamber of Mines
The Technical Press
Telecom Australia

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To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

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AUSTRALIAN STANDARD

**GRAPHICAL SYMBOLS
FOR ELECTROTECHNOLOGY**

**Part 13
MICROWAVE
TECHNOLOGY**

AS 1102, Part 13—1979

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PREFACE

This standard is one of a series being prepared by the Association's Committee on Symbols, Units and Quantities for Electrotechnology under the authority of both the Telecommunications and Electronics, and the Electrical Standards Board.

In its terminology, format and general treatment of the subject, this standard is technically identical with the recommendations of publications 117-11 and 117-11A of the International Electrotechnical Commission (IEC), and acknowledgement is made of the assistance received therefrom.

This Part is only one in a series forming a comprehensive standard on graphical symbols for use generally in the field of electrotechnology. The purpose of the Part is to specify symbols representing microwave elements and devices suitable for use in circuit diagrams. Symbols for various elements and functions may be combined to further describe the microwave devices for which general symbols are given. Examples illustrate certain of these particular applications, and the method to be followed for using symbols in diagrams and combining them with symbols specified in other Parts of this standard.

Some qualifying symbols and letter symbols necessary to identify the device are given in the standard but for a full understanding of the methods adopted reference is required to the following Australian standards:

- AS 1100 Drawing Practice
Part 6—Letters, Numerals and Symbols
- AS 1102 Graphical Symbols for Electrotechnology
Part 1—General, Qualifying and Supplementary Symbols
Part 2—Conductors and Connecting Devices
Part 4—Electron Tubes and Rectifiers
Part 10—Signal Transmission Symbols
- AS 1103 Diagrams, Charts and Tables for Electrotechnology
Part 1—Definitions and Classifications
Part 3—Basic Principles for the Presentation of Elements of Electrical Diagrams
Part 4—Guiding Principles for the Presentation of Circuit Diagrams
- AS 1046 Letter Symbols for Use in Electrotechnology
Part 1—General
Part 2—Telecommunications and Electronics

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
GRAPHICAL SYMBOLS FOR ELECTROTECHNOLOGY

PART 13—MICROWAVE TECHNOLOGY

SECTION 1. SPECIFICATION

1.1 SCOPE. This standard specifies graphical symbols for microwave elements, devices and tubes, lasers and masers for use in electrical and electronic circuit diagrams. Examples of the use of the symbols are given in order to establish the method to be adopted in constructing further symbols.

This standard requires reference to AS 1102, Part 1 and Part 2, for a full understanding of the methods adopted. Some symbols are common to Part 4.

1.2 GENERAL.

1.2.1 Relationship with IEC Symbols. Symbols are identical with those internationally agreed within the IEC except where established usage in Australia makes unqualified acceptance of the symbol difficult. In such cases an alternative symbol may be shown, with the object of adopting the IEC proposal as soon as practicable. However, only one form of any symbol shall be used on a single diagram or series of drawings.

1.2.2 Size of Symbols. Precise dimensions and proportions of graphical symbols are difficult to specify. The size of the symbols and characters used in this standard is regarded as the minimum desirable for reproduction by the various methods in use.

The relative sizes of the symbols should be preserved except where it is necessary to enlarge a symbol to give it prominence in a diagram or to provide adequate space within or around it to show symbols for associated components, or for coding.

At all times, however, the relative proportions of the symbols should be maintained such that each symbol shall be unique and immediately recognizable.

1.2.3 Drawing Practice. In general the drawing of graphical symbols for use on wiring or circuit diagrams should comply with the requirements of AS 1100 (in particular with Part 6), and AS 1103, Part 3 and Part 4.

1.2.4 Qualifying and Supplementary Symbols. Such symbols are added to component symbols where necessary in order to define more closely the item concerned as to type or function. For example Symbol 1.31 from AS 1102, Part 1, when added to Symbol 13.21 herein (the symbol for discontinuity, two-port) will produce Symbol 13.22 which indicates a variable discontinuity or matching device.

Supplementary symbols define the qualified component even more closely; for example, the variability symbol can be further qualified with a supplementary symbol indicating continuous variability or stepped variability.

Qualifying symbols may not be employed independently, but it should be noted that component symbols may be used as qualifying symbols where appropriate.

1.2.5 Terminology. The terms and definitions employed in this standard are given in AS 1103, Part 1.

1.2.6 New Symbols. If a symbol for a particular type of component is not shown as an example in this standard, it should be possible to produce it from the basic symbol and qualifying symbols. New symbols for specialized components should not be created.

1.2.7 Symbol Orientation. Orientation of a symbol, including mirror image reversal, does not change the meaning of a symbol.