

AS 1955, Part 1—1977
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Australian Standard[®]

SEMICONDUCTOR CONVERTORS

Part 1-GENERAL

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Associated Chambers of Manufacturers of Australia
Australian Electrical Manufacturers Association
Bureau of Steel Manufacturers of Australia
Department of Defence
Electricity Supply Association of Australia
Railways of Australia Committee
Telecom Australia
Universities

This standard, prepared by the Committee EL/27, Power Electronics, was approved on behalf of the Council of the Standards Association of Australia on 22 July 1976, and was published on 1 July 1977.

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SEMICONDUCTOR CONVERTORS
Part 1-GENERAL

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PREFACE

This standard was originally prepared by the Association's Committee EL/27, Power Electronics, in 1977. In 1983 the committee reviewed the standard and reconfirmed it as an Australian standard without change. It is based on Publication 146, Semiconductor Convertors, published by the International Electrotechnical Commission (IEC). Acknowledgement is made of the assistance received from this source.

The IEC standard was examined in terms of Australian practice and amended where necessary. In the main the amendments consist of editorial changes not involving change in basic meanings, renumbering of clauses and re-arrangement of Section 1 to ensure conformity with the style of Australian standards.

Technical changes are few, but where the standard does deviate technically from the IEC standard by way of actual change, or cross-reference to an appropriate Australian standard, this change is indicated by a rule in the margin.

The purpose of the standard is to define the terminology and specify the symbols, requirements and test methods appropriate to semiconductor convertors and transformers. Information is also given on individual semi-conductor diodes and thyristors. Further information on these components may be obtained by reference to the Australian equivalents of IEC Publication 147, Part 0, 1 and 2 and 148. These documents are listed below.

Attention is drawn to the need to cross-refer to the following Australian standards to amplify the information given herein:

| | |
|---------|--|
| AS 1102 | Graphical Symbols for Electro-technology Part 5—Semiconductor Devices Part 10—Signal Transmission Symbols |
| AS 1852 | International Electrotechnical Vocabulary (05) Fundamental Definitions (11) Static Convertors |
| AS C61 | Power Transformers |
| AS C320 | Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service |
| AS C366 | Essential Ratings and Characteristics of Semiconductor Devices and General Principles of Measuring Methods Part 0—General and Terminology Part 1—Essential Ratings and Characteristics Part 2—General Principles of Measuring Methods |
| AS C367 | Letter Symbols for Semiconductor Devices and Integrated Microcircuits |

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STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard Specification
for
SEMICONDUCTOR CONVERTORS**

PART 1—GENERAL

SECTION 1. GENERAL

1.1 Scope

This standard specifies requirements for semiconductor rectifiers, diodes and thyristors, converter* transformers and reactors, and converter equipments and assemblies together with tolerances on rated values and conditions, and performance requirements and application information. In addition, letter symbols and definitions are provided for terms used in conjunction with such devices and equipments.

1.2 Application

This standard applies to static power converters of the line- or machine-commutated type for conversion from a.c. to d.c. or from d.c. to a.c., i.e. rectifiers, inverters and converters embodying both modes of operation. It applies also to converters for control of alternating voltage and converters in which the commutating voltage is supplied by the load circuit, e.g. a resonating load.

The standard is restricted to converters with semiconductor rectifier diodes, reverse blocking triode thyristors or a combination of these, but it may also be applied for converters with bidirectional thyristors in so far as applicable. The term 'thyristor' is used in the standard as an abbreviation for reverse blocking triode thyristor.

The standard does not apply to converters in which the commutating voltage is supplied by internal sources, e.g. capacitors, frequency converters, converters used in telecommunication apparatus other than for power supplied to such equipment, to auxiliaries of measuring instruments, or system control equipments for control of static power converters.

Special kinds of converters, e.g. converters for adjustable speed d.c. motor drives, power converters for electric traction, converters for control of alternating voltage, self-commutated inverters, d.c. to d.c. converters, etc. are not covered by this standard.

1.3 Reference to Other Specifications.

This standard makes reference to the following:

- | | |
|---------|--|
| AS 1852 | International Electrotechnical Vocabulary (05)—Fundamental Definitions; Section 41. (11)—Static Convertors. |
| AS C366 | Essential Ratings and Characteristics of Semiconductor Devices and General Principles of Measuring Methods Part 0—General and Terminology Part 1—Essential Ratings and Characteristics Part 2—General Principles of Measuring Methods |
| AS C367 | Letter Symbols for Semiconductor Devices and Integrated Micro-circuits |
| AS 1102 | Graphical Symbols for Electrotechnology Part 5—Semiconductor Devices Part 10—Signal Transmission Symbols. |

* The spelling of the word 'converter' in this standard is in line with that used in IEC Publication 146, Semiconductor Convertors, from which the standard is derived. The Committee considered changing this to the form normally used in Australia but decided to leave the spelling unchanged and merely to note that both spellings are acceptable.